

**Program: LOCAL AUTHORITIES WASTE PREVENTION TRAINING –  
LAWPreT**

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# **Waste Prevention Guide**

**Four steps to implement  
Waste Prevention in my municipality  
(Draft)**



**Athens – Greece  
December 2015**

## **Activity Leading Organisation:**

- Ecological Recycling Society (ERS) – Greece [www.ecorec.gr](http://www.ecorec.gr)

## **Participating Organisations:**

- Znanstveno raziskovalno sredisce Bistra Ptuj – Slovenia  
[www.bistra.si](http://www.bistra.si)
- CRE.THI.DEV Creative Thinking Development – Ελλάδα, Σόλωνος 8,  
Αττική [www.crethidev.gr](http://www.crethidev.gr)
- Up To date Training Ltd – Cyprus [www.uptodatecy.com](http://www.uptodatecy.com)
- Dimos Athinaion – Greece [www.cityofathens.gr](http://www.cityofathens.gr)
- EGTC EFXINI POLI - SOLIDARCITY NETWORK – Greece  
[www.efxini.gr](http://www.efxini.gr)
- Reuse and Recycling European Union Social Enterprises –  
Belgium [www.rreuse.org](http://www.rreuse.org)

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# **Acronyms**

<b>LA</b>	<b>Local Authority</b>
<b>C&amp;D Waste</b>	<b>Construction and Demolition Waste</b>
<b>WEEE</b>	<b>Waste of Electrical and Electronic Equipment</b>
<b>SPP</b>	<b>Sustainable Public Procurement</b>
<b>AI</b>	<b>Administrative Initiatives</b>
<b>PAYT</b>	<b>Pay as You Throw</b>
<b>GP</b>	<b>Green Points</b>

# **Waste Prevention Guide Vol. II**

## **4 Steps to Implementing Waste Prevention in my Local Authority**

### **Preface**

The Waste Prevention Guide was produced within the framework of the ERASMUS+ project entitled: "LAWPreT - Local Authorities Waste Prevention Training". This volume Prevention Guide, is the second volume of a single Waste Prevention Guide, addressing local authority (LA) staff members, and together with the first volume provides all the basic information on the Waste Prevention as well as instructions to direct the planning and implementation of prevention actions in LAs.

More specifically, the objective of this second volume of the Waste Prevention Guide is to provide Local Authorities' staff basic knowledge and experience in order to be able to: a) develop a targeted prevention plan for their municipality / community, and b) to implement many of the prevention actions that they will propose.

The Waste Prevention Guide (Volumes I and II) provides very useful training material for a long distance 3 week-long seminar, which is also part of LAWPreT project. The long distance seminar gives the opportunity to LA' staff members to maximize their knowledge and to achieve the aims set-out in this guide. Volume I of the Prevention Guide and the rest of the training and information material can be found on the project website [www.waste-prevention.gr](http://www.waste-prevention.gr)

The Waste Prevention Guide was tested and discussed in pilot seminars for LA employees, who participated voluntarily, used the Prevention Guide and made comments and suggestions which were very constructive for the finalization of the Guide. We would like to thank all the participants from various municipalities / communities in Greece, Cyprus and Slovenia for their contribution.

We would also like to thank the State Scholarships Foundation-IKY for funding the project and for the excellent cooperation with the project team.

We hope that the Waste Prevention Guide will be a valuable tool for LAs to speed up the procedures for the effective implementation of many prevention activities in Greece, Cyprus and Slovenia, but also in countries within and outside the EU.

Dr. Philippos Kyriktsos  
Editorial Manager of the Waste Prevention Guide

# Introduction

The Waste Prevention Guide, is the second volume of a single Waste Prevention Guide, addressing local authorities' (LA) staff members, and together with the first volume provides all the basic information on the Waste Prevention as well as instructions to direct the planning and implementation of prevention actions in LAs. This second volume, gives to LA staff and managers the opportunity:

- To gain in a relatively short amount of time the basic knowledge about all waste streams and products for which they can develop prevention activities in their local authorities,
- To gain experience, in the depth and give emphasis where they wish, on good prevention practices in other countries
- To be able to develop a specific prevention plan that is best-suited to the needs and the abilities of their local authority.
- To be able to implement many of the prevention activities that they will propose,
- To be able to monitor and fine tune the prevention activities that they implement.

To facilitate LAs staff members and managers, the Prevention Guide consists of four comprehensive steps with the following content:

**Step I – Learning:** This is the most important step; it attempts to fill the big information gap on Prevention, particularly in countries such as Greece and Cyprus. It comprehensively presents: a) the basic knowledge on materials and products, for which prevention activities can be implemented, b) municipal or community sites, that can be used to implement prevention actions, c) the administrative and other measures that a LA may choose, to maximize waste prevention, and d) the best practices, case studies and videos on prevention activities in various countries in order to gain valuable experience. For the most efficient use of the Guide all prevention actions are divided in 24 thematic fields of which 13 concern materials and products, 6 concern sites where prevention actions can take place and the remaining five concern administrative initiatives of local authorities.

**Step II – Planning:** It presents the basic actions that must be done to prepare a Prevention Action Plan in the LA. These actions are a) the creation of a Prevention Team in the LA, b) the assessment of the actual management cost of each material or product, that now ends as waste in order to quantify the economic benefits of prevention, c) the evaluation and the identification of specific characteristics of the LA, which should be taken into account in the selection of prevention actions, and d) the acquisition of knowledge and skills to identify appropriate prevention targets and monitoring indicators, depending on the selected activities.

**Step III– Selection:** In this step, the methodology and criteria that can be used by a LA, to choose the thematic field and the appropriate prevention actions are presented and analyzed, depending on its particular characteristics, needs and capabilities. In addition, potentially appropriate prevention actions can be selected from a large database of Good Practices of other countries, from which the final choice for implementation can be made.

**Step IV– Implementation – Evaluation – fine tuning:** This step presents the various stages for the effective implementation of selected prevention actions, the systematic monitoring and the evaluation of implementation as well as ways to redesign and make corrective moves.

To maximize the use of time of LA staff members, the material accompanying this Guide is in "interface" form (link) or directly linked with the Platform of the LAWPreT project ([www.waste-prevention.gr](http://www.waste-prevention.gr)), or links the User directly to other websites (eg Best Practices or videos).

The Prevention Guide, as all Outputs of LAWPreT project, are translated into three languages (Greek, English and Slovenian), to enable LA staff from Greece, Cyprus and Slovenia to use them in their native language. It is also available in English. The proposed accompanying material Guide (Good Practices, video) is mostly in English, and therefore basic knowledge of English by the trainees will maximize the achievement of the Guide's objectives. But even if a trainee from Greece, Cyprus and Slovenia, is not familiar with English, it is possible to effectively use the Guide and achieve its main objectives.

If the LA staff members and managers can commit more time (approx. 90 hours), then they could take part in the long distance seminar ([www.waste-prevention.gr](http://www.waste-prevention.gr)), through which they will have the appropriate directions to study more training and supporting material of this Guide, so as to be able to design and implement prevention actions in their LA with greater safety and experience.

Clearly to implement any or several "difficult" Prevention actions, additional external assistance from specialized consultants may be required, but the Prevention Guide and the rest of LAWPreT project's material is considered sufficient for the design and implementation of the vast majority of Prevention actions that can be implemented locally. But above all the basic requirement to effectively implement waste prevention actions locally is the strong will of someone or some members of the LA, who are willing to give commit to the implementation actions with enthusiasm and gusto.

We hope that this Training Guide will contribute in designing and implementing prevention actions not only in Greece, Cyprus and Slovenia, but also in many other countries.

# **Step I**

# **“Learning”**

# 1. Step I "Learning"

## 1.1 Materials and Products Data for implementation of Waste Prevention

This chapter presents basic data and relevant information on the major materials and products, which can be implemented prevention actions in LAs. This data and information is given to a particular coded frame, common to all materials. For each material and product are given the follows: a) the basic qualitative and quantitative information, b) estimated management costs, c) potential environmental – social or other effects, d) documents and international Best Practices and e some prevention ideas.

### 1.1.1 Plastic bag

No	Categories of Data	Plastic bag
1	General information	<p>Plastic bags are a popular and easy to use product that is used extensively for the transportation of goods, mainly from the store to the house. Also, plastic bags are widely used as a means for packaging and transportation of domestic waste. The characteristics that made plastic bags a commercial success (low weight and high endurance) have led to a constant increase of their consumption, resulting in growing concern among public institutions and policy makers, inside and outside the EU. Concerns stem mainly from the accumulation of plastic bags in the environment as well as from the inefficient use of resources. In the EU plastic bags are considered packaging material, according to the EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE 94/62/EC on packaging and packaging waste, as amended and is available (<a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01994L0062-20150526">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01994L0062-20150526</a>), which includes the following definitions:</p> <ul style="list-style-type: none"><li>• “<b>plastic</b>” shall mean a polymer within the meaning of Article 3(5) of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (9), to which additives or other substances may have been added, and which is capable of functioning as a main structural component of carrier bags;</li><li>• “<b>plastic carrier bags</b>” shall mean carrier bags, with or without handle, made of plastic, which are supplied to consumers at the point of sale of goods or products;</li><li>• “<b>lightweight plastic carrier bags</b>” shall mean plastic carrier bags with a wall thickness below 50 microns;</li><li>• “<b>very lightweight plastic carrier bags</b>” shall mean plastic carrier bags with a wall thickness below 15 microns which are required for hygiene purposes or provided as primary packaging for loose food when this helps to prevent food wastage;</li><li>• “<b>oxo-degradable plastic carrier bags</b>” shall mean plastic carrier bags made of plastic materials that include additives which catalyze the fragmentation of the plastic material into micro-fragments;</li></ul> <p>The material used for the production of plastic bags is mainly poly-ethylene (PE) polymers (high density polyethylene, PE-HD or HDPE, used for single use bags or low density polyethylene, PE-LD or LDPE, for multiple use bags) and less other plastic materials.</p> <p>Truly biodegradable plastic bags are made of materials from biological sources and are able to deconstruct in physical, chemical, thermal or biological ways under certain conditions. Compostable biopolymers are biodegradable materials that fulfill certain conditions (the European standard EN 1343) concerning time and degree of</p>

		biodegradation and environmental impacts.																																																																																				
2	Waste quantitative data	<p>According to the European Commission (<a href="http://eur-lex.europa.eu/legal-content/EL/TXT/PDF/?uri=CELEX:52013SC0443&amp;from=EN">http://eur-lex.europa.eu/legal-content/EL/TXT/PDF/?uri=CELEX:52013SC0443&amp;from=EN</a>), it was estimated that in 2010:</p> <ul style="list-style-type: none"> <li>• About 100 billion plastic bags were sold in the EU market</li> <li>• Every EU citizen used an average of 198 such bags, 89% of which are single-use. That amounts to more than one bag per day for each household</li> <li>• The annual consumption of plastic bags per capita varies significantly between member states, ranging from an estimate of 4 bags/capita in Denmark and Finland to about 466 in Poland, Portugal and Slovakia. These differences are caused by consumer habits, environmental conscience of the consumers as well as the existence, effectiveness and implementation of relevant policies.</li> <li>• The table below presents the average use of single and multiple use plastic carrier bags per capita in the EU-27 member states (data from and after 2010 )</li> </ul> <table border="1"> <caption>Data from the chart (approximate values)</caption> <thead> <tr> <th>Country</th> <th>Single-Use Plastic Carrier Bags (Red)</th> <th>Multiple Use Plastic Bags (Yellow)</th> </tr> </thead> <tbody> <tr><td>Estonia</td><td>~520</td><td>~520</td></tr> <tr><td>Hungary</td><td>~520</td><td>~520</td></tr> <tr><td>Latvia</td><td>~520</td><td>~520</td></tr> <tr><td>Lithuania</td><td>~520</td><td>~520</td></tr> <tr><td>Poland</td><td>~520</td><td>~520</td></tr> <tr><td>Portugal</td><td>~520</td><td>~520</td></tr> <tr><td>Slovakia</td><td>~520</td><td>~520</td></tr> <tr><td>Czech Republic</td><td>~280</td><td>~320</td></tr> <tr><td>Romania</td><td>~280</td><td>~280</td></tr> <tr><td>Bulgaria</td><td>~250</td><td>~420</td></tr> <tr><td>Greece</td><td>~220</td><td>~220</td></tr> <tr><td>Italy</td><td>~200</td><td>~200</td></tr> <tr><td>EU-27</td><td>~180</td><td>~200</td></tr> <tr><td>UK</td><td>~150</td><td>~150</td></tr> <tr><td>Cyprus</td><td>~120</td><td>~120</td></tr> <tr><td>Spain</td><td>~120</td><td>~120</td></tr> <tr><td>Malta</td><td>~100</td><td>~100</td></tr> <tr><td>Sweden</td><td>~100</td><td>~100</td></tr> <tr><td>Belgium</td><td>~80</td><td>~80</td></tr> <tr><td>France</td><td>~80</td><td>~80</td></tr> <tr><td>Netherlands</td><td>~60</td><td>~60</td></tr> <tr><td>Germany</td><td>~40</td><td>~40</td></tr> <tr><td>Austria</td><td>~20</td><td>~20</td></tr> <tr><td>Ireland</td><td>~10</td><td>~10</td></tr> <tr><td>Luxembourg</td><td>~10</td><td>~10</td></tr> <tr><td>Denmark</td><td>~10</td><td>~10</td></tr> <tr><td>Finland</td><td>~10</td><td>~10</td></tr> </tbody> </table> <p>Only a minor percentage of plastic bags in the EU are recycled (6,6%). The main volume of plastic bags collected through the municipal or private waste collection systems in the EU is sent to landfills (49,7% or 710.000 tons a year). The EU produces a total of 1.124.074 tons of plastic bags per year, of which 239.250 tons are single use non degradable, 10.831 tons are single use biodegradable and 873.993 tons are multiple use. There are 250-300 companies in the EU, employing a total of 15.000-20.000 persons, which produce plastic carrier bags. Italy holds traditionally the first place for the production of plastic sacks and bags, producing 24,3% of the total in 2012 (based on quantities of bags), followed by Germany (15,2%) and France. About 30% of all plastic bags and 70% of single use plastic carrier bags in the EU are imported (mainly from Asia).</p> <p>In 2010, more than 8 billion plastic bags have been discarded directly to the environment in the EU, which represents more than 8% of the amount of plastic bags consumed in the EU. Single use plastic carrier bags, amounting to 90% of the plastic bags used in the EU, are the majority of the discarded bags.</p> <p>For the year 2020 it is estimated that more than 8 billion plastic bags will end up uncontrolled into the environment.</p> <p><b>Data about plastic bags in Greece:</b></p> <p>In Greece, the quantity of imports for sacks and bags has shown minimal fluctuations in the last four years and has been estimated to 17.000 tons for the year 2012. The main countries of origin for this category of products in 2012 were: Turkey (16.9% of the total), Germany (14,8%) and Italy (12,2%). Exports for sacks and bags were about 5.000 tons for the years 2011-2012, with 59% of the exported items being directed to Bulgaria, Cyprus and Romania.</p> <p>The overall consumption of plastic bags increase on average by 4% per year, in the years 1992-2008. Contrary to that, the last years have shown a significant decline of consumption, which has reached 58.000 tons in 2012, reduced by 17% compared to 2010, mainly due to the recession.</p> <p>(Data included in the ICAP SECTORAL STUDY ABOUT PLASTIC PACKAGING, Athens, 2013)</p>	Country	Single-Use Plastic Carrier Bags (Red)	Multiple Use Plastic Bags (Yellow)	Estonia	~520	~520	Hungary	~520	~520	Latvia	~520	~520	Lithuania	~520	~520	Poland	~520	~520	Portugal	~520	~520	Slovakia	~520	~520	Czech Republic	~280	~320	Romania	~280	~280	Bulgaria	~250	~420	Greece	~220	~220	Italy	~200	~200	EU-27	~180	~200	UK	~150	~150	Cyprus	~120	~120	Spain	~120	~120	Malta	~100	~100	Sweden	~100	~100	Belgium	~80	~80	France	~80	~80	Netherlands	~60	~60	Germany	~40	~40	Austria	~20	~20	Ireland	~10	~10	Luxembourg	~10	~10	Denmark	~10	~10	Finland	~10	~10
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3	Environmental impacts of the	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Significant</b></li> <li>• Water consumption: <b>Significant</b></li> </ul>																																																																																				

	product – material as waste	<ul style="list-style-type: none"> <li>• Consumption of raw materials: <b>Significant</b></li> <li>• Increase of air pollution: <b>Significant</b></li> <li>• Pollution increase of water recipients: <b>Significant</b></li> <li>• Increasing rain acidity: <b>Small</b></li> <li>• Climate Change: <b>Significant</b></li> <li>• Contribution in the "Ozone Hole": <b>Small</b></li> <li>• Negative impact on terrestrial ecosystems: <b>Significant</b></li> <li>• Negative impact on water ecosystems: <b>Significant</b></li> <li>• Negative impact on flora: <b>Small</b></li> <li>• Negative impact on fauna: <b>Significant</b></li> <li>• Negative impact on marine species: <b>Significant</b></li> <li>• Negative impact on endangered species: <b>Significant</b></li> <li>• Negative impact on birds: <b>Significant</b></li> <li>• Contains dangerous substances for the environment: <b>Significant</b></li> <li>• Deteriorates the landscape: <b>Significant</b></li> </ul> <p><b>Relevant links</b></p> <ul style="list-style-type: none"> <li>• <a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01994L0062-20150526">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01994L0062-20150526</a> (ΟΔΗΓΙΑ (ΕΕ) 2015/720 ΤΟΥ ΕΥΡΩΠΑΪΚΟΥ ΚΟΙΝΟΒΟΥΛΙΟΥ ΚΑΙ ΤΟΥ ΣΥΜΒΟΥΛΙΟΥ)</li> <li>• <a href="http://ec.europa.eu/environment/integration/research/newsalert/pdf/IR1_en.pdf">http://ec.europa.eu/environment/integration/research/newsalert/pdf/IR1_en.pdf</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf">http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf</a></li> <li>• <a href="http://www.researchgate.net/profile/Hsien_Khoo/publication/225785342_Environmental_impacts_of_conventional_plastic_and_bio-based_carrier_bags/links/0f31753b4afca6f3a5000000.pdf">http://www.researchgate.net/profile/Hsien_Khoo/publication/225785342_Environmental_impacts_of_conventional_plastic_and_bio-based_carrier_bags/links/0f31753b4afca6f3a5000000.pdf</a></li> <li>• <a href="http://macaulay.cuny.edu/eportfolios/branco2014/files/2014/08/Derraik-1992.pdf">http://macaulay.cuny.edu/eportfolios/branco2014/files/2014/08/Derraik-1992.pdf</a></li> <li>• <a href="http://water.epa.gov/type/oceb/marinedebris/md_impacts.cfm">http://water.epa.gov/type/oceb/marinedebris/md_impacts.cfm</a></li> <li>• <a href="http://www.eea.europa.eu/articles/when-plastics-fill-our-oceans">http://www.eea.europa.eu/articles/when-plastics-fill-our-oceans</a></li> <li>• <a href="http://www.cleanup.org.au/au/Campaigns/plastic-bag-facts.html">http://www.cleanup.org.au/au/Campaigns/plastic-bag-facts.html</a></li> </ul>
4	Health impact	<ul style="list-style-type: none"> <li>• Chances of it entering the food chain?: <b>Very</b></li> <li>• Chances of it containing hazardous to public health substances?: <b>Significant</b></li> <li>• Has it been found to have negative impact on public health?: <b>Significant</b></li> <li>• Has it been found to increase the risk of mortality?: <b>Slightly</b></li> <li>• Has it been found to increase the risk of morbidity: <b>Slightly</b></li> <li>• Has it been found to increase the risk of accident?: <b>Slightly</b></li> <li>• Has it been found to increase the risk of accident? <b>Slightly</b></li> </ul> <p><b>Relevant links</b></p> <p><a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01994L0062-20150526">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01994L0062-20150526</a> (EU Directive 2015/720 of European Parliament and Council)</p> <p>GREEN PAPER On a European Strategy on Plastic Waste in the Environment (<a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0123">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0123</a>)</p> <p><a href="http://ec.europa.eu/environment/integration/research/newsalert/pdf/IR1_en.pdf">http://ec.europa.eu/environment/integration/research/newsalert/pdf/IR1_en.pdf</a></p> <p><a href="http://www.unep.org/yearbook/2011/pdfs/plastic_debris_in_the_ocean.pdf">http://www.unep.org/yearbook/2011/pdfs/plastic_debris_in_the_ocean.pdf</a></p> <p><a href="http://www.unep.org/geo/pdfs/geo5/GEO5_report_C6.pdf">http://www.unep.org/geo/pdfs/geo5/GEO5_report_C6.pdf</a></p> <p><a href="http://rstb.royalsocietypublishing.org/content/364/1526/2153">http://rstb.royalsocietypublishing.org/content/364/1526/2153</a></p> <p><a href="http://ecologycenter.org/factsheets/adverse-health-effects-of-plastics/">http://ecologycenter.org/factsheets/adverse-health-effects-of-plastics/</a></p>
5	Other negative characteristics as waste	<p>Has it been found to increase the risk of fire?: <b>Significantly</b></p> <p>Has it been found to increase child labor?: <b>Significantly</b></p> <p>Has it been found to increase illegal work?: <b>Significantly</b></p> <p>Has it been found to increase the hidden economy?: <b>Significantly</b></p> <p>It may also cause negative effects on the following:</p> <ul style="list-style-type: none"> <li>• <b>On cross-border impacts for non-EU countries' citizens</b>, due to the cross-</li> </ul>

		<p>border characteristics of pollution and waste, especially marine litter. Also, plastic waste, including plastic bags, are increasingly directed out of the EU for end-of-life management. This causes environmental impacts, such as greenhouse gas emissions which are connected to transportation and, in certain cases, with management in facilities that do not conform to the operation specifications.</p> <ul style="list-style-type: none"> <li>• <b>Tourism and local businesses impacts:</b> uncontrolled disposal of plastic bags directly to the environment causes aesthetic costs to society and can influence local, tourism related businesses.</li> <li>• <b>Fishery impacts:</b> Marine litter and pollution from plastic bags leads to losses of fishery stocks, which translates to "raw material" loss for the fishing sector, as well as loss of fishing time and extra costs due to equipment malfunctions.</li> </ul> <p><b>Relevant links.</b></p> <ul style="list-style-type: none"> <li>• (EU Directive 2015/720 of European Parliament and Council) (<a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01994L0062-20150526">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:01994L0062-20150526</a>)</li> <li>• GREEN PAPER On a European Strategy on Plastic Waste in the Environment (<a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0123">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0123</a>)</li> <li>• <a href="http://www.zerowasteeurope.eu/category/plastic-bag/">http://www.zerowasteeurope.eu/category/plastic-bag/</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/packaging/pdf/report_options.pdf">http://ec.europa.eu/environment/waste/packaging/pdf/report_options.pdf</a></li> </ul>
6	Management cost	<ul style="list-style-type: none"> <li>• Is the management cost or the product – material higher or lower of the average waste management cost: <b>Higher</b></li> <li>• Assessment of the typical range of management cost: <b>From 88 €/t έως 318 €/t</b> (ERS, 2015)</li> </ul> <p>It is considered that plastic bags are directed for final disposal to landfills along with other non-hazardous waste.</p> <p>Other management costs</p> <p>Plastic bags, instead of being disposed in landfills, can be: a) recycled, b) treated along with other waste, either in MBT treatment units or waste incineration units, or c) be integrated with other fuels in order to recover energy for suitable industries. Each of these solutions has an overall management cost comparable or much larger than that of landfill disposal. More data can be found in the European Study for waste management costs in EU countries (Eunomia, <a href="#">Costs for Municipal Waste Management in the EU</a>, DG Environment, 2002).</p>
7	Possible advantages of prevention activities	<ul style="list-style-type: none"> <li>• Are there prevention activities that can reduce "significantly" or even "little" waste production?: <b>Yes</b></li> <li>• Are there prevention activities that can reduce "significantly" or even "a little" the danger of remaining waste?: <b>Yes</b></li> <li>• Are there prevention activities that can reduce "significantly" or even "little" the management costs of the remaining waste?: <b>Yes</b></li> <li>• Are there prevention activities that cause "no" or "little" organizational problems to the LA?: <b>Yes</b></li> <li>• Are there prevention activities with 'no' or 'small' implementation costs for the LA? <b>Yes</b></li> <li>• Are there prevention activities that create "a few", "several" or "many" jobs?: <b>Yes</b></li> </ul>

8	Useful documentation	<ul style="list-style-type: none"> <li>SCREENING OF WASTE MANAGEMENT PERFORMANCE OF EU MEMBER STATES (2012) - European Commission, Brussels (<a href="http://ec.europa.eu/environment/waste/studies/pdf/Screening_report.pdf">http://ec.europa.eu/environment/waste/studies/pdf/Screening_report.pdf</a>)</li> <li>Waste prevention in Europe - the status in 2013 (EEA) (<a href="http://www.eea.europa.eu/publications/waste-prevention-in-europe-2014">http://www.eea.europa.eu/publications/waste-prevention-in-europe-2014</a>)</li> <li>GREEN PAPER On a European Strategy on Plastic Waste in the Environment (<a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0123">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0123</a>)</li> <li>Effectiveness of economic instruments for packaging (ETC/SCP Working Paper) (<a href="http://scp.eionet.europa.eu/publications/wp2012_4/wp/wp2012_4">http://scp.eionet.europa.eu/publications/wp2012_4/wp/wp2012_4</a>)</li> <li>Environmental indicator report 2014 (EEA) (<a href="http://www.eea.europa.eu/publications/environmental-indicator-report-2014">http://www.eea.europa.eu/publications/environmental-indicator-report-2014</a>)</li> <li>Horizon 2020 mediterranean report (EEA) (<a href="http://www.eea.europa.eu/publications/horizon-2020-mediterranean-report">http://www.eea.europa.eu/publications/horizon-2020-mediterranean-report</a>)</li> </ul>
9	Prevention ideas	<p>1. <a href="http://ec.europa.eu/environment/waste/prevention/pdf/eco-sac.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/eco-sac.pdf</a>  <b>Reusable Shopping Bag “Eco-Sac”</b>  Country: Luxembourg  Year of implementation: 2004  Type of prevention measure: Sustainable replacement of disposable shopping bags  The “Eco-Sac project” has been launched by a public private partnership (PPP) between <ul style="list-style-type: none"> <li>the Luxembourg Ministry of Sustainability and Infrastructures,</li> <li>the Luxembourg Confederation of Commerce (CLC), and</li> <li>VALORLUX a.s.b.l., non-profit association and licensee of the “Green Dot Luxembourg”, as part of the National Waste Prevention Plan (a 5 year projected agreement).</li> </ul> From 2004 to 2007, in cooperation with some retailers, the “Eco-Sac” was distributed along with the participating retailer’s proper free disposable shopping bags. In 2008 other versions of the Eco-Sac, with different capacities were introduced, at some price (€0,5 – €0,7). Damaged Eco-Sacs get replaced free of charge and subsequently recycled.  85 retailing companies cooperated for the project, including the 5 major supermarket chains in Luxembourg. Since the project’s start, some 300 millions of disposable shopping bags were prevented. The Eco-Sac has been successfully established (with a degree of brand awareness beyond 90%).</p> <p>2. <a href="http://ec.europa.eu/environment/waste/prevention/pdf/LAPD_Factsheet.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/LAPD_Factsheet.pdf</a>  <b>LAPD (Local Authority Prevention Demonstration Programme)</b> (Ireland)  Ireland’s National Waste Prevention Programme was launched in 2004, aiming to raise awareness, provide technical assistance, training, funding and incentives for a wide range of waste prevention activities. The programme is implemented by the Irish Environmental Protection Agency.  The LAPD (<b>Local Authority Prevention Demonstration Programme</b>) identifies and supports effective waste prevention strategies at local level and empowers local authorities to develop and maintain their own projects, strengthening the principle of subsidiarity. LAPD provides much of its technical assistance through the Clean Technology Centre, a non-profit environmental research institution, which facilitates the exchange of knowledge between local authorities and helps to monitor the performance of initiatives.  Launched in 2006, the LAPD programme initially funded three ambitious programmes involving seven local authorities, with €1.2 million in grant aid. Seven further local authorities have been selected for funded projects..</p> <p>3. <a href="https://www.gov.uk/government/publications/single-use-plastic-carrier-bags-why-were-introducing-the-charge">https://www.gov.uk/government/publications/single-use-plastic-carrier-bags-why-were-introducing-the-charge</a>  <b>5p charge for single-use plastic carrier bags in England.</b></p>

		<p><b>Carrier bags: why there's a 5p charge</b></p> <p>With a decision of the Department for Environment, Food and Rural Affairs (Defra) of the UK, large shops in England are required to charge 5p for all single-use plastic carrier bags. Charging started on 5 October 2015, aiming to reduce their use. Smaller businesses can charge on a voluntary basis if they wish. A significant reduction in the use of single-use plastic carrier bags by 80% in supermarkets is expected. .</p> <p>Retailers need to keep track of how many plastic bags they've given out and where the proceeds have gone and report this to Government by 31 May every year. Retailers are encouraged to donate the proceeds of the scheme to good causes.</p> <p>4. <a href="http://www.plasticbagfreeday.org">www.plasticbagfreeday.org</a></p> <p><b>International Plastic Bag-Free Day</b></p> <p>This global campaign is organised by Zero Waste Europe and GAIA upon an idea from the Fundació Prevenció de Residus i Consum, with the support and participation by many entities from various countries, that aims to eliminate the use of single-use plastic bags in the world. The website <a href="http://www.plasticbagfreeday.org">www.plasticbagfreeday.org</a> serves as place where citizens and organizations can communicate and share opinions and actions for a "plastic bag free world".</p> <p>5. <a href="http://www.madrid.es/UnidadWeb/Contenidos/Colecciones/TemaMedioAmbiente/ForoProClimaMadrid/Ficheros/CUCLOPLAST.pdf">http://www.madrid.es/UnidadWeb/Contenidos/Colecciones/TemaMedioAmbiente/ForoProClimaMadrid/Ficheros/CUCLOPLAST.pdf</a></p> <p><b>Campaign for responsible consumption of plastic bags (Spain)</b></p> <p>The campaign was implemented in the Municipality of Roquetas de Mar in Spain between 2005-2008 with the cooperation of CICLOPLAST. It specifically aimed at informing and educating consumers on the proper use, recycling and reuse of plastic bags. The campaign included actions in mass media means, large shopping centres, schools and useful material to environmental groups.</p> <p>6. <b>LIFE DEBAG - Integrated information and awareness campaign for the reduction of plastic bags in the marine environment- LIFE14 GIE/GR/001127.</b></p> <p>The main objective of the LIFE DEBAG project is to develop and implement an integrated information and awareness-raising campaign for the prevention and reduction of plastic bag pollution in the marine environment. The aim is for this to change consumers' behaviour. Specific project aims are to:</p> <ul style="list-style-type: none"> <li>• Improve the knowledge base and create awareness of the problem of plastic bag use and disposal at the national level, and to intensively inform and educate the public on Syros island;</li> <li>• Ensure a sense of public ownership to build support for relevant measures;</li> <li>• Improve educational efforts directed towards teachers and pupils; and</li> <li>• Contribute to changing Greece from a throwaway society to a sustainable society starting with plastic bags, a central and visible aspect of today's disposable culture.</li> </ul> <p>Expected results: Detailed understanding of the current situation in Greece with respect to marine litter;</p> <ul style="list-style-type: none"> <li>• Design and development of a holistic, multidisciplinary educational package for primary and secondary schools;</li> <li>• Enhanced knowledge and awareness on marine litter and plastic bags in particular, through an integrated communication and information campaign;</li> <li>• Organisation of two annual 'Plastic Bag Free' weeks, consisting of different events targeting the local population, visitors and stakeholders (reaching at least 4 200 households and 30 000 persons in the Syros project focus area);</li> <li>• Work on the development of a voluntary agreement by shops/retailers of Syros on handling of plastic bags;</li> <li>• Creation of a national stakeholders consultation forum that will develop a list of tailored recommendations for Greece to reduce consumption of lightweight plastic carrier bags. The forum will also explore the feasibility of a voluntary national agreement for retailers;</li> </ul>
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		<ul style="list-style-type: none"> <li>• Information exchange with similar European projects;</li> <li>• Reduction by 10% of plastic bag litter input from Syros to the marine environment; and</li> <li>• Increase in the penetration of the project's key messages to young people through social media networks</li> </ul>
10	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://ec.europa.eu/environment/waste/plastic_waste.htm">http://ec.europa.eu/environment/waste/plastic_waste.htm</a></li> <li>• <a href="http://www.eea.europa.eu/themes/waste">http://www.eea.europa.eu/themes/waste</a></li> <li>• <a href="http://www.zerowasteeurope.eu/category/plastic-bag/">http://www.zerowasteeurope.eu/category/plastic-bag/</a></li> <li>• <a href="http://zerowasteeurope.eu/zerowastecities.eu/">http://zerowasteeurope.eu/zerowastecities.eu/</a></li> <li>• <a href="http://www.waste-management-world.com/articles/2014/03/video-eu-report-on-measures-to-cut-plastic-bag-waste.html">http://www.waste-management-world.com/articles/2014/03/video-eu-report-on-measures-to-cut-plastic-bag-waste.html</a></li> <li>• <a href="http://www.municipalwasteeurope.eu/">http://www.municipalwasteeurope.eu/</a></li> <li>• <a href="http://www.plasticseurope.org/">http://www.plasticseurope.org/</a></li> <li>• <a href="http://www3.epa.gov/epawaste/nonhaz/municipal/">http://www3.epa.gov/epawaste/nonhaz/municipal/</a></li> </ul>
11	Prevention Ideas	You can see all the suggested Prevention ideas for the specific product – material at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
12	Suggest your Prevention ideas	Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.1.2 Food and kitchen waste

No	Data categories	Food and kitchen waste
1	General information	<p>Food loss and food waste refers to the food lost in the different stages of the food supply chain. Food is wasted or discarded as waste throughout the food supply chain, from the initial production phase to the final consumption in the households. The reduction can be accidental and/or intentional, nevertheless the result is that there is less available food worldwide.</p> <p>Food loss is considered as the food that is discarded as waste or spoiled before it reaches the final product or retail stage. This might be due to problems in collection, storage, packaging, transportation, infrastructure or market/price mechanisms as well as legal and institutional frameworks. For example, harvested bananas that fall off the truck that carries them are considered food loss.</p> <p>Food that is suitable for human consumption but is not consumed because it is going bad or is discarded by the retailers or the consumers is considered food waste. This happens due to certain or incomprehensible labeling rules, unsuitable storage and market or cooking practices. For example, a box of bananas with brown spots that is discarded is considered food waste.</p> <p><b>Food waste causes</b></p> <p>Food is lost or wasted throughout the food supply chain: in the farm, during processing and preparation, in stores, restaurants and canteens and at home. The reasons that food waste is created vary significantly and are sector specific. The factors that contribute to food waste are:</p> <ul style="list-style-type: none"> <li>• Unsuitable groceries and meal scheduling as well as “buy one take one for free” offers leading to buying and preparing too much food.</li> <li>• Misunderstanding of the meaning of the expirations dates on labels such as “use by” and “best before”, leading to disposing of still edible food.</li> <li>• Standardized portions’ sizes in restaurants and canteens.</li> </ul>

		<ul style="list-style-type: none"> <li>• Inability to predict number of customers (catering services problem)</li> <li>• Stock management issues for manufacturers and resellers.</li> <li>• High quality standards (eg for products sold in retail stores).</li> <li>• Overproduction or lack of request for certain products in certain times of the year.</li> <li>• Inadequate storage/distribution in every stage of the food chain.</li> </ul> <p>For every problem mentioned above, there is an overall lack of awareness of the multi-factorial nature and the immense extend of the problem, as well as the benefits arising from the food waste reduction.</p> <p><b>Useful links:</b></p> <ol style="list-style-type: none"> <li>1. <a href="http://ec.europa.eu/food/safety/food_waste/index_en.htm">http://ec.europa.eu/food/safety/food_waste/index_en.htm</a></li> <li>2. <a href="http://www.fao.org/food-loss-and-food-waste/en/">http://www.fao.org/food-loss-and-food-waste/en/</a></li> <li>3. <a href="http://www.unep.org/wed/2013/quickfacts/">http://www.unep.org/wed/2013/quickfacts/</a></li> </ol>
2	Waste quantitative data	<p>According to the UN Food and Agriculture Organisation (FAO), about 1/3 of the food produced worldwide for human consumption is either wasted or thrown in the garbage (about 1.3 billion tons per year). According to the FAO, the expected increase in the human population from 7 to 9 billion, will require an increase in the food supply at least by 70% by 2050.</p> <p>The food loss and/or food waste happen throughout the supply chain, from the initial agricultural production to the final household consumption. In medium and high income countries, food waste occurs largely at the consumption stage, which means food is discarded even if it is still suitable for human consumption. Significant losses also happen in food supply chains in industrial areas. In low income countries food waste occurs mainly in the initial and intermediate stages of the food supply chain, whereas much less food is lost in the consumer stage. Overall, much more food per capita is wasted in industrial countries than in developing countries. It is estimated that food loss per capita in Europe and Northern America is 95-115 kg/year, whereas the same indicator in sub-Saharan Africa and North/Northeastern Asia is only 6-11 kg/year.</p> <p>In the USA, 30% of all food, worth \$48.3bn (€32.5bn), is wasted each year.</p> <p>Every year, in the EU, a constantly increasing amount of food – up to 50%, according to some estimates – is lost throughout the supply food chain, occasionally up to the consumer stage, and ends up as waste. The annual food production in all EU-member States is estimated to be approximately 100 million tons, varying significantly between member states and sectors, excluding the agricultural production waste and the fishing catches that are thrown back to the sea (the data about the EU-27 provide an estimation of the annual production of food waste at 89 million tons, and the average annual food waste production per capita at 179 tons). If further preventive action is not undertaken and more preventive measures are not taken, it is estimated that food waste shall reach 126 million tons/year (a 40% increase) by 2020.</p> <p>In the UK, food waste from households is an estimated 6.7 million tons per year, about 1/3 of the 21.7 million tons purchased. This means that approximately 32% of the total amount of food purchased per year is not eaten. Every year, each household throws away about £420 worth of food.</p> <p>It is noted that, in the EU, about 79 million people still live under the poverty line, which means that over 15% of the citizens have an income lower than 60% of the average income of the country they reside in (16 million of these people have received food aid from charity institutions). Also, according to FAO data, 925 million</p>

		<p>people worldwide are on the verge of malnutrition, which makes the achievement of the Millennium Development Goals (which aim, among others, to have halved hunger and poverty by 2015), even more difficult.</p> <p>It is worth noting that the grain production worldwide has increased from 824 million tons in 1960 to about 2.2 billion tons in 2010 and is increasing by 27 million tons per year. If this tendency in the global agricultural production continues, the rise in grain production by 2050 will suffice to feed the entire world population. Bearing in mind that crop losses after harvest amount to approx. 14% of the total production, and an extra 15% is lost during distribution and as domestic waste, 3/5 of the total increase in food supply required by 2050 could be covered just by stopping food waste.</p> <p><b>Useful links:</b></p> <ol style="list-style-type: none"> <li>1. <a href="http://www.grida.no/publications/rr/food-crisis/">http://www.grida.no/publications/rr/food-crisis/</a></li> <li>2. <a href="http://www.unep.org/wed/2013/quickfacts/">http://www.unep.org/wed/2013/quickfacts/</a></li> <li>3. <a href="http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2012-0014+0+DOC+XML+V0//EL">http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2012-0014+0+DOC+XML+V0//EL</a></li> <li>4. <a href="http://ec.europa.eu/food/safety/food_waste/eu_actions/member_states/docs/20150424_fusions_ec_ms_working_group_en.pdf">http://ec.europa.eu/food/safety/food_waste/eu_actions/member_states/docs/20150424_fusions_ec_ms_working_group_en.pdf</a></li> <li>5. <a href="http://www.fao.org/docrep/014/mb060e/mb060e00.pdf">http://www.fao.org/docrep/014/mb060e/mb060e00.pdf</a></li> <li>6. <a href="http://triplehelixblog.com/2013/11/uk-food-waste-and-its-implications-for-social-and-environmental-issues/">http://triplehelixblog.com/2013/11/uk-food-waste-and-its-implications-for-social-and-environmental-issues/</a></li> <li>7. <a href="https://www.ns.is/ns/upload/files/pdf-skrar/matarskyrsla1.pdf">https://www.ns.is/ns/upload/files/pdf-skrar/matarskyrsla1.pdf</a></li> <li>8. <a href="http://www.wrap.org.uk/sites/files/wrap/hhfdw-2012-summary.pdf">http://www.wrap.org.uk/sites/files/wrap/hhfdw-2012-summary.pdf</a></li> </ol>
3	Environmental impacts of the product – material as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Significant</b></li> <li>• Water consumption: <b>Significant</b></li> <li>• Consumption of raw materials: <b>Significant</b></li> <li>• Increase of air pollution: <b>Significant</b></li> <li>• Pollution increase of water recipients: <b>Significant</b></li> <li>• Increasing rain acidity: <b>Significant</b></li> <li>• Climate Change: <b>Significant</b></li> <li>• Contribution in the "Ozone Hole": <b>Significant</b></li> <li>• Negative impact on terrestrial ecosystems: <b>Significant</b></li> <li>• Negative impact on water ecosystems: <b>Significant</b></li> <li>• Negative impact on flora: <b>Significant</b></li> <li>• Negative impact on fauna: <b>Significant</b></li> <li>• Negative impact on marine species: <b>Significant</b></li> <li>• Negative impact on endangered species: <b>Significant</b></li> <li>• Negative impact on birds: <b>Small</b></li> <li>• Contains dangerous substances for the environment: <b>Significant</b> Deteriorates the landscape: <b>Significant</b></li> </ul> <p><b>Useful links:</b></p> <ul style="list-style-type: none"> <li>• <a href="http://www.unep.org/newscentre/Default.aspx?DocumentID=2726&amp;ArticleID=9611">http://www.unep.org/newscentre/Default.aspx?DocumentID=2726&amp;ArticleID=9611</a></li> <li>• <a href="http://www.fao.org/docrep/018/i3347e/i3347e.pdf">http://www.fao.org/docrep/018/i3347e/i3347e.pdf</a></li> <li>• <a href="http://www.un.org/apps/news/story.asp?NewsID=45816#.ViSs037hDIU">http://www.un.org/apps/news/story.asp?NewsID=45816#.ViSs037hDIU</a></li> </ul>
4	Health impact	<ul style="list-style-type: none"> <li>• it may enter the food chain: <b>Significant</b></li> <li>• It contains hazardous to public health substances: <b>A little</b></li> <li>• It has been found negative impact on public health: <b>A little</b></li> <li>• It increases the risk of mortality: <b>A little</b></li> <li>• It increases the risk of morbidity: <b>A little</b></li> <li>• It increases the risk of accidents: <b>A little</b></li> <li>• Increases the risk of explosions: <b>A little</b></li> </ul>

		<p>Useful links:</p> <ol style="list-style-type: none"> <li>1. <a href="http://blogs.plos.org/publichealth/2013/01/15/food-waste/">http://blogs.plos.org/publichealth/2013/01/15/food-waste/</a></li> <li>2. <a href="http://greenhealthmagazine.org/reducing-food-waste/">http://greenhealthmagazine.org/reducing-food-waste/</a></li> <li>3. <a href="http://www.fao.org/3/a-i3991e.pdf">http://www.fao.org/3/a-i3991e.pdf</a></li> </ol>
5	Other negative characteristics as waste	<ul style="list-style-type: none"> <li>• Increases the risk of fire: <b>Significantly</b></li> <li>• Increases Child labor: <b>Significantly</b></li> <li>• Increases illegal work: <b>Significantly</b></li> <li>• Increases the hidden economy: <b>Significantly</b></li> </ul> <p>Social Cost:</p> <p>While about 1/3 of the total food production worldwide for human consumption is either wasted or thrown away as waste (aprox. 1.3 billion tons per year), more than 800 million people suffer from hunger and malnutrition, which constitutes social injustice and a challenge for the present and future of mankind. Furthermore, the world population is expected to increase from 7 billion to 9 billion people by 2050, resulting in a need for increased food production by 70%.</p> <p>In the EU, increases in the price of food resources and market instability have created pressure for access to high quality food for lower social and financial groups in Europe.</p> <p>Also, corporations that are related to food waste lose the opportunity to operate in socially responsible terms.</p> <p>Useful links:</p> <ol style="list-style-type: none"> <li>1. <a href="http://ec.europa.eu/environment/eussd/food.htm">http://ec.europa.eu/environment/eussd/food.htm</a></li> <li>2. <a href="https://www.linkedin.com/pulse/environmental-social-impacts-food-waste-brad-wright">https://www.linkedin.com/pulse/environmental-social-impacts-food-waste-brad-wright</a></li> <li>3. <a href="http://www.fao.org/docrep/018/i3342e/i3342e.pdf">http://www.fao.org/docrep/018/i3342e/i3342e.pdf</a></li> </ol>
6	Management cost	<ul style="list-style-type: none"> <li>• Assessment of the range of management cost in the EU as part of wastes: From 66 €/t to 248 €/t (ERS, 2015)</li> <li>• Is the management cost or the product – material higher or lower of the average waste management cost: <b>Lower</b></li> </ul> <p>It is assumed that food and kitchen waste are disposed of in landfills along with other non-hazardous wastes.</p> <p><b>Other management costs</b></p> <p>Food and kitchen waste can, instead of being disposed in landfills: a) be composted, b) be processed along with other waste in MBT units or waste incineration units or c) be integrated with other fuels in order to recover energy for suitable industries. Each of these solutions has an overall management cost comparable or much larger than that of landfill disposal. More data can be found in the European Study for waste management costs in EU countries (Eunomia, <a href="#">Costs for Municipal Waste Management in the EU</a>, DG Environment, 2002).</p> <p><b>Other relevant information</b></p> <p>In general, concerning the financial impacts resulting from food loss and food waste, the following should be noted:</p> <ul style="list-style-type: none"> <li>• In the EU, food waste is linked to high management costs and financial waste, considering the significant amount of edible food being disposed of every year. Food waste management costs include landfill maintenance costs (where the food waste is usually being discarded) as well as transportation costs, labour costs at the treatment facilities and, in certain cases, separation costs.</li> <li>• According to the Food Administration Organization of the UN, it is estimated</li> </ul>

		<p>that the overall cost of the food waste related sectors (energy, water, soil, labour, capital investments, infrastructure, machinery, transportation etc) is approximately 2.5 times larger than that of the “face value” of the food waste itself.</p> <ul style="list-style-type: none"> <li>• About 1.3 billion tons of food waste per year result in financial losses of \$750bn per year for food producers.</li> <li>• Almost 34 million tons of food waste are produced each year in the USA (13.9% of the municipal solid waste) and 30% of all food, worth \$48.3bn (€32.5bn) ends up in waste every year. The EPA has estimated that the food waste for 2008 has cost about \$1.3bn to dispose in landfills, whereas food loss costs a family of four at least \$589.76 per year.</li> <li>• In the UK, almost 15 million tons of food waste are produced (households produce almost half of this quantity). The average household in the UK throws away food equal to 6 meals per week. It is estimated that food waste costs each household £250-£400 per year.</li> <li>• The average household in Ireland produces food waste worth €400-1000 each year. It has been estimated that the true cost of food waste is approx. €3/kg.</li> <li>• In Canada the true cost of food waste is estimated to \$31bn (2014).</li> </ul> <p>Useful links:</p> <ol style="list-style-type: none"> <li>1. <a href="http://vcm-international.com/wp-content/uploads/2014/12/Food-Waste-in-Canada-27-Billion-Revisited-Dec-10-2014.pdf">http://vcm-international.com/wp-content/uploads/2014/12/Food-Waste-in-Canada-27-Billion-Revisited-Dec-10-2014.pdf</a></li> <li>2. <a href="http://ec.europa.eu/environment/eussd/food.htm">http://ec.europa.eu/environment/eussd/food.htm</a></li> <li>3. <a href="http://www.wrap.org.uk/food-waste-reduction">http://www.wrap.org.uk/food-waste-reduction</a></li> </ol>
7	Possible advantages of prevention activities	<ul style="list-style-type: none"> <li>• Are there prevention activities that can reduce "significantly" or even "a little" waste production?: <b>Yes</b></li> <li>• Are there prevention activities that can reduce "significantly" or even "a little" the dangers of remaining waste?: <b>Yes</b></li> <li>• Are there prevention activities that can reduce "significantly" or even " a little " the management costs of the remaining waste?: <b>Yes</b></li> <li>• Are there prevention activities that cause "no" or "little" organizational problems to the LA?: <b>Yes</b></li> <li>• Are there prevention activities with 'no' or 'little' implementation costs for the LA?: <b>Yes</b></li> <li>• Are there prevention activities that create "a few", "several" or "many" jobs?: <b>Yes</b></li> </ul>
8	Useful documentation	<ol style="list-style-type: none"> <li>1. <a href="http://www.fao.org/docrep/014/mb060e/mb060e00.pdf">http://www.fao.org/docrep/014/mb060e/mb060e00.pdf</a> Global food losses and food waste – Extent, causes and prevention (FAO, 2011)</li> <li>2. <a href="http://www.iswa.org/media/publications/knowledge-base/?tx_iswaknowledgebase_filter%5Bcategories%5D=21&amp;cHash=bd92c97529700f898b221bc220a39abd">http://www.iswa.org/media/publications/knowledge-base/?tx_iswaknowledgebase_filter%5Bcategories%5D=21&amp;cHash=bd92c97529700f898b221bc220a39abd</a> Food Waste as A Global Issue - from the perspective of municipal solid waste management (ISWA – the International Solid Waste Association)</li> <li>3. <a href="http://ec.europa.eu/food/safety/food_waste/library/docs/prevention_guidelines_en.pdf">http://ec.europa.eu/food/safety/food_waste/library/docs/prevention_guidelines_en.pdf</a> GUIDELINES ON THE PREPARATION OF FOOD WASTE PREVENTION PROGRAMMES (European Commission DG ENV)</li> <li>4. <a href="http://www2.epa.gov/sites/production/files/2015-08/documents/r5_fd_wste_guidebk_020615.pdf">http://www2.epa.gov/sites/production/files/2015-08/documents/r5_fd_wste_guidebk_020615.pdf</a> Guide to Conducting and Analyzing a Food Waste Assessment (EPA)</li> <li>5. <a href="http://ec.europa.eu/research/agriculture/scar/pdf/scar_feg3_final_report_01_02_2011.pdf">http://ec.europa.eu/research/agriculture/scar/pdf/scar_feg3_final_report_01_02_2011.pdf</a> Sustainable food consumption and production in a resource-constrained world (European Commission – Standing Committee on Agricultural Research (SCAR))</li> <li>6. <a href="http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&amp;reference=A7-">http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&amp;reference=A7-</a></li> </ol>

		<p><a href="#">2011-0430&amp;language=EN</a></p> <p>Report on how to avoid food wastage: strategies for a more efficient food chain in the EU (2011/2175(INI))- Committee on Agriculture and Rural Development</p> <p><b>VIDEOS</b></p> <p><a href="http://ec.europa.eu/dgs/health_food-safety/information_sources/videos_en.htm#Food">http://ec.europa.eu/dgs/health_food-safety/information_sources/videos_en.htm#Food</a></p>
9	Prevention ideas	<p>1. <a href="http://www.wrap.org.uk/sites/files/wrap/West%20London%20LFHW%20Impact%20case%20study_0.pdf">http://www.wrap.org.uk/sites/files/wrap/West%20London%20LFHW%20Impact%20case%20study_0.pdf</a></p> <p>Following a Love Food Hate Waste campaign in West London avoidable food waste decreased by 14% in just six months. The reduction in food waste overall could save the Boroughs of West London around £1.3 million in disposal costs.</p> <p>Between October 2012 and March 2013, the Greater London Authority (GLA) and WRAP worked in partnership to deliver a programme, funded by the London Waste and Recycling Board (LWARB), to carry out local campaigns in the six Boroughs of the West London area. The campaign aimed to provide residents an opportunity to further understand the impacts of food waste. Also, funding was available from DEFRA to monitor changes in behaviours and food waste levels. The campaign included radio, digital and print advertising along with supporting PR activity, events and community engagement such as cookery classes and engagement through a network of volunteers.</p> <p>2. <a href="http://www.fao.org/docrep/018/i3342e/i3342e.pdf">http://www.fao.org/docrep/018/i3342e/i3342e.pdf</a> The UN Food and Agriculture Organization (FAO) has published a Guide ("Toolkit, Reducing the Food Wastage Footprint"), which contains recommendations about ways to reduce food loss and food waste in every step of the food chain.</p> <p>The Toolkit contains examples from all over the world that demonstrate that national and local governments, farmers, industries and individual consumers can take measures to address the problem.</p> <p>3. 3. <a href="http://foodcycle.org.uk/#sub_about">http://foodcycle.org.uk/#sub_about</a> FoodCycle is a charity organization in the UK that combines volunteers, surplus food and spare kitchen spaces to create tasty, nutritious meals for people at risk of food poverty and social isolation. Since they started "cooking" in May 2009 they have served over 125,000 meals (they run over 20 projects across the UK), prepared with more than 146,000 kg of food surplus.</p> <p>4. <a href="http://foodrecoveryproject.eu/">http://foodrecoveryproject.eu/</a> FORWARD – Food Recovery and Waste Reduction – is a two-year transnational (Italy, Czech Republic, Hungary, Greece, Germany, Lithuania, Netherlands, Poland) project co-funded by the European Commission under the Lifelong Learning Programme. Its main aim is the reduction of food waste and the promotion of unsold food recollection in favour of charities, thanks to training and use of ICT resources. The main outcome is an innovative platform hosting the three main results of the project: A free online training course for food supplier and charities focused on the reduction of food waste and methods to recover and redistribute it, an educational game and a user-friendly brokering platform to allow the natural matching of demand and supply of food waste.</p> <p>5. <a href="http://www.boroume.gr/">http://www.boroume.gr/</a></p>

		<p>BOROUME is a non-profit organisation that fights food waste by organizing the distribution of surplus food for charity throughout Greece.</p> <p>Since the beginning in 2011 more than 4.000.000 portions of food have been saved and offered to welfare organizations.</p> <p>BOROUME is a communication hub between food donors and welfare organizations that creates “bridges” between the donor and the most suitable recipient organization, resulting in providing 10.000 portions of food every day on average, typically within the same area.</p>
10	Useful websites	<ol style="list-style-type: none"> <li>1. <a href="http://ec.europa.eu/food/safety/food_waste/index_en.htm">http://ec.europa.eu/food/safety/food_waste/index_en.htm</a></li> <li>2. <a href="http://www.fao.org/food-loss-and-food-waste/en/">http://www.fao.org/food-loss-and-food-waste/en/</a></li> <li>3. <a href="http://www.thinkeatsave.org/">http://www.thinkeatsave.org/</a></li> <li>4. <a href="http://www2.epa.gov/sustainable-management-food">http://www2.epa.gov/sustainable-management-food</a></li> <li>5. <a href="http://www.wrap.org.uk/category/materials-and-products/food">http://www.wrap.org.uk/category/materials-and-products/food</a></li> <li>6. <a href="http://www.eu-fusions.org/">http://www.eu-fusions.org/</a></li> <li>7. <a href="http://www.eea.europa.eu/media/infographics/wasting-food-1/view">http://www.eea.europa.eu/media/infographics/wasting-food-1/view</a></li> <li>8. <a href="http://www.sustainablecitiesinstitute.org/Documents/SCI/Report_Guide/Guide_NLC_Waste_Reduction_Strat_2011.pdf">http://www.sustainablecitiesinstitute.org/Documents/SCI/Report_Guide/Guide_NLC_Waste_Reduction_Strat_2011.pdf</a></li> <li>9. <a href="http://www.lovefoodhatewaste.com/">http://www.lovefoodhatewaste.com/</a></li> <li>10. <a href="http://www.athens2014.biowaste.gr/pdf/malamis_et_al_comp.pdf">http://www.athens2014.biowaste.gr/pdf/malamis_et_al_comp.pdf</a></li> </ol>
11	Prevention Ideas	You can see all the suggested Prevention ideas for the specific product – material at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
12	Suggest your Prevention ideas	Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.1.3 Green waste

No	Categories of Data	Green waste
1	General information	<p>Green waste, also called garden or yard waste, is one of the two main streams of bio-waste. It is defined by the European Commission as ‘biodegradable garden and park waste’. It excludes forestry or agricultural residues, manure, sewage sludge, or other biodegradable waste such as natural textiles, paper and processed wood<sup>1</sup>. This waste stream is a part of municipal solid waste (MSW) which includes household and similar wastes.</p> <p>For the purposes of this fact sheet, green waste prevention is defined as the way to prevent the management of this waste stream by the local authority. Composting is sometimes considered as a way to prevent bio-waste, and sometimes considered as being a way to recycle this waste. Given that green waste is natural and has almost no environmental impact if well managed, we will consider that this waste is prevented as long as there is no energy lost in the management process. For example, it is preferable to promote on-site composting since it prevents the fossil fuel consumption due to the transportation of green waste to large scale composting plants. Also, green waste prevention implies to avoid the overproduction of garden items. To put it differently, it is not because these waste are green that they did not consume materials, water or energy, especially when the growing of those garden items is made to satisfy some human traditions (Christmas trees for example).</p> <p>Added to the fact that it would help to avoid emissions of greenhouse gases by decreasing the amount of wasted products, an appropriate green waste</p>

<sup>1</sup> <http://ec.europa.eu/environment/waste/compost/>

		management strategy is also a good occasion to produce good quality compost, as well as bio-gas. Soil quality, resource efficiency and a higher level of energy self-sufficiency are also some of its benefits. Finally, it prevents accidental fires since it represents an alternative to the on-site burning of this waste stream which is one of the most used treatments of this waste in rural areas <sup>2</sup> , and also a way to release a significant quantity of really toxic elements in the air. Thanks to Reduce, Reuse and Recycle strategies, the economic and environmental costs of this waste can be easily reduced.
2	Waste quantitative data	<p>According to a technical report made by the Biowaste Cluster<sup>3</sup>, there is in average 20/30 kg/inh/year of green waste produced at EU level. For rural areas, this can go up to 250 kg /inh/year. Given that, according to Eurostat<sup>4</sup>, there was 481kg of municipal solid waste produced per capita in the EU-28 in 2013, green waste represents only more or less 5% of total waste stream in urban areas, but almost the half of it in rural areas.</p> <p>Garden waste production and collection can indeed vary depending on several criteria such as the rural or urban character of the city considered, the organization or not of a kerbside collection, the promotion of home composting or the period of the year considered. For example, the Biowaste Cluster<sup>5</sup> collected values from 20kg/inh/y (Ketelsen and Doedens 1992) to more than 700kg/inh/y (Wiemer and Sprick 1996). Their study also states that some other factors such as the growth of different plant types, the type and extent of land use for building, the garden area/inh, and the use of garden area may influence the data. It may finally be influenced by the inclusion of other streams of waste in the green waste collection (waste from parks, waste from agricultural industries, waste from restaurants and services and urban sewage sludge).</p>
3	Environmental impacts of the product – material as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Small</b> ‘Transportation of waste in general seems of low importance to the overall environmental impact of biowaste management. The influence of truck transportation on the total environmental impact is often low’<sup>6</sup></li> <li>1. Water consumption: No data, but <b>very probably significant</b> given that green waste is composed by vegetation.</li> <li>3. Consumption of raw materials, increase of air pollution, increasing rain acidity, climate change, negative impact on terrestrial ecosystems, contains dangerous substances for the environment : <b>Significant</b> ‘The environmental assessment of the (dis-) advantages of the various biowaste management options is complex because they occur in different phases of the biowaste lifecycle, during collection, treatment and recycling, while contributing to different environmental effects, ranging from greenhouse effects, material depletion, acidification and toxicity for humans and ecosystems’. <sup>7</sup></li> <li>• Pollution increase of water recipients: <b>Probably significant</b> given that chemical products are very often used to make what will become green waste grow</li> <li>• Contribution in the "Ozone Hole": No information, but <b>probably small or no impacts</b></li> <li>• Negative impact on water ecosystems: <b>Probably significant</b><sup>8</sup></li> <li>• Negative impact on flora: <b>Significant</b><sup>9</sup></li> </ul>

2 [Burning of Waste, Is it appropriate to burn garden/green waste?](#), Irish Environmental Protection Agency

3 Biowaste Cluster, [Reduction of Municipal Organic Waste](#), Technical Report, final draft, 2008, p.22

4 [http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Municipal\\_waste\\_generated\\_by\\_country\\_in\\_selected\\_years\\_\(kg\\_per\\_capita\)\\_new1.png](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Municipal_waste_generated_by_country_in_selected_years_(kg_per_capita)_new1.png)

5 Biowaste Cluster, [Reduction of Municipal Organic Waste](#), Technical Report, final draft, 2008, p.15

6 [Inventory of Existing Studies Applying Life Cycle Thinking to Biowaste Management](#), p.9

7 Ibid, p.9

8 Ibid, p.9

9 Ibid, p.9

		<ul style="list-style-type: none"> <li>Negative impact on fauna: <b>Probably significant</b><sup>10</sup></li> <li>Negative impact on marine species: <b>Probably very small</b>, except maybe in humid areas</li> <li>Negative impact on endangered species: <b>Probably significant</b><sup>11</sup></li> <li>Negative impact on birds: <b>Probably significant</b><sup>12</sup></li> <li>Deteriorates the landscape: <b>Probably significant</b></li> </ul>
4	Health impact	<ul style="list-style-type: none"> <li>it may enter the food chain: <b>No data</b></li> <li>It contains hazardous to public health substances: <b>Significant</b><sup>13</sup></li> <li>It increases the risk of mortality and morbidity: <b>Significant</b><sup>14</sup></li> <li>It increases the risk of accidents: <b>Significant</b></li> <li>'Additionally, agricultural fires often cause forest fires, which are in turn another important source of emissions'<sup>15</sup>.</li> <li>Increases the risk of explosions: <b>Probably</b> given that it increases risks of accidental fire.</li> </ul>
5	Other negative characteristics as waste	<ul style="list-style-type: none"> <li>Increases the risk of fire: <b>Significant</b></li> <li>'Additionally, agricultural fires often cause forest fires, which are in turn another important source of emissions'<sup>16</sup>.</li> <li>Increases Child labor: <b>Not at all</b></li> <li>Increases illegal work: <b>No data</b>, but since agricultural fires are illegal, a poor green waste management can lead to illegal working activities</li> <li>Increases the hidden economy: <b>No data</b></li> </ul>
6	Management cost	<ul style="list-style-type: none"> <li>Is the management cost of green waste higher or lower of the average waste management cost: <b>Higher</b></li> <li>Assessment of the typical range of management cost: <b>From 158 €/t to 546 €/t</b> (ERS, 2015)</li> </ul> <p>It is considered as waste that goes to landfill along with other non-hazardous waste. Other management cost: According to a European study about the costs for municipal waste management in the EU, the collection of green waste cost €38/tonne (€3.7 paid by the households) in Belgium, and the costs for composting was €25-37€/tonne in Belgium, €50-85/tonne at 6,000 tpa and €34-57/tonne at 12,000 tpa in France and €25/tonne at 5,000tpa and €23/tonne at 10,000 tpa in Ireland<sup>17</sup>. For bio-waste in general, in the same study<sup>18</sup>, the following financial cost estimates of management of biowaste were proposed as assumptions representative for the EU-15 (2002): <ul style="list-style-type: none"> <li>Separate collection of bio-waste followed by composting: 35 to 75 €/tonne;</li> <li>Separate collection of bio-waste followed by anaerobic digestion: 80 to 125 €/tonne;</li> <li>Landfill of mixed waste: 55 €/tonne;</li> <li>Incineration of mixed waste: 90 €/tonne</li> </ul> </p>
7	Possible advantages of prevention activities	<ul style="list-style-type: none"> <li>Are there prevention activities that can reduce waste production "significantly" or even "a little"? <b>Yes</b>, significantly</li> <li>Are there prevention activities that can reduce the danger of remaining waste "significantly" or even "a little"? <b>Yes</b>, significantly</li> </ul>

<sup>10</sup> Ibid, p.9

<sup>11</sup> Ibid, p.9

<sup>12</sup> Ibid, p.9

<sup>13</sup> Ibid, p.9

<sup>14</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3385429/>

<sup>15</sup> p.13-14

<sup>16</sup> p.13-14

<sup>17</sup> Eunomia, [Costs for Municipal Waste Management in the EU](#), DG Environment, 2002, p.51 and p.62

<sup>18</sup> Ibid

		<ul style="list-style-type: none"> <li>• Are there prevention activities that can reduce the management costs of the remaining waste "significantly" or even "a little"?: <b>Yes</b>, significantly</li> <li>• Are there prevention activities that cause "no" or "little" organizational problems to the LA? : <b>Yes</b>. There are also prevention activities that cause "small" or "significant", it depends on the actions implemented (only a home composting campaign or subsidies for onsite composting facilities).</li> <li>• Are there prevention activities with 'no' or 'small' implementation costs for the LA?: <b>Yes</b>. There are also prevention activities that cause "small" or "significant" (see previous explanation)</li> <li>• Are there prevention activities that create "a few", "several" or "many" jobs?: <b>Yes</b>. Small 'Increased recycling of bio-waste is expected to have limited positive impacts on employment'<sup>19</sup>.</li> </ul>
8	Useful documentation	<p>B. Krutwagen, J. Kortman, K. Verbist, <a href="#"><u>Inventory of Existing Studies Applying Life Cycle Thinking to Biowaste Management</u></a>, Raffaella Bersani, Rana Pant, David W. Pennington, Joint Research Centre, Institute for Environment and Sustainability, 2008</p> <p>J.-J Dohogne, <a href="#"><u>Inventory of good practices regarding bio-waste minimization in Europe</u></a>, Miniwaste</p> <p><a href="#"><u>Green Paper on the management of bio-waste in the European Union</u></a>, European Commission, COM/2008/0811 final</p> <p><a href="#"><u>Commission staff working document accompanying the green paper on the management of bio-waste in the European Union</u></a>, COM(2008) 811 final</p> <p>ACR+ Biowaste Cluster, <a href="#"><u>Reduction of Municipal Organic Waste</u></a>, Technical Report, final draft, 2008</p>
9	Prevention ideas	<p><b>Incentives in Piemonte (IT):</b> To motivate people to participate in the composting of their green waste, a financial incentive can be a good solution. Piemonte<sup>20</sup>, decided to grant a 20% discount on their waste taxation to all the citizens living in rural areas. All they had to do is to sign a form in which they committed to composting at home. This incentive has been made to prevent food waste, but the system can be easily replicated for green waste. A 'Pay-As-You-Throw' system can also be a good way to encourage the citizens to practice a home composting<sup>21</sup>.</p> <p><b>On site installations in Freistadt (AU):</b> Allowing to provide good quality compost, as well as to avoid the environmental and financial costs of transportation, on site composting installations is a great way to manage green waste. The Austrian strategy concerning green waste and bio-waste in general is 'As much home-composting as possible, as much decentralised agricultural (on-farm) composting as possible'. The on-farm composting scheme implemented by the Freistadt district<sup>22</sup> led the Agricultural Composting Plants to use 70 to 90% of their compost on their own agricultural land, which represents a great economy of manure and feed. Those results have been made possible thanks to agreements between the farmers and the municipalities. There have been also subsidies from the municipalities for the set-up of the composting plants, the windrow turners and the shredders and screening machines. Courses, trainings and sensitisation campaigns have also been necessary to help farmers to successfully implement the on-farm composting scheme.</p> <p>Closed loop gardening in Flanders (BE): Smart gardening is the best way to prevent green waste to be produced and managed. It is therefore the best ecological and financial way to manage this waste. Flanders , by implementing a system of Master composters, encouraged its citizens to play an active role in bio-waste reduction.</p>

19 [Green Paper on the management of bio-waste in the European Union](#), European Commission, COM/2008/0811 final

20 Ibid., p.15

21 More information about 'Pay-As-You-Throw' systems here:

[http://ec.europa.eu/environment/integration/research/newsalert/pdf/133na1\\_en.pdf](http://ec.europa.eu/environment/integration/research/newsalert/pdf/133na1_en.pdf)

22 J.-J Dohogne, [Inventory of good practices regarding bio-waste minimization in Europe](#), Miniwaste, p.89-109

		<p>The tips that have been given to citizens to create their closed loop gardens were, for example, to prefer native and adapted plants, use slow growing grass and leave its clippings on the lawn (grass cycling), removing leaves only when necessary, etc. However, there is no result yet about this prevention strategy.</p> <p><b>Shredding service to local residents:</b> The municipality can obtain a tow shredder and offers shredding services to local residents. Shredded trimmings are then placed on private ground to improve and protect their soils. Thus the LA saves significant financial resources and reduces the amount of green organic waste.</p> <p><b>Communication activities promoting on site shredders for locals:</b> The municipality can promote communication activities about obtaining small shredders by local residents who have gardens so as to chip their trimmings and use the material in their gardens.</p>
10	Useful websites	<ul style="list-style-type: none"> <li>• <a href="#">Applying compost benefits and needs</a></li> <li>• <a href="#">Community Composting Network</a></li> <li>• <a href="#">EU guidance on biowaste management</a></li> <li>• <a href="#">European Compost Network</a></li> <li>• <a href="#">Miniwaste - Inventory of good practices regarding bio-waste minimization in Europe</a></li> <li>• <a href="#">Waste Guidance on LCT LCA applied to BIO-WASTE Management-Final</a></li> </ul>
11	Prevention Ideas	<p>You can see all the suggested Prevention ideas for the specific product – material at the website o LAWPreT  <a href="http://www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a></p>
12	Suggest your Prevention ideas	<p>Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT  <a href="http://www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a></p>

#### 1.1.4 Plastic bottles

α/α	Data Categories	Plastic bottles
1	General Information	<p>Plastic is a relatively cheap, durable and versatile material. Plastic products have brought benefits to society in terms of economic activity, jobs and quality of life. Plastics can even help reduce energy consumption and greenhouse gas emissions in many circumstances, even in some packaging applications when compared to the alternatives.</p> <p>However, plastic waste also imposes negative environmental externalities. It is usually non-biodegradable and therefore can remain as waste in the environment for a very long time; it may pose risks to human health as well as the environment; and it can be difficult to reuse and/or recycle in practice. An issue of particular concern is that giant masses of plastic waste have been discovered in the North Atlantic and Pacific Oceans, the full environmental impacts of which are not yet fully understood but which cause severe damage to seabirds, marine mammals and fish. PVC is undoubtedly the most dangerous plastic. Many of the compounds used in the production of PVC are toxic. The fact that bottles of PVC burned uncontrollably in landfills is the most important cause for the environmental release of dioxin which is a very dangerous gas to human health.</p> <p>Plastic bottles contain Bisphenol A (BPA), the chemical used to make the plastic hard and clear. BPA is an endocrine disruptor which has been proven to be hazardous to</p>

		<p>human health. It has been strongly linked to a host of health problems including certain types of cancer, neurological difficulties, early puberty in girls, reduced fertility in women, premature labour, and defects in newborn babies – to name a few examples. BPA enters the human body through exposure to plastics such as bottled drinks and cleaning products. It has been found in significant amounts in at-risk groups such as pregnant women's placentas and growing foetuses. A study conducted some years ago found that 96% of women in the U.S have BPA in their bodies. Finally, it should be noted that all types of can be recycled by suitable processes.</p> <p><a href="http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf">http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf</a>  <a href="http://www.onegreenplanet.org/animalsandnature/whats-the-problem-with-plastic-bottles/">http://www.onegreenplanet.org/animalsandnature/whats-the-problem-with-plastic-bottles/</a>  <a href="http://www.asda.gr/g14per/programs/perivallon/aporimata/aporimat10.htm">http://www.asda.gr/g14per/programs/perivallon/aporimata/aporimat10.htm</a></p>
2	Quantitative data on waste	<p>Over the last ten years we have produced more plastic than during the whole of the last century. 50 percent of the plastic we use, we use just once and throw away. Enough plastic is thrown away each year to circle the earth four times. We currently recover only five percent of the plastics we produce. Plastic accounts for around 10 percent of the total waste we generate. An estimated total of 8 billion plastic bags pollute Europe every year.</p> <p>In our country we consume annually 400 million PET plastic bottles for refreshments and as well as the same amount for bottled water. Their total weight is estimated at 40.000 tons of plastic.</p> <p>The recycling rate for plastic packaging in our country is 5% (10.000 tons per year) and relates primarily to the recycling done by the plastic production industries in their waste rather than recycling plastic packaging from household waste. The same low percentage has the EU too, with the exception of Germany (43%).</p> <p><a href="http://ecowatch.com/2014/04/07/22-facts-plastic-pollution-10-things-can-do-about-it/">http://ecowatch.com/2014/04/07/22-facts-plastic-pollution-10-things-can-do-about-it/</a>  <a href="http://www.euractiv.com/sections/sustainable-dev/plastics-be-banned-european-landfill-310367">http://www.euractiv.com/sections/sustainable-dev/plastics-be-banned-european-landfill-310367</a>  <a href="http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf">http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf</a></p>
3	Environmental impacts as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Significant</b></li> <li>• Water consumption: <b>Zero</b></li> <li>• Consumption of raw materials: <b>Significant</b></li> <li>• Worsening of air pollution: <b>Significant</b></li> <li>• Worsening of water pollution recipients: <b>Significant</b></li> <li>• Increasing rainfall acidity: <b>Small</b></li> <li>• Worsening Climate Change: <b>Small</b></li> <li>• Deterioration of in the "Ozone Hole": <b>Zero</b></li> <li>• Negative impact on terrestrial ecosystems: <b>Significant</b></li> <li>• Negative impact on aquatic ecosystems: <b>Significant</b></li> <li>• Negative effect on flora: <b>Significant</b></li> <li>• Negative impact on wildlife: <b>Significant</b></li> <li>• Negative impact on marine species: <b>Significant</b></li> <li>• Negative impact on endangered species: <b>Significant</b></li> <li>• Negative impact on birds: <b>Significant</b></li> <li>• Contains quantity of dangerous substances to the environment: <b>Significant</b></li> <li>• Creates deterioration of the landscape: <b>Significant</b></li> </ul>
4	Health effects as waste	<ul style="list-style-type: none"> <li>• It can enter to the food chain: <b>Very</b></li> <li>• It contains a quantity of dangerous substances for the public health: <b>Significant</b></li> <li>• It has been found a negative impact on public health: <b>Significant</b></li> <li>• It increases the risk of mortality: <b>a little</b></li> </ul>

		<ul style="list-style-type: none"> <li>It increases the risk of morbidity: <b>a little</b></li> <li>It increases the risk of accidents: <b>very</b></li> <li>It increases the risk of explosions: <b>zero</b></li> </ul>
5	Other possible negative characteristics as waste	<ul style="list-style-type: none"> <li>Increases the risk of fires: <b>Very</b></li> <li>It increases the child labor: <b>a little</b></li> <li>It increases the "black" work: <b>Very</b></li> <li>It increases the underground economy: <b>Very</b></li> </ul>
6	Management cost	<p>Plastic bottles in the collection - transport and at landfill are estimated to have about 1.5 times less weight than the average weight of waste. So, based on the most likely of mixed waste management costs range are evaluated (ERS, 2015) as follows:</p> <ul style="list-style-type: none"> <li>Has it higher, lower or the same management costs than the average waste costs?: <b>It has higher</b></li> <li>Estimated range management costs of the material - product as waste: <b>From 525€/t to 1.050€/t</b></li> </ul>
7	Possible advantages of actions for Prevention	<ul style="list-style-type: none"> <li>Are there Prevention actions that can reduce "significantly" or even "a little" the waste production?: <b>Yes</b></li> <li>Are there Prevention actions that can reduce "significantly" or even "a little" the dangerousness of the remaining waste?: <b>Yes</b></li> </ul> <p>Are there Prevention actions that can reduce "significantly" or even "a little" the management cost of the remaining waste of the Municipalities?: <b>Yes</b></p> <p>Are there Prevention actions that create "no" or "a little" organizational problems for Municipalities?: <b>Yes</b></p> <ul style="list-style-type: none"> <li>Are there Prevention actions implemented with "no" or "small" implementation costs for Municipalities?: <b>Yes</b></li> <li>Are there Prevention actions that create "a few", "enough" or "many" jobs?: <b>Yes</b></li> </ul>
8	Useful Documents	<ol style="list-style-type: none"> <li><a href="http://ecowatch.com/2014/04/07/22-facts-plastic-pollution-10-things-can-do-about-it/">http://ecowatch.com/2014/04/07/22-facts-plastic-pollution-10-things-can-do-about-it/</a></li> <li><a href="http://thewaterproject.org/bottled_water_wasteful">http://thewaterproject.org/bottled_water_wasteful</a></li> <li><a href="http://www.designrulz.com/product-design/2012/11/45-ideas-of-how-to-recycle-plastic-bottles/">http://www.designrulz.com/product-design/2012/11/45-ideas-of-how-to-recycle-plastic-bottles/</a></li> <li><a href="http://www.euractiv.com/sections/sustainable-dev/plastics-be-banned-european-landfill-310367">http://www.euractiv.com/sections/sustainable-dev/plastics-be-banned-european-landfill-310367</a></li> <li><a href="http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf">http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf</a></li> <li><a href="http://www.earth911.com/recycling-guide/how-to-recycle-plastic-jugs-bottles/">http://www.earth911.com/recycling-guide/how-to-recycle-plastic-jugs-bottles/</a></li> <li><a href="http://kids.nationalgeographic.com/kids/stories/spacescience/water-bottle-pollution/">http://kids.nationalgeographic.com/kids/stories/spacescience/water-bottle-pollution/</a></li> <li><a href="http://www.huffingtonpost.com/norm-schriever/post_5218_b_3613577.html">http://www.huffingtonpost.com/norm-schriever/post_5218_b_3613577.html</a></li> <li><a href="http://www.ecorec.gr">www.ecorec.gr</a></li> </ol>
9	Prevention Ideas	<ul style="list-style-type: none"> <li>Promoting the use of re-useable refillable bottles instead of single use plastic bottles.</li> <li>Targeted application of PAYT in super markets.</li> <li>In cooperation with the central government and bodies involved promotion of the deposit fee for refreshments, water and juices that are currently distributed in non-returnable plastic containers.</li> <li>Implementation of a campaign at the LA titled: «I think about ways to reuse a plastic container before throwing it away». It could be used to temporarily store wine, vinegar, oil, etc for the everyday needs of the household. This activity reduces the use of plastic containers by increasing their lifecycle until their final recycling.</li> <li>Promotion of voluntary agreements with relevant institutions and large places of public assembly managers to apply a deposit fee on plastic bottles sold at the premises.</li> <li>Implementation of a campaign for the promotion of returnable packaging,</li> </ul>

		<p>emphasizing on bottled water, refreshments, beer etc.</p> <ul style="list-style-type: none"> <li><a href="http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention-actions_v4_EN.pdf">http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention-actions_v4_EN.pdf</a></li> </ul>
10	Useful web pages	<ul style="list-style-type: none"> <li><a href="https://waste-prevention.gr/waste/">https://waste-prevention.gr/waste/</a></li> <li><a href="http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf">http://ec.europa.eu/environment/waste/studies/pdf/plastics.pdf</a></li> <li><a href="http://www2.epa.gov/learn-issues/learn-about-waste">http://www2.epa.gov/learn-issues/learn-about-waste</a></li> <li><a href="http://www.euractiv.com/sections/sustainable-dev/plastics-be-banned-european-landfill-310367">http://www.euractiv.com/sections/sustainable-dev/plastics-be-banned-european-landfill-310367</a></li> <li><a href="http://thewaterproject.org/bottled_water_wasteful">http://thewaterproject.org/bottled_water_wasteful</a></li> <li><a href="http://www.boredpanda.com/plastic-bottle-recycling-ideas/">http://www.boredpanda.com/plastic-bottle-recycling-ideas/</a></li> </ul>
11	Prevention Ideas	<p>See all the ideas for Prevention for this material - product in the following website of the project LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a></p>
12	Suggest ideas for prevention	<p>Suggest your own ideas for Prevention for this material - product in the following website of the project LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a></p>

### 1.1.5 Packaging

	Data Categories	Packaging
1	General Information	<p>Within the EU, the first efforts to recycle waste packaging began in the 1980s and were related to beverage packaging, namely beer bottles. For other packaging, a common European legislation was absent and Member States implemented their own policies for recycling. The attempt to harmonize national systems started when cheap recycled materials from countries that had funded collection and recycling of packaging occurred in countries where recycling was based only on cost recovery materials, without additional funding. Then recycling systems in these countries were threatened with collapse.</p> <p>Packaging is anything used to contain, protect, handle, deliver or present raw materials and processed goods. It includes items such as: Boxes, pallets, crates, labels, containers, tubes and cores, bags and sacks, tape and materials for wrapping, binding and tying.</p> <p>If an item is integrated into packaging and intended to be used and thrown away with it, it is still considered as packaging. For example, a mascara brush which forms part of the container closure would be considered as packaging.</p> <p>An item is not considered to be packaging if it is either: part of a product and is necessary to preserve, contain or support the product during its lifespan and use, eg tea bags and pots for house plants intended to stay with the plant throughout its life, a disposable item designed to be used at the point of sale which does not fulfill a packaging function, eg drinks stirrers and plastic cutlery.</p> <p><a href="http://www.netregs.org.uk/library_of_topics/materials_equipment/packaging/what_is_packaging.aspx">http://www.netregs.org.uk/library_of_topics/materials_equipment/packaging/what_is_packaging.aspx</a>  <a href="http://www.eoan.gr/en/content/329/packaging-packaging-waste">http://www.eoan.gr/en/content/329/packaging-packaging-waste</a></p>
2	Quantitative data on waste	<p>In 2012, 156.8 kg of packaging waste was generated per inhabitant in the EU-28 (25-35%). This quantity varied between 45.0 kg per inhabitant in Bulgaria and 206.2 kg per inhabitant in Germany. Also, more than 10 million tonnes of packaging waste is produced every year in the UK.</p> <p>Paper and cardboard, glass, plastics, wood and metals are, in that order, the most</p>

		<p>common types of packaging waste in the EU Member States. All other materials represent less than 0.5 % of the total volume of packaging waste generated.</p> <p>The total quantity of the five materials was from 78.6 million tonnes in 2005 to 81.3 million tonnes in 2008. Afterwards the volume dropped to 76.3 million tonnes in 2009 and recovered in 2010 to 78.6 million tonnes and, in 2011, to 79.9 million tonnes.</p> <p><a href="http://ec.europa.eu/eurostat/statistics-explained/index.php/Packaging_waste_statistics">http://ec.europa.eu/eurostat/statistics-explained/index.php/Packaging_waste_statistics</a></p>
3	Environmental impacts as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Significant</b></li> <li>• Water consumption: <b>Significant</b></li> <li>• Consumption of raw materials: <b>Significant</b></li> <li>• Worsening of air pollution: <b>Significant</b></li> <li>• Worsening of water pollution recipients: <b>Significant</b></li> <li>• Increasing rainfall acidity: <b>Small</b></li> <li>• Worsening Climate Change: <b>Significant</b></li> <li>• Deterioration of in the "Ozone Hole": <b>Significant</b></li> <li>• Negative impact on terrestrial ecosystems: <b>Significant</b></li> <li>• Negative impact on aquatic ecosystems: <b>Significant</b></li> <li>• Negative effect on flora: <b>Significant</b></li> <li>• Negative impact on wildlife: <b>Significant</b></li> <li>• Negative impact on marine species: <b>Significant</b></li> <li>• Negative impact on endangered species: <b>Significant</b></li> <li>• Negative impact on birds: <b>Significant</b></li> <li>• Contains quantity of dangerous substances to the environment: <b>Significant</b></li> <li>• Creates deterioration of the landscape: <b>Significant</b></li> </ul>
4	Health effects as waste	<ul style="list-style-type: none"> <li>• It can enter to the food chain: <b>Very</b></li> <li>• It contains a quantity of dangerous substances for the public health: <b>Significant</b></li> <li>• It has been found a negative impact on public health: <b>Small</b></li> <li>• It increases the risk of mortality: <b>a little</b></li> <li>• It increases the risk of morbidity: <b>a little</b></li> <li>• It increases the risk of accidents: <b>a little</b></li> <li>• It increases the risk of explosions: <b>a little</b></li> </ul>
5	Other possible negative characteristics as waste	<ul style="list-style-type: none"> <li>• Increases the risk of fires: <b>Very</b></li> <li>• It increases the child labor: <b>a little</b></li> <li>• It increases the "black" work: <b>Very</b></li> <li>• It increases the hidden economy: <b>Very</b></li> </ul>
6	Management cost	<p>Generally speaking, the packaging collected/transported landfill are estimated to have about 1.5 times less weight than the average weight of waste. More specifically, plastic packaging in landfills has about 2.5 times more weight than the average basis weight of the waste. Similarly, cardboard has about 11%, wood packaging has about 1.5 times and metal packaging has about 1.6 times (ERS, 2015). So, based on the most likely of mixed waste composition, the range of management costs is evaluated (ERS, 2015) as follows:</p> <ul style="list-style-type: none"> <li>• Does it have higher, lower or the same management costs than the average waste costs?: <b>higher</b></li> <li>• The estimated management costs of the material - product as waste ranges from <b>225€/t to 451€/t (ERS, 2015)</b></li> </ul>
7	Possible advantages of actions for	<ul style="list-style-type: none"> <li>• Are there Prevention actions that can reduce "significantly" or even "a little" waste production?: <b>Yes</b></li> <li>• Are there Prevention actions that can reduce "significantly" or even "a little" dangerousness of the remaining waste?: <b>Yes</b></li> </ul>

	Prevention	<p>Are there Prevention actions that can reduce “significantly” or even “a little” the management cost of the remaining waste of the Municipalities?: <b>Yes</b></p> <p>Are there Prevention actions that create “no” or “little” organizational problems for Municipalities?: <b>Yes</b></p> <ul style="list-style-type: none"> <li>• Are there Prevention actions implemented with “no” or “small” implementation costs for Municipalities?: <b>Yes</b></li> <li>• Are there Prevention actions that create “a few”, “enough” or “many” jobs?: <b>Yes</b></li> </ul>
8	Useful Documents	<ul style="list-style-type: none"> <li>• <a href="http://www.epa.ie/waste/municipal/#.Vhy2Auztmko">http://www.epa.ie/waste/municipal/#.Vhy2Auztmko</a></li> <li>• <a href="http://ec.europa.eu/eurostat/statistics-explained/index.php/Packaging_waste_statistics#Data_sources_and_availability">http://ec.europa.eu/eurostat/statistics-explained/index.php/Packaging_waste_statistics#Data_sources_and_availability</a></li> <li>• <a href="http://www.netregs.org.uk/library_of_topics/materials_equipment/packaging/packaging_design_and_use.aspx">http://www.netregs.org.uk/library_of_topics/materials_equipment/packaging/packaging_design_and_use.aspx</a></li> <li>• <a href="http://www.sepa.org.uk/regulations/waste/packaging-waste/">http://www.sepa.org.uk/regulations/waste/packaging-waste/</a></li> <li>• <a href="http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention-actions_v4_EN.pdf">http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention-actions_v4_EN.pdf</a></li> <li>• <a href="http://www.ecorec.gr">www.ecorec.gr</a></li> </ul>
9	Prevention Ideas	<ul style="list-style-type: none"> <li>• Promotion of packaging materials recycling at the beaches used by the hotels in the LA area.</li> <li>• Campaign about using re-useable use bags (eg. paper, plastic, canvas, mesh) instead of single-use bags</li> <li>• Promotion of the activity with the slogan: «I make my own coffee; I don't buy it in single-use containers».</li> <li>• Refill systems: Promotion of ink recycling and refilling at offices.</li> <li>• Implementation of a campaign by the LA, titled: «I buy products with as little packaging as possible» by applying simple criteria of the environmentally responsible consumer</li> <li>• Promotion of the choice to serve tap water, refreshments and beer on tap.. Implementation of a campaign in the LA titled: «I drink tap water».</li> <li>• Distribution, free of charge, of canvas or mesh bags to the consumers at supermarkets and promote the program as Corporate Social Responsibility of the super markets.</li> </ul>
10	Useful web pages	<ul style="list-style-type: none"> <li>• <a href="http://ec.europa.eu/environment/waste/packaging/index_en.htm">http://ec.europa.eu/environment/waste/packaging/index_en.htm</a></li> <li>• <a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV:I21207">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV:I21207</a></li> <li>• <a href="http://www.europen-packaging.eu/policy/5-eu-packaging-and-packaging-waste-directive.html/">http://www.europen-packaging.eu/policy/5-eu-packaging-and-packaging-waste-directive.html/</a></li> <li>• <a href="https://waste-prevention.gr/waste/">https://waste-prevention.gr/waste/</a></li> <li>• <a href="http://www.europen-packaging.eu/sustainability/what-is-packaging.html">http://www.europen-packaging.eu/sustainability/what-is-packaging.html</a></li> </ul>
11	Prevention Ideas	<p>See all the ideas for Prevention for this material - product in the following website of the project LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a></p>
12	Suggest ideas for prevention	<p>Suggest your own ideas for Prevention for this material - product in the following website of the project LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a></p>

### 1.1.6 Clothing – textiles

a/a	Data Categories	Clothing – textiles
1	General Information	The dumping of post consumer textile waste is a huge urban waste problem and there is a common practice of collecting the discarded textiles by commercial and charity organizations. A portion is thus recovered in this way but the rest is normally

		<p>discarded as solid urban waste.</p> <p>Wool fibres are normally recycled by blending with new wool to produce new textile products. The final product may be little harder, but surely longer lasting. Pure white 100% cotton fibres may be converted to superabsorbent polymers by chemical modification and can be used for the production of medical textiles, such as superabsorbent polymers to be applied in diapers and incontinence products. In other cases, it is used to create insulation or creates rags, etc...</p> <p>Polypropylene which is widely used in the production of sportswear can be reprocessed by producing pellets/masterbatches and further moulding into different plastic components. It can also be blended with other polymers to develop composites. If blended with biopolymers like polylactic acid (PLA), the environmental footprint of the developed composites can be reduced considerably.</p> <p>Targeted prevention activities could be done in places where the wastes can arise (army, schools, hotels, industrial premises in uniforms, educational institutions, transport, transport companies, shipping companies, other major companies in uniforms for their staff, etc.).</p> <p>In Europe the Green Points are classic areas where clothing collected, but this is also happen to a large extent in special bins at many points in European countries and elsewhere. Furthermore, along with the clothing can be collected shoes, belts, handbags and other accessories.</p> <p>Nowadays, there are many initiatives for collection and reuse old clothes (private and municipal) as for example in Cyprus, where "ANAKYKLOS" place metal collection warehouses (purple) in public places such as town halls and councils, supermarkets, car parks, etc.</p> <p><a href="http://www.waste-management-world.com/articles/print/volume-13/issue-6/features/trash-talk-textile-recycling.html">http://www.waste-management-world.com/articles/print/volume-13/issue-6/features/trash-talk-textile-recycling.html</a>  <a href="http://www.anakyklos.org/el/2014-04-03-15-12-59">http://www.anakyklos.org/el/2014-04-03-15-12-59</a></p>
2	Quantitative data on waste	<p>In the UK, it is estimated that more than 1 million tonnes of textiles are thrown away every year, with most of this coming from household sources. Textiles make up about 3% by weight of a household bin. At least 50% of the textiles we throw away are recyclable, however, the proportion of textile wastes reused or recycled annually in the UK is only around 25%.</p> <p>In the U.S., the Environmental Protection Agency (EPA) reports, the average person discards 70 pounds (32 kg) of clothing per year. The Agency estimates 85% of these materials wind-up in landfills or incinerators, with only a scant 15% entering the recycling stream. It is estimated that consumers in the EU reject 5.8 million tonnes of clothing a year (~25kg/c/year).</p> <p><a href="https://dl.dropboxusercontent.com/u/21130258/resources/InformationSheets/Textiles.htm">https://dl.dropboxusercontent.com/u/21130258/resources/InformationSheets/Textiles.htm</a>  <a href="http://www.waste-management-world.com/articles/print/volume-13/issue-6/features/trash-talk-textile-recycling.html">http://www.waste-management-world.com/articles/print/volume-13/issue-6/features/trash-talk-textile-recycling.html</a></p>
3	Environmental impacts as waste	<ul style="list-style-type: none"> <li>● Energy consumption: <b>Significant</b></li> <li>● Water consumption: <b>Significant</b></li> <li>● Consumption of raw materials: <b>Significant</b></li> <li>● Worsening of air pollution: <b>Significant</b></li> <li>● Worsening of water pollution recipients: <b>Significant</b></li> <li>● Increasing rainfall acidity: <b>Little</b></li> <li>● Worsening Climate Change: <b>Little</b></li> <li>● Deterioration of the hole in the ozone layer: <b>Little</b></li> </ul>

		<ul style="list-style-type: none"> <li>Negative impact on terrestrial ecosystems: <b>Little</b></li> <li>Negative impact on aquatic ecosystems: <b>Little</b></li> <li>Negative effect on flora: <b>Little</b></li> <li>Negative impact on wildlife: <b>Little</b></li> <li>Negative impact on marine species: <b>Little</b></li> <li>Negative impact on endangered species: <b>Little</b></li> <li>Negative impact on birds: <b>Little</b></li> <li>Contains quantity of dangerous substances to the environment: <b>Significant</b></li> <li>Creates deterioration of the landscape: <b>Significant</b></li> </ul>
4	Health effects as waste	<ul style="list-style-type: none"> <li>It can enter to the food chain: <b>a little</b></li> <li>It contains a quantity of dangerous substances for the public health: <b>Small</b></li> <li>It has been found a negative impact on public health: <b>Small</b></li> <li>It increases the risk of mortality: <b>No</b></li> <li>It increases the risk of morbidity: <b>a little</b></li> <li>It increases the risk of accidents: <b>a little</b></li> <li>It increases the risk of explosions: <b>No</b></li> </ul>
5	Other possible negative characteristics as waste	<ul style="list-style-type: none"> <li>Increases the risk of fires: <b>Significantly</b></li> <li>It increases the child labor: <b>Significantly</b></li> <li>It increases the "black" work: <b>Significantly</b></li> <li>It increases the underground economy: <b>Significantly</b></li> </ul>
6	Management cost	<p>Textiles-clothing at landfill are estimated to have about 1.5 times less weight than the average weight of waste. So, based on the most likely of mixed waste management costs range are evaluated (ERS, 2015) as follows:</p> <ul style="list-style-type: none"> <li>Has it a higher, lower or the same management costs than the average waste costs?: <b>Higher</b></li> <li>Estimated range management costs of the material - product as waste: <b>From 195€/t to 390€/t (ERS, 2015)</b></li> </ul>
7	Possible advantages of actions for Prevention	<p>Are there Prevention actions that can reduce "significantly" or even "a little" waste production?: <b>Yes</b></p> <p>Are there Prevention actions that can reduce "significantly" or even "a little" the dangerousness of the remaining waste?: <b>Yes</b></p> <p>Are there Prevention actions that can reduce "significantly" or even "a little" the management cost of the remaining waste of the Municipalities?: <b>Yes</b></p> <p>Are there Prevention actions that create "no" or "a little" organizational problems for Municipalities?: <b>Yes</b></p> <ul style="list-style-type: none"> <li>Are there Prevention actions implemented with "no" or "small" implementation costs for Municipalities?: <b>Yes</b></li> <li>Are there Prevention actions that create "a few", "enough" or "many" jobs?: <b>Yes</b></li> </ul>
8	Useful Documents	<ul style="list-style-type: none"> <li><a href="http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention_actions_v4_EN.pdf">http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention_actions_v4_EN.pdf</a></li> <li><a href="https://dl.dropboxusercontent.com/u/21130258/resources/InformationSheets/Textiles.htm">https://dl.dropboxusercontent.com/u/21130258/resources/InformationSheets/Textiles.htm</a></li> <li><a href="http://www.theatlantic.com/business/archive/2014/07/where-does-discarded-clothing-go/374613/">http://www.theatlantic.com/business/archive/2014/07/where-does-discarded-clothing-go/374613/</a></li> <li><a href="http://www.purewaste.org/media/pdf/textile-product-waste-fast-facts.pdf">http://www.purewaste.org/media/pdf/textile-product-waste-fast-facts.pdf</a></li> <li><a href="http://www.weardonaterecycle.org/about/issue.html">http://www.weardonaterecycle.org/about/issue.html</a></li> </ul>
9	Prevention Ideas	<ol style="list-style-type: none"> <li>Implementation of a campaign about the benefits (environmental, social, financial) of reusing clothing, shoes and accessories.</li> <li>Organization, by the LA, of a special program for the collection of clothing, shoes and accessories, by placing adequate numbers of special collection bins.</li> <li>The L.A. creates, in an area of its own, a Clothing Bank, where local residents can donate such items for reuse, donation or sale at low prices by L.A.</li> </ol>

		<p>4. Implementation awareness campaign titled: «I donate the clothing items I don't need». Clothes that have not been worn for over 3 years will probably never be worn again, although they might be in good condition. So we should give them to someone who will wear them and utilize them.</p> <p>5. The LA cooperates with the Church in order to collect clothing in churches in the LA area and to distribute them to families in need.</p>
10	Useful web pages	<ul style="list-style-type: none"> <li>• <a href="http://ewasteguide.info/node/4074">http://ewasteguide.info/node/4074</a></li> <li>• <a href="http://www.textile-recycling.org.uk/">http://www.textile-recycling.org.uk/</a></li> <li>• <a href="http://www.recyclenow.com/">http://www.recyclenow.com/</a></li> <li>• <a href="http://www.waste-management-world.com/articles/print/volume-13/issue-6/features/trash-talk-textile-recycling.html">http://www.waste-management-world.com/articles/print/volume-13/issue-6/features/trash-talk-textile-recycling.html</a></li> <li>• <a href="http://www.ecorec.gr">www.ecorec.gr</a></li> <li>• <a href="http://www.anakyklos.org/el/2014-04-03-15-12-59">http://www.anakyklos.org/el/2014-04-03-15-12-59</a></li> </ul>
11	Prevention Ideas	<p>See all the ideas for Prevention for this material - product in the following website of the project LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Choose%20what%20prevention%20action%20fit%20in%20your%20municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a></p>
12	Suggest ideas for prevention	<p>Suggest your own ideas for Prevention for this material - product in the following website of the project LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Suggest%20your%20own%20idea%20for%20waste%20prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a></p>

### 1.1.7 Toys

	Data Categories	Toys
1	General Information	<p>As a country becomes richer so does the amount of waste derived by toys (amongst other waste streams) increase<sup>23</sup> Although with technological developments, some potential toy waste has been reduced as some games are virtual or fall under other waste categories.</p> <p>The fact remains that some children's toys are still contain PVC which may contain plasticizers like phthalates and lead to soften the plastic and may contain myriad other impurities like arsenic and cadmium. Higher-end plastic toys are made of other plastics such as ABS (which is also used for plumbing and car-bumpers). ABS is toxic to produce, but does not release toxic substances after its creation -- unless it is burned or exposed to acetone. It's also extremely durable and has never tested to contain toxins.</p> <p>Furthermore, some toys are wooden and free of heavy metals and synthetic materials. Of course there are toys made of natural materials. For example, toys made from solid, non-stained, natural finish wood and organic textiles (i.e. wool, felt, organic cotton).</p> <p>Good-quality toys are often outgrown before they're outworn but one family's old toys will be another family's treasure or a few can be donated to charities or orphanages. Furthermore, reuse can be very cost effective and great for the environment.</p> <p>In many countries, Community toy banks/libraries allow children to check out toys, and families to donate unneeded playthings.</p>

23 <http://www.nature.com/news/environment-waste-production-must-peak-this-century-1.14032>

		<p>A community organization like this by the Municipality could be the perfect solution.</p> <p><a href="http://www.toysadvice.co.uk/MaterialsCategory.html">http://www.toysadvice.co.uk/MaterialsCategory.html</a>  <a href="http://www.hgtv.com/design/rooms/kid-rooms/recycling-and-reusing-childrens-toys">http://www.hgtv.com/design/rooms/kid-rooms/recycling-and-reusing-childrens-toys</a>  <a href="http://hannybizreviews.com/2014/06/the-top-10-eco-friendly-child-toy-brands-and-why-they-rock/">http://hannybizreviews.com/2014/06/the-top-10-eco-friendly-child-toy-brands-and-why-they-rock/</a></p>
2	Quantitative data on waste	<p>Children today tend to accumulate a lot of toys over the years but ultimately they are outgrown and discarded. It is estimated that in the UK, 13 million toys end up in landfill sites each year.</p> <p>Approximately three million tonnes of household rubbish will be created by householders in Britain every Christmas and for every one tonne of rubbish produced by householders, a further 15 tonnes has been created through manufacturing of the goods and extraction of raw materials. Of this waste, an estimated 800,000 tonnes is created by toy packaging alone.</p> <p><a href="http://www.uk-energy-saving.com/recycle_toys.html">http://www.uk-energy-saving.com/recycle_toys.html</a>  <a href="http://www.sourcewire.com/news/35621/uk-to-send-tonnes-of-toy-packaging-waste-to-landfill#.ViCxtuztmko">http://www.sourcewire.com/news/35621/uk-to-send-tonnes-of-toy-packaging-waste-to-landfill#.ViCxtuztmko</a></p>
3	Environmental impacts as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Small</b></li> <li>• Water consumption: <b>Small</b></li> <li>• Consumption of raw materials: <b>Significant</b></li> <li>• Worsening of air pollution: <b>Significant</b></li> <li>• Worsening of water pollution recipients: <b>Small</b></li> <li>• Increasing rainfall acidity: <b>Significant</b></li> <li>• Worsening Climate Change: <b>Significant</b></li> <li>• Deterioration of the hole in the Ozone Layer: <b>Significant</b></li> <li>• Negative impact on terrestrial ecosystems: <b>Small</b></li> <li>• Negative impact on aquatic ecosystems: <b>Small</b></li> <li>• Negative effect on flora: <b>Small</b></li> <li>• Negative impact on wildlife: <b>Small</b></li> <li>• Negative impact on marine species: <b>Small</b></li> <li>• Negative impact on endangered species: <b>Small</b></li> <li>• Negative impact on birds: <b>Significant</b></li> <li>• Contains quantity of dangerous substances to the environment: <b>Significant</b></li> <li>• Creates deterioration of the landscape: <b>Small</b></li> </ul>
4	Health effects as waste	<ul style="list-style-type: none"> <li>• It can enter to the food chain: <b>a little</b></li> <li>• It contains a quantity of dangerous substances for the public health: <b>Significant</b></li> <li>• It has been found a negative impact on public health: <b>Small</b></li> <li>• It increases the risk of mortality: <b>a little</b></li> <li>• It increases the risk of morbidity: <b>a little</b></li> <li>• It increases the risk of accidents: <b>zero</b></li> <li>• It increases the risk of explosions: <b>zero</b></li> </ul>
5	Other possible negative characteristics as waste	<ul style="list-style-type: none"> <li>• Increases the risk of fires: <b>a little</b></li> <li>• It increases the child labor: <b>a little</b></li> <li>• It increases the "black" work: <b>a little</b></li> <li>• It increases the underground economy: <b>a little</b></li> </ul>
6	Management cost	<p>Toys in the collection - transport and at landfill are estimated to have about 1.5 times less weight than the average weight of waste. So, based on the most likely of mixed waste management costs range are evaluated (ERS, 2015) as follows:</p> <ul style="list-style-type: none"> <li>• Does it have a higher, lower or the same management costs than the average waste costs?: <b>Higher</b></li> <li>• Estimated range management costs of the material - product as waste: <b>From</b></li> </ul>

		<b>300€/t to 600€/t (ERS, 2015)</b>
7	Possible advantages of actions for Prevention	<ul style="list-style-type: none"> <li>Are there Prevention actions that can reduce “significantly” or even “a little” the waste production?: <b>Yes</b></li> <li>Are there Prevention actions that can reduce “significantly” or even “a little” the dangerousness of the remaining waste?: <b>No</b></li> <li>Are there Prevention actions that can reduce “significantly” or even “a little” the management cost of the remaining waste of the Municipalities?: <b>Yes</b></li> <li>Are there Prevention actions that create “no” or “a little” organizational problems for Municipalities?: <b>Yes</b></li> <li>Are there Prevention actions implemented with “no” or “small” implementation costs for Municipalities?: <b>Yes</b></li> <li>Are there Prevention actions that create “a few”, “enough” or “many” jobs?: <b>Yes</b></li> </ul>
8	Useful Documents	<ol style="list-style-type: none"> <li><a href="http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention-actions_v4_EN.pdf">http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention-actions_v4_EN.pdf</a></li> <li><a href="http://www.theguardian.com/sustainable-business/2014/jun/16/eco-friendly-sustainable-toys-growing-market-waste-recycling">http://www.theguardian.com/sustainable-business/2014/jun/16/eco-friendly-sustainable-toys-growing-market-waste-recycling</a></li> <li><a href="http://www.solidwastemag.com/columns/encouraging-consumers-to-responsibly-dispose-of-toys/">http://www.solidwastemag.com/columns/encouraging-consumers-to-responsibly-dispose-of-toys/</a></li> <li><a href="http://www.arvindguptatoys.com/arvindgupta/waste-balbhavan.pdf">http://www.arvindguptatoys.com/arvindgupta/waste-balbhavan.pdf</a></li> <li><a href="http://www.uk-energy-saving.com/recycle_toys.html">http://www.uk-energy-saving.com/recycle_toys.html</a></li> </ol>
9	Prevention Ideas	<ul style="list-style-type: none"> <li>Implementation of a campaign in the LA to inform about the benefits (environmental, social, and financial) of reusing toys.</li> <li>In each neighborhood, on the sidewalk, a small sheltered area (eg 1 m<sup>2</sup> area) that is open and accessible on one side that contains shelves for local residents to place their toys or other unwanted items. Passengers by the neighborhood inspect the items and take what they need. This process is very discreet and supportive of the neighborhood.</li> <li>The LA institutes a yearly (or recurring) event, every December, during which the local residents of the LA bring to an appointed area toys they do not need for children of families in need to come and select.</li> <li>Collection and activities relating to waste derived from toys may be combined with relevant activities about “waste” from other streams/products, such as clothing, furniture, electrical appliances and other household items.</li> <li>The LA cooperates with the Church or other organization in order to collect toys in churches in the LA area and to distribute them to families in need.</li> </ul>
10	Useful web pages	<ul style="list-style-type: none"> <li><a href="https://waste-prevention.gr/waste/">https://waste-prevention.gr/waste/</a></li> <li><a href="http://www.sourcewire.com/news/35621/uk-to-send-tonnes-of-toy-packaging-waste-to-landfill#.ViCxtuztmko">http://www.sourcewire.com/news/35621/uk-to-send-tonnes-of-toy-packaging-waste-to-landfill#.ViCxtuztmko</a></li> <li><a href="http://www.wasteonline.org.uk/">http://www.wasteonline.org.uk/</a></li> <li><a href="http://www.toysadvice.co.uk/MaterialsCategory.html">http://www.toysadvice.co.uk/MaterialsCategory.html</a></li> <li><a href="http://ewasteguide.info/node/4074">http://ewasteguide.info/node/4074</a></li> <li><a href="http://www.ecorec.gr">www.ecorec.gr</a></li> </ul>
11	Prevention Ideas	See all the ideas for Prevention for this material - product in the following website of the project LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
12	Suggest ideas for prevention	Suggest your own ideas for Prevention for this material - product in the following website of the project LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.1.8 Furniture

No	Categories of Data	Furniture
1	General information	<p>Furniture is a broad product group that encompasses very different types of furniture (chairs, tables, wardrobes, shelves, cupboards etc) with very different uses (for schools, offices, kitchens, bathrooms, outdoors, special uses, etc.).</p> <p>Indoor furniture: This includes indoor furniture for business purposes, e.g. offices and schools, as well as for domestic purposes. It includes all free-standing or built-in furniture units, which are used for storing, hanging, lying, sitting, working and eating. It does not include, however, building products (for example, steps, walls, moldings, panels), sanitary equipment, carpets, fabrics, office supplies, and other products, whose primary purpose is not to function as furniture.</p> <p>Outdoor furniture: This includes mainly benches, tables and chairs, excluding other products, whose primary purpose is not to function as furniture (such as streetlights, bike-parks, playgrounds, etc.).</p> <p>The majority of furniture belongs to the so called category of bulky waste. Furniture is a component of Municipal Solid Waste (MSW) and it is the number one least-recycled item in a household.</p> <p>The main characteristic of furniture is the variety of materials they are made of: wood and wood based products (MDF etc), metals, plastics, textiles and leather, padding materials, surface coatings, glues and adhesives as well as their packaging materials. According to the Swedish furniture industry the average Swedish furniture product consists of 70w% wood (-based material), 15w% padding materials (mainly polyurethane and polyester foam), 10w% metals and 5w% other materials (plastics, textiles, glass, etc.)</p> <p>Some of the characteristics of these materials are given below:</p> <ul style="list-style-type: none"> <li>• <b>Wood and wood-based products:</b> A great number of furniture is made of wood and/or wood based products (wooden panels as fibreboard, particleboard and plywood), as a matter of fact , after the construction sector, the furniture industry and paper industry are the main consumers of wood. The key environmental aspects of solid wood are mainly related to the legal and sustainable character of the originating forest management. The impacts related to uncontrolled wood logging are for example loss of biodiversity, erosion and soil degradation. As the majority of wood used in furniture is treated, attention must be paid to the surface treatment of wood, especially for outdoor use.</li> </ul> <p>The wood based panels are essentially produced under heat and pressure with the addition of an adhesive to glue fibers, particles or sheets of wood respectively. The environmental and health impacts of these products are linked to forestry practices and the substances used as glues and finishings (such as formaldehyde resins, melamine, epoxy, polyurethane resins, ethylene vinyl acetate, etc.).</p> <p>Timber, though, still remains mostly a renewable resource in comparison to other materials such as metal or plastic. As such, its use in furniture should be promoted.</p> <ul style="list-style-type: none"> <li>• <b>Metals:</b> The most relevant types of metals for the production of furniture are aluminum, steel (mainly stainless steel ), iron (especially in outdoor furniture) and other types of metals (in fittings). The most significant impacts related to metal production are: <ul style="list-style-type: none"> <li>- Influence on landscape, metal contamination in local water sources and emissions of dust and noise during mining processes to obtain bauxite (for aluminum) and iron ore.</li> <li>- Energy consumption (from sources such as coal, natural gas, nuclear power or hydroelectric power), the release of heavy metals mostly through wastewater and emissions of fluorine, dust, nitrogen oxide, sulphur oxide, etc. during metal manufacturing in metallurgic factories to produce primary aluminum, iron and</li> </ul> </li> </ul>

		<p>steel.</p> <ul style="list-style-type: none"> <li>• Emissions of heavy metals and other compounds when metal undergoes surface treatment (galvanization, painting, lacquer, enameling) in order to extend the durability and the aesthetic value, except for stainless steel which does not need surface coating</li> </ul> <p>Furthermore metals are not renewable, although their reserves may last for several hundred years. Therefore, in general terms, in order to reduce the environmental impacts of metals, the most straightforward criteria would be to reduce the amount of metals used in favor of wood (-based) materials. Increasing the share of recycled materials in metal also considerably reduces the energy needed to produce steel and aluminum. For example the energy needed to produce 1kg of 100%-recycled aluminum is approximately 10% of that needed for the production of primary aluminum. Beyond energy savings this also reduces the impacts of mining described above, and reduces final waste streams. Therefore the use of secondary (recycled) metals should be encouraged when procuring furniture. In order to facilitate recycling, it is important to ensure that the metal parts of furniture can easily be removed for their selective collection for recycling.</p> <ul style="list-style-type: none"> <li>• <b>Plastics:</b> The product group 'plastics' constitutes a large range of products produced from natural gas or oil. Some of the impacts related to plastic production are: <ul style="list-style-type: none"> <li>• The use of non-renewable resources</li> <li>• The use of additives such as stabilizers, plasticizers or flame retardants with (suspected) environmental and/or health related hazardous properties</li> <li>• The release of hazardous substances during production and the handling of waste.</li> </ul> </li> </ul> <p>Like metals, plastics can also be recycled but it is important that plastic parts can be easily removed from the furniture and their type identified. Therefore, the environmental criteria for plastics should focus on the limitation of certain additives in plastic production and the marking of plastic parts for their easy disassembly for recycling. As with metal, the use of recycled plastic should be encouraged, to reduce production-related impacts, as well as the use of renewable resources.</p> <ul style="list-style-type: none"> <li>• <b>Textiles and leather:</b> Textiles can be produced from various materials, both from natural fibers and synthetic fibers. Virtually all types of textiles are applied in the furniture industry, varying from wool, cotton, and polyester to jute and flax. Leather is also used, though less frequently. The impacts of the different fabrics relate mainly to the production phase, especially in the treatment of the fibers. Thus the main environmental impacts and health related issues are associated with: <ul style="list-style-type: none"> <li>• The use of pesticides (in case of natural fibers) - during the cultivation phase</li> <li>• VOC (volatile organic compound) emissions to air (in the case of plastic fibres) - during the production phase</li> <li>• Emissions of dyes, pigments, fungicides, chromium compounds, etc. to water - during the treatment of fibers and tanning of skin fibers to produce leather</li> <li>• Presence of hazardous substances in the product</li> </ul> </li> </ul> <p>In order to reduce these negative effects certain substances such as formaldehyde, heavy metals, azo dyes, etc. should be banned or limited in fabric processing and manufacturing and in the final product.</p> <ul style="list-style-type: none"> <li>• <b>Padding materials:</b> Padding materials are mainly polyurethane foams (PUR-foams) and latex foams used in upholstered furniture as a filling material for seats, backs of chairs, sofas and arm rests.</li> </ul> <p>The most important aspects, which can be tackled in setting criteria for padding materials, are:</p> <ul style="list-style-type: none"> <li>• The use of hazardous substances in the production process</li> <li>• The presence of hazardous residues in the foams</li> <li>• The durability of the final product</li> <li>• The use of raw materials</li> </ul>
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	<ul style="list-style-type: none"> <li> <b>Surface coatings:</b> Coating systems are usually used for the protection (e.g. wood preservation, anti-corrosion, heat resistance) and the design/decoration (colour, gloss, transparency) of the surfaces of products. Coating systems/methods include staining, laminates, clear varnishes, lacquers, foils, decorative papers, adhesives, etc., but also the galvanization of steel. The key environmental and health related aspects associated with surface treatment are:           <ul style="list-style-type: none"> <li>Emissions of VOCs and hazardous substances used in coatings (especially heavy metals)</li> <li>Spillage of liquid and powder coatings due to over-spraying</li> <li>Emissions as a result of the galvanization of certain metals</li> </ul>           In order to reduce such negative aspects, when defining criteria for surface treatments and coatings, the following aspects should be considered:           <ul style="list-style-type: none"> <li>Limitation of VOCs and certain aromatic solvents in the content of surface treatment agents</li> <li>Banning the use of surface treatment agents with certain health and environment risk classifications and hazardous substances (incl. heavy metals, certain phthalates and halogenated organic flame retardants)</li> <li>Restricting the gloss of the product (coating)</li> <li>Banning coating of certain metals and their compounds</li> </ul> </li> <li> <b>Glues and adhesives:</b> In assembly of the furniture, the principle impact relates to the use of glues and adhesives. The main issue associated with the use of adhesives is related to the solvent content of glue and the consequent emissions of VOCs, although other hazardous substances may also be present in certain glues. Therefore, in order to minimize the negative environmental impacts of certain glues, criteria shall be set to limit the content of VOCs in adhesives and the content of hazardous additives.         </li> <li> <b>Packaging:</b> Last but not least, the packaging volume, when delivering furniture is considerable, as the pieces have to be delivered without being damaged. The reduction of the amount of packaging could be considered, however it would be difficult to evaluate this through a tender process without appropriate reference standards. Therefore criteria for packaging should concentrate on the recyclability, separability and the content of recycled material.         </li> </ul> <p><b>Fitness for use, ergonomics, safety and reparability</b> of the furniture are also important elements with respect to the lifespan of furniture (maintenance of furniture and durability). A piece of furniture that can be repaired does not need to be replaced by a new one.</p> <p>Reparability depends on:</p> <ul style="list-style-type: none"> <li>The ease of disassembly, which in turn depends on the way the parts or materials are connected/assembled (the type of glue, the use of screws or welding, etc.);</li> <li>Availability of spare parts.</li> </ul> <p>The same stands for fitness for use, ergonomics and safety. A product that is not fit for purpose, nor comfortable or safe will be replaced sooner.</p> <p>Most old furniture was made with veneers and paints that are toxic. The same can stand today although there are many manufacturers that use eco-friendly veneers and paints and select materials (e.g upholsteries, padding materials) that conform to ecological criteria. Hazardous substances at second-hand furniture should be especially taken into consideration in the case of furniture for children.</p> <p>The problem with old furniture is that many items that are sent for disposal could be reused as they are or after some minor repair, which would increase significantly their lifespan. These furniture could be collected, selected and forwarded either free or with a small price in the framework of reuse economy. In many European cities, used furniture is donated, exchanged or second-hand sold during bazaars that are organized for this reason.</p> <p>In many European cities and elsewhere, furniture that are in a good condition are collected separately or at Green points, either by organizations of social economy,</p>
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2	Waste quantitative data	<p><b>Waste generation:</b> According to European Federation of Furniture Manufacturers (UEA) statistics, in the EU, furniture waste accounts annually for more than 4% of the total municipal solid waste (MSW), of which 80-90% is incinerated or dumped in landfills, whereas only 10% is recycled. According to Environmental Protection Agency estimates, approximately 3 million tons of office furniture and furnishings in the U.S. are discarded each year. Statistics for 2005 estimated that 8.8 million tons of furniture ended up in U.S. landfills. WRAP research shows that more than 40% of the <u>bulky waste</u> disposed of by householders either at the kerbside or at household waste recycling centres is furniture, equating to 670,000 tonnes. It is estimated that a business with 20 staff can save over 20 tonnes of CO2 over 15 years if it buys reused office furniture instead of buying new every 5 years, and that by avoiding the manufacture of new furniture the water savings are over 160 tonnes. In the UK, the biggest potential for re-use lies with sofas, wardrobes and bedframes. Just 17% of the 290,000 tonnes of sofas and upholstered chairs disposed of in one year are reused. For wardrobes, the re-use figure is only 10% and for bed frames just 7%.</p> <p><i>European Commission GPP Training Toolkit - Module 3: Purchasing recommendations:</i></p> <p><a href="http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_background_report.pdf">http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_background_report.pdf</a></p> <p>Wrap: Composition and re-use potential of household bulky furniture in the UK, MPD006-002 – August 2012 (<a href="http://www.wrap.org.uk/bulkywaste">www.wrap.org.uk/bulkywaste</a>)</p> <p><a href="http://www.wrap.org.uk/furniture-flows">http://www.wrap.org.uk/furniture-flows</a></p> <p>LAWPreT Library/Prevention documents/SPP/2013_Purchasing Reused Office Furniture Case Study_EN</p>
3	Environmental impacts of the product – material as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Significant</b></li> <li>• Water consumption: <b>Not at all</b></li> <li>• Consumption of raw materials: <b>Significant</b></li> <li>• Increase of air pollution: <b>Significant</b></li> <li>• Pollution increase of water recipients: <b>Small</b></li> <li>• Increasing rain acidity: <b>Significant</b></li> <li>• Climate Change: <b>Significant</b></li> <li>• Contribution in the "Ozone Hole": <b>Not at all or Small</b></li> <li>• Negative impact on terrestrial ecosystems: Significant</li> <li>• Negative impact on water ecosystems: <b>Small</b></li> </ul>

		<ul style="list-style-type: none"> <li>Negative impact on flora: <b>Small</b></li> <li>Negative impact on fauna: <b>Small</b></li> <li>Negative impact on marine species: <b>Small</b></li> <li>Negative impact on endangered species: <b>Small</b></li> <li>Negative impact on birds: <b>Small</b></li> <li>Contains dangerous substances for the environment: <b>Significant</b></li> <li>Deteriorates the landscape: <b>Significant</b></li> </ul>
4	Health impact	<ul style="list-style-type: none"> <li>it may enter the food chain: <b>Little</b></li> <li>It contains hazardous to public health substances: <b>Small</b></li> <li>It has been found negative impact on public health: <b>Small</b></li> <li>It increases the risk of mortality: <b>Small</b></li> <li>It increases the risk of morbidity: <b>Small</b></li> <li>It increases the risk of accidents: Not at all</li> <li>Increases the risk of explosions: Not at all</li> </ul>
5	Other negative characteristics as waste	<ul style="list-style-type: none"> <li>Increases the risk of fire: <b>Significant</b></li> <li>Increases Child labor: <b>Significant</b></li> <li>Increases illegal work: <b>Significant</b></li> <li>Increases the hidden economy: <b>Significant</b></li> </ul>
6	Management cost	<ul style="list-style-type: none"> <li>Is the management cost or the product – material higher or lower of the average waste management cost: <b>Higher</b></li> <li>Assessment of the typical range of management cost: <b>From 158 €/t to 546 €/t</b> (ERS, 2015)</li> </ul>
7	Possible advantages of prevention activities	<ul style="list-style-type: none"> <li>Are there prevention activities that can reduce "significantly" or even "little" waste production?:<b>Yes</b></li> <li>Are there prevention activities that can reduce "significantly" or even "a little" the danger of remaining waste?: <b>Yes</b></li> <li>Are there prevention activities that can reduce "significantly" or even " a little " the management costs of the remaining waste?: <b>Yes</b></li> <li>Are there prevention activities that cause "no" or "little" organizational problems to the LA?: <b>Yes</b></li> <li>Are there prevention activities with 'no' or 'small' implementation costs for the LA? <b>Yes</b></li> <li>Are there prevention activities that create "a few", "several" or "many" jobs?: <b>Yes</b></li> </ul>
8	Useful document- ation	<ol style="list-style-type: none"> <li>European Commission GPP Training Toolkit - Module 3: Purchasing recommendations: <a href="http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_background_report.pdf">http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_background_report.pdf</a></li> <li>(<a href="http://www.wrap.org.uk/bulkywaste">www.wrap.org.uk/bulkywaste</a>)</li> <li><a href="http://www.wrap.org.uk/furniture-flows">http://www.wrap.org.uk/furniture-flows</a></li> <li>LAWPreT Library/Prevention documents/SPP/2013_Remanufacturing Office Furniture Case Study_EN</li> <li>LAWPreT Library/Prevention documents/SPP/2013_Purchasing Reused Office Furniture Case Study_EN</li> </ol>
9	Prevention ideas	<ol style="list-style-type: none"> <li>In 2012, France initiated an EPR scheme for furniture from both households and businesses. This scheme strongly promotes furniture reuse and closely involves social economy actors in its organizational model. It is expected to generate over 300M Euros a year to help develop furniture reuse and recycling activities and the related jobs and to support schemes that although they provided a significant environmental benefit were not profitable enough to generate sustainable activities before the scheme (such as mattress and wood recycling). You can find more information <a href="#">here</a></li> <li>The LA cooperates with social or other enterprises in order to create a Centre for Sale of Reused Furniture. Example: ECOMOEBEL – REDESIGN OF FURNITURE IN GERMANY is a network for the reconditioning and marketing of used furniture which is based on the co-operation of waste managers and waste collectors, designers, furniture producers and sellers. The aim of ZweitSinn (the business brand) is to organize a platform where suppliers of used materials (old furniture,</li> </ol>

		<p>chipboards etc.), producers with the experience and ability to work with used materials, designers who have specified in so called recycling design and sellers in areas where a demand for unusual but high quality and environmentally friendly furniture design exists can “meet” and design, produce and sell re-design furniture. (<a href="http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=273&amp;Itemid=101">http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=273&amp;Itemid=101</a>)</p> <p>3. Purchasing furniture that is free of harmful substances and coating: Implementing certain criteria during the purchase of furniture regarding their content in harmful substances that come from coatings, glues and adhesives or other materials that are used in furniture manufacturing can result in furniture wastes that are less harmful to the environment. Such criteria can be found in the following document: <i>European Commission GPP Training Toolkit - Module 3: Purchasing recommendations</i>: <a href="http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_background_report.pdf">http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_background_report.pdf</a></p> <p>4. Implementation of a campaign in the LA to inform about the benefits (environmental, social, and financial) of reusing furniture: The raising of awareness of general population regarding the possibilities for the reuse of furniture is of major importance for the prevention of furniture waste generation.</p> <p>5. Provisioning for the receipt of used furniture for reuse or preparation for reuse at the Green Spot that serves the LA: In the case of Green Spots, special provision for the creation of a place that receives used furniture can be made. In this place other furniture will be given for use (sold) as they are and other will go through repair (preparation for reuse) before they're resold. Thus, job positions are created and also relevant waste is minimized.</p> <p>6. The LA creates a place (eg in the Green Spot area) for treatment of broken furniture or other wooden products, where unrepairable items shall be shattered and utilized through composting, as biomass or for the production of pellets.</p>
10	Useful websites	<ol style="list-style-type: none"> <li>1. <a href="http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_background_report.pdf">http://ec.europa.eu/environment/gpp/pdf/toolkit/furniture_GPP_background_report.pdf</a></li> <li>2. (<a href="http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=273&amp;Itemid=101">http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=273&amp;Itemid=101</a>)</li> <li>3. <a href="http://planetsave.com/2011/05/05/epa-reports-9-8-million-tonnes-per-year-in-furniture-waste/">http://planetsave.com/2011/05/05/epa-reports-9-8-million-tonnes-per-year-in-furniture-waste/</a></li> <li>4. <a href="http://www.pbd.org/our_green_story.html">http://www.pbd.org/our_green_story.html</a></li> <li>5. <a href="http://www.vitex.gr/sponsorships_05.html">http://www.vitex.gr/sponsorships_05.html</a></li> <li>6. <a href="http://www.wrap.org.uk/bulkywaste">www.wrap.org.uk/bulkywaste</a>)</li> <li>7. <a href="http://www.wrap.org.uk/furniture-flows">http://www.wrap.org.uk/furniture-flows</a></li> <li>8. European Commission GPP Training Toolkit - Module 3: Purchasing recommendations</li> <li>9. <a href="#">Wrap: Composition and re-use potential of household bulky furniture in the UK, MPD006-002 – August 2012</a></li> <li>10. <a href="http://www.ecorec.gr">www.ecorec.gr</a></li> <li>11. <a href="#">Restoring furniture the eco way</a></li> <li>12. <a href="#">EPA Furniture manufacturing and refinishing</a></li> <li>13. <a href="#">Ecolabel - Product Groups and Criteria (see wooden furniture, bed mattresses, paints and varnishes etc.)</a></li> <li>14. <a href="#">20 years of EPR in France: achievements, lessons learned and challenges ahead</a></li> </ol>
11	Prevention Ideas	You can see all the suggested Prevention ideas for the specific product – material at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
12	Suggest your Prevention ideas	Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

## 1.1.9 Waste of electrical and electronic equipment (WEEE)

No	Categories of Data	Waste of electrical and electronic equipment (WEEE)
1	General information	<p>Waste from electrical and electronic equipment (WEEE), including personal computers, telephones, MP3 players, audio equipment, televisions, etc. (brown goods), but also fridges, washing machines, stoves, air conditioners, or water heaters (white goods), is one of the fastest growing waste streams in the EU, growing at 3-5% per year, and expected to grow to more than 12 million tonnes by 2020. Blending several different materials and components, often including hazardous contents, WEEE is a significant threat to the environment and to people's health if not managed accordingly. This waste stream also contains a great amount of scarce and expensive resources.</p> <p>To prevent WEEE, the solution would be to produce more durable and repairable goods. Unfortunately, it is the contrary that occurs today with goods which are more and more difficult to repair<sup>24</sup> and the scandals of planned obsolescence. The three more striking issues concerning obstacles to repairing of electronic goods are:</p> <ul style="list-style-type: none"> <li>• Lack of access to and high costs of spare parts: costs of repair are higher than purchasing a new appliance</li> <li>• Lack of appropriate repair information: no free access to service manuals, software and hardware of product and components</li> <li>• Product design and components without re-use potential: new designs make it increasingly difficult to repair a product or components without breaking it.</li> </ul> <p>However, thanks to independent re-use and repair operators as well as initiatives such as <i>I fix it</i><sup>25</sup> or <i>Repair Café</i><sup>26</sup>, consumers have options to improve the lifetime of their electrical and electronic equipment.</p>
2	Waste quantitative data	<p>According to Eurostat<sup>27</sup>, the separate collection and recovery of WEEE grew steadily over the period from 2007–11, although the pace of the increase slowed year on year. In 2012, 3.5 million tonnes or 6.9 kg/inhabitant of WEEE were collected separately in the EU.</p> <p>In 2012, 3.6 million tonnes of WEEE were treated, of which 2.6 million tonnes were recovered. The recovered amount included 2.4 million tonnes of recycled WEEE (i.e. reprocessed into a product) and 0.2 million tonnes that was used for energy production.</p> <p>However, according to the Countering WEEE Illegal Trade project<sup>28</sup>, 9.45 million tonnes of WEEE are actually produced every year, which makes 18.6 Kg/inh. Only 35% (3.3 million tons) of all the e-waste discarded in 2012, ended up in the officially reported amounts of collection and recycling systems. The other 65% (6.15 million tons) was either:</p> <ul style="list-style-type: none"> <li>• exported (1.5 million tons),</li> <li>• recycled under non-compliant conditions in Europe (3.15 million tons),</li> <li>• scavenged for valuable parts (750,000 tons)</li> <li>• or simply thrown in waste bins (750,000 tons)</li> </ul> <p>Given that, the average amount of waste generated across the EU-28 in 2012 was equivalent to almost five tonnes (4 982 kg) per inhabitant, WEEE represents more or less 0.37% of the total waste stream. However, EEEs represent a significant amount of raw materials used in their manufacturing (for one computer: 240 kilograms fossil fuels, 22 kilograms synthetic chemical compounds, 1500 litres of (grey) water = 1700 kg raw materials)<sup>29</sup>.</p> <p>According to Eurostat, the amount of WEEE collected can vary significantly across EU</p>

24 <http://www.rreuse.org/wp-content/uploads/Joint-Mission-Statement-on-Product-Repair-and-Durability-2.pdf>

25 More information about Ifixit: <https://www.ifixit.com/>

26 More information about Repair Café: <http://repaircafe.org/en/>

27 [http://ec.europa.eu/eurostat/statistics-explained/index.php/Waste\\_statistics\\_-\\_electrical\\_and\\_electronic\\_equipment](http://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_statistics_-_electrical_and_electronic_equipment)

28 <http://www.cwitproject.eu/wp-content/uploads/2015/09/CWIT-Final-Report.pdf>

		Member States depending on differences in EEE consumption levels or due to different performance levels of the waste collection schemes in place. Rich EU countries produce a lot of WEEEs that are treated then, most of the time, in recovery schemes (17.7 kg/inh collected in Sweden), while poorest EU countries produce less WEEE that are scarcely collected (in Romania: 1.2 kg/inh collected, 5% thrown away in waste bins, 20% recycled via non-compliant processes, and more than 60% unreported) <sup>30</sup> .
3	Environmental impacts of the product – material as waste	<p>For one computer: 240 kilograms fossil fuels, 22 kilograms synthetic chemical compounds, 1500 litres of (grey) water = 1700 kg raw materials)<sup>31</sup>. ‘The most evident health-related issues are related to occupational and direct local exposure; however, these might not be those most relevant to long-term health impacts. The modes of disposal, including simply dumping into landfills or burning in open smelters, expose the general population, including generations to come, to highly toxic e-waste related mixtures (EWMS) through inhalation, contact with soil and dust, and oral intake of contaminated locally produced food and drinking water’<sup>32</sup>.</p> <ul style="list-style-type: none"> <li>• Energy consumption: <b>Significant</b></li> </ul> <p>The production of EEE results in significant energy consumption and CO2 emissions: Producing 1 tonne of gold, palladium or platinum releases 10,000 tons of CO2 in the atmosphere<sup>33</sup>.</p> <ul style="list-style-type: none"> <li>• Water consumption: No specific data, but very probably <b>significant</b></li> </ul> <p>The manufacturing process of WEEE includes, most of the time, the use of plastics, metals and chemicals. The data concerning the water consumption of the Canadian industry<sup>34</sup> can maybe give an idea about what represents the water consumption of EEE compared to other industrial processes. The water consumption related to EEE seems to be very little, but part of the water consumption related to primary metal or plastic manufacturing, which are two of the materials used to create EEE, should be added to have a better idea of the water consumption related to WEEE.</p> <ul style="list-style-type: none"> <li>• Consumption of raw materials: <b>Significant</b></li> </ul> <p>Even if the weight of this waste stream is far from being the most important one, WEEE stays a significant waste of very scarce and expansive materials<sup>35</sup>. Also, the manufacturing of new EEE implied by the scraping of those products causes a significant use of raw materials: at least 240 kilograms of fossil fuels, 22 kilograms of chemicals and 1,500 kilograms of water are required to produce one desktop computer<sup>36</sup>.</p> <ul style="list-style-type: none"> <li>• Increase of air pollution: <b>Significant</b></li> </ul> <p>It is stipulated that some of WEEE components (Printed circuit boards, computer wires and miscellaneous computer parts encased in rubber or plastic, e.g. steel rollers) may cause air pollution if not managed properly and landfilled<sup>37</sup>.</p> <ul style="list-style-type: none"> <li>• Pollution increase of water recipients: <b>Significant</b></li> </ul> <p>It is stipulated that some of WEEE components (Cathode Ray Tubes, dismantled printed circuit board processing, computer wires and miscellaneous computer parts encased in rubber or plastic, e.g. steel rollers) can be harmful for groundwater if not managed properly and landfilled<sup>38</sup>.</p>

29 [http://ec.europa.eu/environment/archives/greenweek2014/docs/presentations/parallel-side-sessions-2/2-4/stephane\\_arditi\\_2.4.pdf](http://ec.europa.eu/environment/archives/greenweek2014/docs/presentations/parallel-side-sessions-2/2-4/stephane_arditi_2.4.pdf), slide 7

30 <http://www.cwitproject.eu/wp-content/uploads/2015/09/CWIT-Final-Report.pdf>, p12

31 [Ibid](#), slide 7

32 [http://www.noodlesonlus.org/images/portal/doc/noodles/26\\_Diagnostic%20health%20risk%20assessment%20of%20electronic%20waste.pdf](http://www.noodlesonlus.org/images/portal/doc/noodles/26_Diagnostic%20health%20risk%20assessment%20of%20electronic%20waste.pdf), p.2

33 [http://www.unep.org/pdf/Recycling\\_From\\_e-waste\\_to\\_resources.pdf](http://www.unep.org/pdf/Recycling_From_e-waste_to_resources.pdf), p.10

34 <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/envir05a-eng.htm>

35 [http://ec.europa.eu/eurostat/statistics-explained/index.php/Waste\\_statistics\\_-\\_electrical\\_and\\_electronic\\_equipment](http://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_statistics_-_electrical_and_electronic_equipment)

36 <https://interconnection.org/Computer-reuse-report.pdf>, p.2

37 <http://www.climatechwiki.org/node/5472>

		<ul style="list-style-type: none"> <li>Increasing rain acidity: <b>Significant</b></li> </ul> <p>The mining of raw materials needed to manufacture electronic equipment releases sulphur dioxides which cause acid rains<sup>39</sup>.</p> <ul style="list-style-type: none"> <li>Contribution to Climate Change and in the “Ozone Hole”: Significant</li> </ul> <p>Refrigerators, air-conditioners and similar equipment contain substances such as CFC and HCFCs that are ozone depleting substances and have a very high global warming potential<sup>40</sup>.</p> <ul style="list-style-type: none"> <li>Negative impact on terrestrial ecosystems, water ecosystems, flora, fauna, marine species, endangered species, birds and contains dangerous substances for the environment: <b>Significant</b></li> </ul> <p>Poor management of WEEE leads to the release of pollutants in soil<sup>41</sup>.</p> <ul style="list-style-type: none"> <li>Negative impact on water ecosystems, flora, fauna, marine species, endangered species, birds and contains dangerous substances for the environment: <b>Significant</b></li> </ul> <p>Risky recycling and/or disposal methods may have impacts on animal and environment health<sup>42</sup>.</p> <ul style="list-style-type: none"> <li>Deteriorates the landscape: <b>Significant</b></li> </ul> <p>WEEE disposal and treatment centres deteriorate the landscapes<sup>43</sup>.</p>
4	Health impact	<ul style="list-style-type: none"> <li>It may enter the food chain, it contains hazardous to public health substances, it has been found negative impact on public health and increases the risk of mortality and morbidity: <b>Significant</b></li> </ul> <p>If not processed and disposed-of appropriately, e-waste may represent a significant cause of environment-to-food chains contamination and have an important impact on the health of the general population<sup>44</sup>.</p> <ul style="list-style-type: none"> <li>It contains hazardous to public health substances: <b>Significant</b></li> </ul> <p>If not processed and disposed-of appropriately, e-waste may represent a significant cause of environment-to-food chains contamination, with significant impact on the health of the general population</p> <ul style="list-style-type: none"> <li>It increases the risk of accidents: <b>No data</b></li> <li>Increases the risk of explosions: <b>No data</b></li> </ul>
5	Other negative characteristics as waste	<ul style="list-style-type: none"> <li>Increases the risk of fire: <b>No data</b></li> <li>Increases Child labour: <b>Significant</b></li> </ul> <p>Several cases of child labour in developing countries are linked to e-waste treatment. The Agbogbloshie’s dump for e-waste in Ghana is but one high-profile case<sup>45</sup>.</p> <ul style="list-style-type: none"> <li>Increases illegal work and the hidden economy: <b>Significant</b></li> </ul> <p>A study from the CWIT project shows how important is the illegal trade of e-waste<sup>46</sup>.</p>
6	Management cost	<ul style="list-style-type: none"> <li>Is the management cost of Household Hazardous Waste higher or lower of the average waste management cost: <b>Lower</b></li> <li>Assessment of the typical range of management cost: <b>From 72 €/t to 265 €/t</b> (ERS, 2015)</li> </ul> <p>It is considered as waste that goes to landfill along with other non-hazardous waste.</p>

38 <http://www.climatetechwiki.org/node/5472>

39 [http://www.unep.org/pdf/Recycling\\_From\\_e-waste\\_to\\_resources.pdf](http://www.unep.org/pdf/Recycling_From_e-waste_to_resources.pdf), p.10

40 [http://www.unep.org/pdf/Recycling\\_From\\_e-waste\\_to\\_resources.pdf](http://www.unep.org/pdf/Recycling_From_e-waste_to_resources.pdf), p.6-7

41 [http://www.noodlesonlus.org/images/portal/doc/noodles/26\\_Diagnostic%20health%20risk%20assessment%20of%20electronic%20waste.pdf](http://www.noodlesonlus.org/images/portal/doc/noodles/26_Diagnostic%20health%20risk%20assessment%20of%20electronic%20waste.pdf), p.2

42 [http://www.noodlesonlus.org/images/portal/doc/noodles/26\\_Diagnostic%20health%20risk%20assessment%20of%20electronic%20waste.pdf](http://www.noodlesonlus.org/images/portal/doc/noodles/26_Diagnostic%20health%20risk%20assessment%20of%20electronic%20waste.pdf), p.389

43 <http://www.theguardian.com/environment/gallery/2014/feb/27/agbogbloshie-worlds-largest-e-waste-dump-in-pictures>

44 [http://www.noodlesonlus.org/images/portal/doc/noodles/26\\_Diagnostic%20health%20risk%20assessment%20of%20electronic%20waste.pdf](http://www.noodlesonlus.org/images/portal/doc/noodles/26_Diagnostic%20health%20risk%20assessment%20of%20electronic%20waste.pdf), p.1, p.390

45 <http://www.theguardian.com/world/2013/dec/14/ghana-dump-electronic-waste-not-good-place-live>

46 <http://www.cwitproject.eu/wp-content/uploads/2015/09/CWIT-Final-Report.pdf>

		<p>Other management cost:</p> <p>In a United Nations University study<sup>47</sup>, it is reported that the net total cost (covering costs of consumers, public authorities or the retail sector to collect WEEE ; costs to transport WEEE to treatment centres either in the EU or overseas ; treatment, preparation for reuse, recovery, recycling process costs and any costs of disposal of rest fractions ; additional costs (for control, reporting, administration)) for the fraction of WEEE that has been reported as separately collected and treated in 2005 (2.6Mt) is estimated to be € 0.94 billion (358€/tonne).</p>
7	Possible advantages of prevention activities	<ul style="list-style-type: none"> <li>• Are there prevention activities that can reduce "significantly" or even "little" waste production: <b>Yes</b>, significantly (Setting up of a repair centre in the municipality)</li> <li>• Are there prevention activities that can reduce "significantly" or even "a little" the danger of remaining waste: <b>Not known</b>.</li> <li>• Are there prevention activities that can reduce "significantly" or even " little " the management costs of the remaining waste: <b>Not known</b>.</li> <li>• Are there prevention activities that cause "no" or "little" organizational problems to the LA: <b>Yes</b> (Workshop on 'how to extend the life of electric and electronic equipment')</li> <li>• Are there prevention activities with 'no' or 'small' implementation costs for the LA: <b>Yes</b> (Launch of a municipal sharing network)</li> <li>• Are there prevention activities that create "a few", "several" or "many" jobs: <b>Yes</b> many (Setting up of a repair centre in the municipality)</li> </ul>
8	Useful document- tation	<ul style="list-style-type: none"> <li>• <a href="http://www.rreuse.org/wp-content/uploads/Joint-Mission-Statement-on-Product-Repair-and-Durability-2.pdf">http://www.rreuse.org/wp-content/uploads/Joint-Mission-Statement-on-Product-Repair-and-Durability-2.pdf</a></li> <li>• <a href="http://www.cwitproject.eu/wp-content/uploads/2015/09/CWIT-Final-Report.pdf">http://www.cwitproject.eu/wp-content/uploads/2015/09/CWIT-Final-Report.pdf</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/weee/pdf/final_rep_unu.pdf">http://ec.europa.eu/environment/waste/weee/pdf/final_rep_unu.pdf</a></li> <li>• <a href="http://www.unep.org/pdf/Recycling_From_e-waste_to_resources.pdf">http://www.unep.org/pdf/Recycling_From_e-waste_to_resources.pdf</a></li> <li>• <a href="http://www.eeb.org/?LinkServID=216C0514-5056-B741-DBA4EBD1E08E40E5&amp;showMeta=0&amp;aa">http://www.eeb.org/?LinkServID=216C0514-5056-B741-DBA4EBD1E08E40E5&amp;showMeta=0&amp;aa</a></li> <li>• <a href="https://interconnection.org/Computer-reuse-report.pdf">https://interconnection.org/Computer-reuse-report.pdf</a></li> </ul>
9	Prevention ideas	<p><b>Launch of a repair fair in the municipal hall</b></p> <p>Use your municipal hall to host a repair fair or "repair cafe". All you need is to gather some repair experts who can give their advices to your citizens, as well as some tools to make those repairs possible. You can find more information about this kind of event <a href="#">here</a>.</p> <p><b>Workshop on 'how to extend the life of electric and electronic equipment'</b></p> <p>Sometime, the life of an electric or electronic good may be shortened because of a poor using of this good (putting a laptop on a bed or on textiles, or letting it plugged all the time, charging a cell phone to frequently, not leaving enough space between a fridge and a wall, etc...). This workshop will be the occasion to invite one or several experts to explain how to extend the life of goods by respecting a few tips about how to maintain their goods. You can inspire yourself <a href="#">here</a>.</p> <p><b>Setting up of a repair centre in the municipality</b></p> <p>A permanent repair centre can be a great solution to provide tools and experts capable to provide all the needed means to repair EEEs. Those structure, called 'Ressourceries' in France and Belgium, are mostly social enterprises which need some financial incentives from Authorities to settle down. However, by reducing the amount of WEEE that needs to be collected and recycled, as well as by creating jobs for disadvantaged people, repair centres are a real financial opportunity for municipalities.</p>

47 [http://ec.europa.eu/environment/waste/weee/pdf/final\\_rep\\_unu.pdf](http://ec.europa.eu/environment/waste/weee/pdf/final_rep_unu.pdf)

		<p><b>Organisation of a flea market</b></p> <p>Promoting second-hand EEE or other products that are still in good shape, flea markets are a perfect way to prevent people to buy new appliances that will ultimately become waste. It is also the perfect opportunity to get rid of the products that people do not want anymore and, on the other hand, to allow others to buy cheaper products that are still in good shape. You can find more information about how to organise a flea market <a href="#">here</a>.</p> <p><b>Launch of a municipal sharing network</b></p> <p>A good way to prevent WEEE is to avoid buying new electronic appliances. A sharing network settled at a municipal level is a local and cheap way to give citizens an alternative to the purchase of new goods by proposing a platform where they can borrow those goods to their neighbours. It also gives a perfect occasion for citizens to meet with each other. You can find more information about how to implement a sharing network <a href="#">here</a>.</p>
10	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://www.rreuse.org/">http://www.rreuse.org/</a></li> <li>• <a href="http://www.step-initiative.org/">http://www.step-initiative.org/</a></li> <li>• <a href="http://goodelectronics.org/">http://goodelectronics.org/</a></li> <li>• <a href="http://www.caravanaecotic.ro/en/">http://www.caravanaecotic.ro/en/</a></li> <li>• <a href="http://www.cwitproject.eu/">http://www.cwitproject.eu/</a></li> </ul>
11	Prevention Ideas	You can see all the suggested Prevention ideas for the specific product – material at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose%20what%20prevention%20action%20fit%20in%20your%20municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
12	Suggest your Prevention ideas	Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest%20your%20own%20idea%20for%20waste%20prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.1.10 Paper waste

No	Categories of Data	Paper waste
1	General information	<p>Even if the trend is today to go paperless, there is still a significant amount of paper waste produced all over the world. It is estimated that each year, the world produce the world produces more than 400 million tons of paper<sup>48</sup>. At the same time, 45% of all print-outs and photocopies becomes waste before the end of the day they are produced<sup>49</sup>.</p> <p>According to the U.S. Environmental Protection Agency, printing and writing paper typically found in a school or office environment such as copier paper, computer printouts and notepads, comprise the largest category of paper product consumption<sup>50</sup>. Indeed, it is estimated that paper waste represents half of the waste stream coming from businesses<sup>51</sup>. However, packaging is also considered as being one of the greatest determining factors of paper consumption. In Western Europe in 2012, packaging paper production amounted to 41 million tonnes<sup>52</sup>.</p>

48. [http://www.forestindustries.fi/industry/paper\\_cardboardConverted/paper\\_pulp/Global-paper-consumption-is-growing-1287.html](http://www.forestindustries.fi/industry/paper_cardboardConverted/paper_pulp/Global-paper-consumption-is-growing-1287.html)

49. <http://www.theguardian.com/money/2007/oct/14/workandcareers.news>

50. <http://www.thepaperlessproject.com/facts-about-paper-the-impact-of-consumption/>

51. <http://www.theworldcounts.com/stories/Paper-Waste-Facts>

52. [http://www.forestindustries.fi/industry/paper\\_cardboardConverted/paper\\_pulp/Global-paper-consumption-is-growing-1287.html](http://www.forestindustries.fi/industry/paper_cardboardConverted/paper_pulp/Global-paper-consumption-is-growing-1287.html)

		<p>This overconsumption of paper is alarming, especially if we take into account all the digital solutions that can prevent this waste stream. The environmental impacts of the paper industry are substantial:</p> <ul style="list-style-type: none"> <li>• Worldwide, the pulp and paper industry is the fifth largest consumer of energy, accounting for 4% of the world's energy use.</li> <li>• Over 60% of the roughly 17 billion cubic feet of timber harvested worldwide each year is used for paper and pulp.</li> <li>• The paper industry uses more water to produce a ton of product than any other industry.</li> <li>• Discarded paper is a major component of many landfill sites, accounting for about 35% by weight of municipal solid waste.</li> <li>• More paper waste facts <a href="#">here</a> and <a href="#">here</a>.</li> </ul> <p>Of course, the separate collection of this waste stream is more and more efficient, but recycling paper is still very energy and water consuming. It is also estimated that only a half of paper waste is actually recycled<sup>53</sup>. Prevention remains the best solution to cut the energy and resource consumption linked to the paper industry.</p>
2	Quantitative waste data	<ul style="list-style-type: none"> <li>• The production of paper and cardboard in Europe is now established at 91.1 million tonnes<sup>54</sup> per year. That is equivalent to 122 kg/inh/year.</li> <li>• Paper accounts for 25% of landfill waste and 33% of municipal waste<sup>55</sup> worldwide.</li> <li>• Paper waste production varies significantly by country and region. The global average is about 55 kilograms of paper per person a year while United-States consume 300 kg /capita and Africa about 7 kg/capita. In densely-populated areas in Asia, paper consumption amounts to approximately 35 kilos per capita<sup>56</sup>.</li> <li>• There is no data available for the seasonal variations of paper.</li> <li>• Paper production of a Local Authority mostly depends on the development of the tertiary sector in the LA.</li> </ul>
3	Environmental impacts of the product – material as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Significant</b>. 'Worldwide the pulp and paper industry is the fifth largest consumer of energy, accounting for 4% of the world's energy use'<sup>57</sup>.</li> <li>• Water consumption: <b>Significant</b>. The paper industry uses more water to produce a ton of product than any other industry<sup>58</sup>.</li> <li>• Consumption of raw materials: <b>Significant</b>. Making a tonne of paper from wood requires 98 tonnes of other resources<sup>59</sup>.</li> <li>• Increase of air pollution: <b>Significant</b>. Pulp and paper is the third largest industrial polluter to air, water and land in both Canada and the United States, and releases well over 100 million kg of toxic pollution each year<sup>60</sup>.</li> <li>• Pollution increase of water recipients: <b>Significant</b>. The paper industry uses more water to produce a ton of product than any other industry. (...)</li> <li>• Increase in rain acidity: <b>Significant</b><sup>61</sup>. Nitrogen dioxide (NO<sub>2</sub>) sulfur dioxide (SO<sub>2</sub>) are emitted during the manufacturing of paper. Acid rain being caused by nitrogen dioxide and sulfur dioxide, there is a significant link between this</li> </ul>

53. <http://www.environmentalpaper.eu/tools-resources/paper-facts/>

54. <http://www.cepi.org/node/19364#sthash.sWnkeLV7.dpuf>

55. <http://www.theworldcounts.com/stories/Paper-Waste-Facts>

569. [http://www.forestindustries.fi/industry/paper\\_cardboardConverted/paper\\_pulp/Global-paper-consumption-is-growing-1287.html](http://www.forestindustries.fi/industry/paper_cardboardConverted/paper_pulp/Global-paper-consumption-is-growing-1287.html)

57 <http://www.thepaperlessproject.com/facts-about-paper-the-impact-of-consumption/>

58 Ibid

59 <http://www.environmentalpaper.eu/tools-resources/paper-facts/>

60 Ibid

61 <http://www.tandfonline.com/doi/pdf/10.3155/1047-3289.57.8.901>

		<p>industry and the rain acidity whereas CO<sub>2</sub> is a greenhouse gas responsible for climate change.</p> <ul style="list-style-type: none"> <li>• Climate Change: <b>Significant.</b> Deforestation causes more climate change emissions than global transport. Taking all forest carbon losses and greenhouse gas emissions from paper production, transportation, use and disposal into account, the pulp and paper industry is calculated to be responsible for more greenhouse gas emissions than the global aviation industry<sup>62</sup>.</li> <li>• Contribution in the "Ozone Hole": <b>No information.</b></li> <li>• Negative impact on terrestrial ecosystems, water ecosystems, flora, fauna, marine species, endangered species, birds: <b>Significant.</b> According to the West Virginia University Extension, by-products from chlorine bleach pose a significant risk to local wildlife populations, and have been linked to cancer in laboratory animals. Dioxins were responsible for the decimation of the bald eagle population during the mid-20th century, and continue to reduce the number of fish and bird species near the Great Lakes. The World Wildlife Fund also warns that these chlorine by-products can cause mutations, sterility and even extinction in wildlife species<sup>63</sup>.</li> <li>• Contains dangerous substances for the environment: <b>Significant.</b> Manufacturers rely on chlorine bleach to whiten paper pulp and other materials during the production process. Chlorine bleach also plays an important role in wastewater treatment, and is used in many household cleaning products. Unfortunately, chlorine also poses a significant risk to the environment, and was even used as a chemical weapon during World War I. Many countries have banned chlorine bleach or restricted its use in an effort to protect the environment and human health<sup>64</sup>.</li> <li>• Deterioration of the landscape: <b>Significant.</b> If the current rate of deforestation continues, it will take less than 100 years to destroy all the rainforests on the earth<sup>65</sup>.</li> </ul>
4	Health impact	<ul style="list-style-type: none"> <li>• It may enter the food chain: <b>Significant.</b> 'Dioxins are unwanted by products of a wide range of manufacturing processes including smelting, chlorine bleaching of paper pulp and the manufacturing of some herbicides and pesticides. (...) More than 90% of human exposure is through food, mainly meat and dairy products, fish and shellfish<sup>66</sup>'.</li> <li>• It contains hazardous to public health substances, has been found to have negative impacts on public health, and increases the risk of mortality and morbidity: <b>Significant.</b> 'Manufacturers rely on chlorine bleach to whiten paper pulp and other materials during the production process. Chlorine bleach also plays an important role in wastewater treatment, and is used in many household cleaning products. Unfortunately, chlorine also poses a significant risk to the environment, and was even used as a chemical weapon during World War I. Many countries have banned chlorine bleach or restricted its use in an effort to protect the environment and human health'<sup>67</sup>.</li> <li>• It increases the risk of accidents and explosions: <b>Significant</b> 'Thirty-three workers were killed in 'United Steelworkers' represented paper mills and converting plants between January 1, 2005 and July 1, 2010. Some were USW members; others were supervisors, contractors or members of other unions. Their ages ranged from 23 to 65. Four died in explosions; two from scalding; one in a flash fire. Nine were killed by mobile equipment; seven by failures of fixed equipment. Five were killed in falls; two were electrocuted; one was crushed by a roll of</li> </ul>

62 <http://www.environmentalpaper.eu/tools-resources/paper-facts/>

63 <http://www.livestrong.com/article/217675-the-effects-of-chlorine-bleach-on-the-environment/>

64 Ibid

65 <http://www.thepaperlessproject.com/facts-about-paper-the-impact-of-consumption/>

66 <http://www.who.int/mediacentre/factsheets/fs225/en/>

67 <http://www.thepaperlessproject.com/facts-about-paper-the-impact-of-consumption/>

		<p>paper weighing almost a ton; one died by inhaling poisonous chlorine dioxide; one fell into equipment used to chop and slurry recycled paper. In two additional cases, work was a major contributing factor: one worker apparently fell asleep at the wheel after working a series of 12-hour shifts; another died of a heart attack after being assigned to an unusually strenuous task<sup>68</sup>.</p> <ul style="list-style-type: none"> <li>• ‘Seven workers died at a Chinese paper mill when a man fell into a pool filled with toxic material and others rushed to help him, authorities said<sup>69</sup>.</li> <li>• Social and Labour Issues in the Pulp and Paper Industry<sup>70</sup>, p.93</li> </ul>
5	Other negative characteristics as waste	<p>4. Increased risk of fire: <b>Significant</b>. ‘Despite its immense value, the forest faces a number of threats – from logging to “megadroughts” – and now researchers from the Woods Hole Research Centre in the US suggest that the danger posed by future forest fires is greater than previously thought’<sup>71</sup>.</p> <p>5. Increases Child labor: <b>Slightly</b>. ‘The Nordic paper manufacturer blacklisted over child labour<sup>72</sup>.</p> <p>6. Increases illegal work: <b>Significantly</b>. ‘Migration can also lead to problems of illegal work, in which case the areas of safety and health, remuneration and social security, and all other aspects of decent work may be poorly regulated’<sup>73</sup>.</p> <p>7. Increases the hidden economy: <b>Significantly</b> ‘Illegal logging is one of the principal causes of global deforestation. The problem is an enormous one, as can be seen from the fact that the European Parliament puts the proportion of global wood production originating from illegal logging at between 20 and 40 per cent. Illegal logging, for example using fake logging permits, is very common, particularly in countries with high rates of corruption. The idea of genetic fingerprinting, which can accurately pinpoint the provenance of wood, is currently growing in importance’<sup>74</sup>.</p> <ul style="list-style-type: none"> <li>• More information about social characteristics of forest and paper products here<sup>75</sup>at p.30-50</li> </ul>
6	Management cost	<ul style="list-style-type: none"> <li>• Is the management cost of paper waste higher or lower of the average waste management cost: <b>Lower</b></li> <li>• Assessment of the typical range of management cost: <b>From 72 €/t to 265 €/t</b> (ERS, 2015)</li> </ul> <p>It is considered as waste that goes to landfill along with other non-hazardous waste.</p> <p>Other management cost:</p> <p>According to a study led by Eunomia<sup>76</sup>, the average cost of collection was, in 2001:</p> <ul style="list-style-type: none"> <li>-Austria: €74/t for all paper</li> <li>-Belgium: €44/t for all paper, news/magazines and cardboard</li> <li>-Germany: €125/t for packaging paper</li> <li>-Italy: Concerning all paper, €30-125/t (€2.5-4/hhld) with a door-to-door approach and €90-150/t (€1.5-3/hhld) with road containers</li> <li>-Luxembourg: Concerning all paper, €139-146/t with a door-to-door collection, €82/t with containers and €60/t with recycling centres</li> <li>-The Netherlands: €40/t for all paper</li> </ul>

68 <http://www.usw.org/workplaces/paper/papered-over.usw-2010.pdf>, preface

69 <http://www.theguardian.com/world/2015/aug/29/seven-killed-by-toxic-material-at-chinese-paper-mill-accident>

70 [https://books.google.be/books?id=LLzEqTpIRJMC&pg=PA93&lpg=PA93&dq=paper+industry+accidents&source=bl&ots=\\_uzOBrmW\\_7&sig=jwDv5oEYw1NVc6emg\\_pNXTsP8gU&hl=en&sa=X&ved=0CCsQ6AEwA2oVChMI99iUpbbiyAlViZMsCh2BqwtK#v=onepage&q=paper%20industry%20accidents&f=false](https://books.google.be/books?id=LLzEqTpIRJMC&pg=PA93&lpg=PA93&dq=paper+industry+accidents&source=bl&ots=_uzOBrmW_7&sig=jwDv5oEYw1NVc6emg_pNXTsP8gU&hl=en&sa=X&ved=0CCsQ6AEwA2oVChMI99iUpbbiyAlViZMsCh2BqwtK#v=onepage&q=paper%20industry%20accidents&f=false)

71 <http://blueandgreentomorrow.com/2014/04/16/climate-change-and-deforestation-increasing-forest-fire-risk-in-amazon/>

72 <http://www.ft.com/intl/cms/s/0/8b85817c-ae11-11e4-919e-00144feab7de.html#axzz3plQODx1J>

73 <https://www.globalreporting.org/resourcelibrary/7-Forest%20and%20Paper%20Products.pdf>, p.3

74 <https://www.globalreporting.org/resourcelibrary/7-Forest%20and%20Paper%20Products.pdf>, p.3

75 <https://www.globalreporting.org/resourcelibrary/7-Forest%20and%20Paper%20Products.pdf>

76 <http://ec.europa.eu/environment/waste/studies/pdf/eucostwaste.pdf>, p.37

		<p>-Poland: €60/t for packaging</p> <p>-Spain: Concerning paper and card packaging only, €40-60/t in urban road containers and €50-70/t in rural road containersOn average, the cost of paper, news/magazines and cardboard waste collection is therefore of more or less €86.5/t (considering only 8 Members States and 15 years ago).</p>
7	Possible advantages of prevention activities	<ul style="list-style-type: none"> <li>• Are there prevention activities that can reduce "significantly" or even "a little" waste production?: Yes</li> <li>• Are there prevention activities that can reduce "significantly" or even "a little" the danger of remaining waste?: Yes</li> <li>• Are there prevention activities that can reduce "significantly" or even " little " the management costs of the remaining waste?: Yes</li> <li>• Are there prevention activities that cause "no" or "little" organizational problems to the LA?: Yes</li> <li>• Are there prevention activities with 'no' or 'small' implementation costs for the LA?: Yes</li> <li>• Are there prevention activities that create "a few", "several" or "many" jobs?: Yes</li> </ul>
8	Useful document- tation	<p><a href="http://www.id2.ca/downloads/eco-design-paper-facts.pdf">http://www.id2.ca/downloads/eco-design-paper-facts.pdf</a></p> <p><a href="http://www.cepii.org/system/files/public/documents/publications/statistics/2015/Key%20Statistics%202014%20FINAL.pdf">http://www.cepii.org/system/files/public/documents/publications/statistics/2015/Key%20Statistics%202014%20FINAL.pdf</a></p> <p><a href="https://www.globalreporting.org/resourcelibrary/7-Forest%20and%20Paper%20Products.pdf">https://www.globalreporting.org/resourcelibrary/7-Forest%20and%20Paper%20Products.pdf</a></p> <p><a href="https://www.cleanup.org.au/PDF/au/cua_paperandcardboard_fact_sheet_final.pdf">https://www.cleanup.org.au/PDF/au/cua_paperandcardboard_fact_sheet_final.pdf</a></p> <p><a href="http://cua6.urban.csuohio.edu/~sanda/syl/envpol/materials/GREEN%20FACTS.pdf">http://cua6.urban.csuohio.edu/~sanda/syl/envpol/materials/GREEN%20FACTS.pdf</a></p>
9	Prevention ideas	<p><b>Make an audit and a paper waste prevention campaign in your own services</b></p> <p>Local authority's offices, just like business offices, are heavy users of paper. Before trying to advocate for paper waste reduction towards your citizens, you should first address your own services. For example, make an <a href="#">audit</a> to calculate your paper consumption and then launch a campaign about paper waste prevention within your services. Get inspired by this <a href="#">fact sheet</a> or <a href="#">here</a>.</p> <p><b>Launch a 'Paperless Office Award'</b> Encourage businesses within your municipality or region to reduce paper consumption with the launch of a 'Paperless Office Award'. Consisting of a contest where the winner will be the business which produced the less paper waste per staff member, this will be an opportunity to give visibility to best practice and encourage the others to do the same by showcasing the environmental and economic benefits of going paperless in the office.</p> <p><b>Make 'No Junk Mail' stickers available at the town or city hall</b></p> <p>Each year, more than 100 million trees are chopped down worldwide to make the paper for junk mail. 'No Junk Mails' stickers have proven to be an efficient means for dissuading junk mails distributor to fill your citizens' mailboxes with advertisements they don't even want. Being a simple and cheap way to cut down municipal paper waste, 'No Junk Mail' customised with the Local Authorities logo is also a good way to show that you feel concerned about this issue.</p> <p><b>Dematerialise municipal information</b></p> <p>Municipal information is a source of paper waste. It is a cost for the municipality to print it, as well as to manage its collection and treatment as waste. You can then give the choice to your citizens to choose between the material and the dematerialised solution, and advocate for the second solution thanks to a campaign. Together with the 'No Junk mails' stickers, this solution will probably save a lot of paper and money waste.</p> <p><b>Paper waste campaign in the municipal schools</b></p> <p>Schools are a place where a lot of paper waste is produced. However, new technologies and others less costly tips can help to reduce the paper used for the</p>

		education of our children. Here is a comprehensive toolkit made to help you to implement a paper reduction policy in your schools.
10	Useful websites	<a href="http://www.environmentalpaper.eu/projects/">http://www.environmentalpaper.eu/projects/</a> <a href="http://www.thepaperlessproject.com/">http://www.thepaperlessproject.com/</a> <a href="http://156.98.19.245/paper/">http://156.98.19.245/paper/</a> <a href="http://wwf.panda.org/how_you_can_help/live_green/fsc/save_paper/office_paper/">http://wwf.panda.org/how_you_can_help/live_green/fsc/save_paper/office_paper/</a> <a href="http://www.calrecycle.ca.gov/ReduceWaste/Business/factsheets/campaign.htm">http://www.calrecycle.ca.gov/ReduceWaste/Business/factsheets/campaign.htm</a>
11	Prevention Ideas	You can see all the suggested Prevention ideas for the specific product – material at the LAWPreT website <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
12	Suggest your Prevention ideas	Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.1.11 Construction and Demolition waste (C&D)

No	Categories of Data	Construction and Demolition waste (C&D)
1	General information	<p>Representing the largest fraction of all waste generated in the EU (33%)<sup>77</sup>, Construction and Demolition Waste (CDW) is generated by activities such as the construction of buildings and civil infrastructure, total or partial demolition of buildings and civil infrastructure, road planning and maintenance. It is composed of several kinds of materials including concrete, bricks, gypsum, wood, glass, metals, plastic, solvents, asbestos and excavated soil, many of which can be recycled. However, the definition of this waste stream may vary from one country to another. Addressing construction and demolition waste is a priority for the European Union because of its high potential for recycling and re-use of CDW and the high resource value of some of its components. Technology for the separation and recovery of CDW is considered well established, readily accessible and not too expensive. However, only 46% of this waste stream is re-used or recycled in the EU and there are significant differences between the Member States concerning the level of recycling and material recovery (98% in Netherlands, but only 1% in Cyprus)<sup>78</sup>. Possibly containing small amounts of hazardous wastes, CDW can be a threat to the environment if not separated at source. If mixed, all the materials included in CDW can't be easily recycled.</p> <p>The current EU legislation covering CDW is the Waste Framework Directive (2008/98/EC). Article 11.2 stipulates that "Member States shall take the necessary measures designed to achieve that by 2020 a minimum of 70% (by weight) of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the List of Wastes shall be prepared for re-use, recycled or undergo other material recovery" (including backfilling operations using waste to substitute other materials).</p>
2	Waste quantitative data	<p>Average consumption or waste production per person in EU or in member states: 0.94 tonnes of CDW per capita is produced every year in EU<sup>79</sup>.</p> <ul style="list-style-type: none"> <li>Range of percentage by weight or volume of the material-product in total waste stream: CDW accounts for 25% - 30% of all waste generated in the EU<sup>80</sup>.</li> </ul>

77 [http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Waste\\_generation\\_by\\_economic\\_activity\\_and\\_households,\\_EU-28,\\_2012\\_lb.png](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Waste_generation_by_economic_activity_and_households,_EU-28,_2012_lb.png)

78 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf)

79 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.14

		<ul style="list-style-type: none"> <li>Assessment of percentage variation of the material-product in total waste stream according to the special characteristics of the country, region or local authority: 0,04 t/capita in Latvia (lowest levels of CDW generation) and 5,9 t/capita in Luxembourg (highest levels of CDW generation)<sup>81</sup>.</li> <li>Assessment of seasonal variation of waste production in a typical European LA: No data on seasonal fluctuations.</li> <li>Assessment of areas a typical LA that produce high volume of waste. There are 5 factors influencing the differences in the volume of CDW generation between the MS of the EU<sup>82</sup>: <ul style="list-style-type: none"> <li>-Economic reasons: The economic growth of a country implies a higher rate of new construction.</li> <li>-Architectural habits: The type of materials used will influence the volume of CDW generated.</li> <li>-Cultural issues: Demolition is regarded in a more or less positive way, depending on the countries.</li> <li>-Technical issues: The quality of the materials used in old construction influences the rate of demolition.</li> <li>-Unequal level of control and reporting of CDW.</li> </ul> </li> </ul>
3	Environmental impacts of the product – material as waste	<ul style="list-style-type: none"> <li>Energy consumption: Significant The production of building materials, especially concrete<sup>83</sup> and bricks<sup>84</sup>, is very energy intensive.</li> <li>Water consumption: Insufficient data, but probably significant given the need of water to produce cement.</li> <li>Consumption of raw materials: Significant Even if it concerns raw materials that are easily found locally and not so expensive, CDW implies a significant amount of wasted raw materials for which the extraction has been harmful for the environment.</li> <li>Increase of air pollution: Significant During the production of construction materials, as well as during the treatment of those materials as waste, a lot of dust and particles are released in the air, sometimes containing toxic substances. For example, the cement production may be the source of nitrous oxide (NOx), sulphur dioxide (SO2), small quantities of chlorides, fluorides, carbon monoxide, heavy metals, organic compounds and dust<sup>85</sup>. Plasterboard, when disposed of in landfills and mixed with organic waste, can also release H2S gas which is lethal in high concentrations<sup>86</sup>.</li> <li>Pollution increase of water recipients: Significant The use of bricks, tiles and ceramics waste from demolition sites, when mixed with insulation wool, mortar or concrete, raises some concerns about ground water pollution<sup>87</sup>. Because of the chemicals that accompany it (glue, varnish, coating or wood preservatives), wood may also contaminate the water table when not removed or isolated from the environment properly<sup>88</sup>.</li> </ul>

80 [http://ec.europa.eu/environment/waste/construction\\_demolition.htm](http://ec.europa.eu/environment/waste/construction_demolition.htm)

81 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.10-11

82 More information : [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.11-12

83 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.51

84 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.63

85 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.51

86 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.105

87 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.58

		<ul style="list-style-type: none"> <li>Increasing rain acidity: <b>No data</b></li> <li>Climate Change: <b>Significant</b></li> </ul> <p>The production, landfilling and treatment of construction and demolition materials release a significant amount of greenhouse gases, but the impacts vary depending on the kind of material. The cement production in the EU releases 64.8 million tonnes eq. CO<sub>2</sub><sup>89</sup>. The landfilling of C&amp;D wood waste releases methane which is 72 times more dangerous for climate change than CO<sub>2</sub><sup>90</sup>.</p> <ul style="list-style-type: none"> <li>Contribution in the "Ozone Hole": <b>Significant</b></li> </ul> <p>Insulation materials may contain substances related to the ozone depletion<sup>91</sup>.</p> <ul style="list-style-type: none"> <li>Negative impact on fauna, marine species, water and terrestrial ecosystems and the environment in general: Significant</li> </ul> <p>CDW such as treated wood and insulation panels may contain phenol which is toxic to aquatic organisms and ecosystems<sup>92</sup>.</p> <p>PCBs were present in many kinds of construction materials before having been very restricted by the EU legislation: heat transfer, hydraulic systems and power supply blocks of fluorescent lamps, stabilising adhesives, plastics, flame retardants, de-dusting agent, etc. This substance produces a wide spectrum of adverse effects in animals and humans, including reproductive toxicity, teratogenicity and immunotoxicity. It has been also found that PCBs are toxic to fish and other aquatic organisms<sup>93</sup>.</p> <ul style="list-style-type: none"> <li>Negative impact on flora, endangered species, birds: <b>No specific data</b>, but very probably significant given the amount of hazardous substances that CDW may contain.</li> <li>Deteriorates the landscape: <b>Significant</b></li> </ul> <p>Because of the use of space implied by the storage of inert CDW, this waste stream has a huge impact on landscapes<sup>94</sup>.</p>
4	Health impact	<ul style="list-style-type: none"> <li>Could it enter the food chain?: <b>Yes</b>, PCBs may enter the food chain<sup>95</sup>.</li> <li>Does it contain hazardous to public health substances and increase the risk of mortality and morbidity: <b>Yes</b>, Due to some hazardous substances such as phenol, PCBs and asbestos, the management of CDW may be very harmful for public health, especially for workers in the demolition sector<sup>96</sup>.</li> <li>Does it increase the risk of accidents: <b>No relevant data</b></li> <li>Does it increase the risk of explosions?: <b>No relevant data</b></li> <li>Does it increase the risk for workers to develop hearing damage? Because of the noise from the machines at the crushing step of aggregates, the production of cement, as well as its treatment as a waste, it may endanger the workers' hearing<sup>97</sup>.</li> </ul>
5	Other negative characteristics as waste	<p>10. Does it increase the risk of fire?: <b>Little</b>            Apart from wood, CDW is mostly constituted by non-flammable products (concrete, plasterboard, gypsum) sometimes protected by flame retardant chemicals (Phenol and PCB).</p> <p>11. Does it increase the instances of child labor?: <b>No data</b>.</p> <p>12. Does it increase the instances of illegal work?: <b>No data</b></p> <p>13. Does it increase contribute to the hidden economy?: <b>No data</b></p>

88 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.92-93

89 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.52

90 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.92

91 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.121

92 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.139

93 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.141

94 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.49

95 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.141

96 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p. 136

97 [http://ec.europa.eu/environment/waste/pdf/2011\\_CDW\\_Report.pdf](http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf), p.50

6	Management cost	<ul style="list-style-type: none"> <li>Is the management cost of C&amp;D waste higher or lower of the average waste management cost: <b>Lower</b></li> <li>Assessment of the typical range of management cost: For Greece, <b>from 26 €/t to 116 €/t</b> (ERS, 2015). It is considered as waste that goes to landfill along with other non-hazardous waste.</li> </ul>
7	Possible advantages of prevention activities	<ul style="list-style-type: none"> <li>Are there prevention activities that can reduce waste production "significantly" or even "a little" ? : <b>Yes</b> (Limit the land for property development and encourage restoration, Limit the public works to an absolute minimum, On-site grinding)</li> <li>Are there prevention activities that can reduce "significantly" or even "a little" the danger of remaining waste? : <b>Yes</b> (Limit the land for property development and encourage restoration, Limit the public works to an absolute minimum)</li> <li>Are there prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste?: <b>Yes</b> (Limit the land for property development and encourage restoration, Limit the public works to an absolute minimum, On-site grinding)</li> <li>Are there prevention activities that cause "no" or "little" organizational problems to the LA?: <b>Yes</b> (On-site grinding/shredding)</li> <li>Are there prevention activities with 'no' or 'small' implementation costs for the LA?: <b>Yes</b> (Limit the land for property development and encourage restoration, Limit the public works to an absolute minimum)</li> <li>Are there prevention activities that create "a few", "several" or "many" jobs?: <b>Yes</b></li> </ul>
8	Useful documentation	<p><a href="http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf">http://ec.europa.eu/environment/waste/pdf/2011_CDW_Report.pdf</a></p> <p><a href="http://www.itm.co.nz/Folder?Action=View%20File&amp;Folder_id=78&amp;File=ITM_Building_Guide-How_to_Minimise_Waste_Sept_2014.pdf">http://www.itm.co.nz/Folder?Action=View%20File&amp;Folder_id=78&amp;File=ITM_Building_Guide-How_to_Minimise_Waste_Sept_2014.pdf</a></p> <p><a href="http://www.nyc.gov/html/ddc/downloads/pdf/waste.pdf">http://www.nyc.gov/html/ddc/downloads/pdf/waste.pdf</a></p> <p><a href="http://ec.europa.eu/environment/waste/studies/cdw/cdw_chapter7-10.pdf">http://ec.europa.eu/environment/waste/studies/cdw/cdw_chapter7-10.pdf</a></p> <p><a href="http://www.newmoa.org/solidwaste/CDReport2006DataFinalJune302009.pdf">http://www.newmoa.org/solidwaste/CDReport2006DataFinalJune302009.pdf</a></p>
9	Prevention ideas	<p><b>Limit the land for property development and encourage restoration</b></p> <p>The less materials used, the less waste is produced. To limit the use of raw materials, as well as to improve the respect towards environmental standards, the best solution is to start from a building that already exists. Encouraging restoration is also a way to keep the heritage of your city and to prevent the loss of green areas.</p> <p><b>Information campaign towards builders, designers, architects, developers, and contractors</b></p> <p>At the origin of CDW, there are building projects. Why not trying to convince those who are working at the source of the issue to take easily implementable measures to prevent CDW? Through an awareness raising campaign towards builders, designers, architects, developers, and contractors, edit a digital leaflet explaining how to reduce CDW. You can get inspired by this <a href="#">leaflet</a>.</p> <p><b>'No waste building' awards</b></p> <p>Motivate the builders within your territory with the launch of a 'No waste building'. Consisting of a contest where the winner will be the builder which produces the less construction waste or who implemented the best eco-design to prevent demolition waste, this will be a great occasion to give visibility to the best practices and encourage the others to do the same by showcasing the environmental and economic benefits of reducing waste.</p> <p><b>Limit public works to an absolute minimum</b></p> <p>Public works may also be a significant source of CDW and is an activity on which a municipality can have a strong influence on. Of course, renovation work is necessary to prevent accidents and even more CDW, but launching new public infrastructures</p>

		<p>project should always be considered carefully and limited to an absolute minimum. However, it is also possible to renovate abandoned brownfields or buildings.</p> <p><b>On-site grinding</b></p> <p>This technique consists of grinding up plasterboard and untreated timber waste and applying it to the site before covering with topsoil. This process has to be authorized and controlled by the territorial authority to minimise the impacts on the environment. It would help to save about 40% of costs dedicated to storage, transport and landfill of CDW.</p>
10	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://ec.europa.eu/environment/waste/construction_demolition.htm">http://ec.europa.eu/environment/waste/construction_demolition.htm</a></li> <li>• <a href="http://www.renewbuilding.eu/en/">http://www.renewbuilding.eu/en/</a></li> <li>• <a href="http://gypsumtogypsum.org/">http://gypsumtogypsum.org/</a></li> <li>• <a href="http://www.cdw-recycling.eu/">http://www.cdw-recycling.eu/</a></li> <li>• <a href="http://life-dcd.ro/en">http://life-dcd.ro/en</a></li> </ul>
11	Prevention Ideas	<p>You can see all the suggested Prevention ideas for the specific product – material at the website o LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a></p>
12	Suggest your Prevention ideas	<p>Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a></p>

### 1.1.12 Household hazardous waste

No	Categories of Data	Household hazardous waste
1	General information	<p>“Household hazardous waste (HHW)” is defined as: ‘such wastes that could potentially increase the hazardous properties of municipal solid waste when landfilled, incinerated or composted’<sup>98</sup>. It therefore mainly consists of leftover household products containing corrosive, toxic, ignitable or reactive ingredients. Paints, cleaners, oils, batteries and pesticides (to name a few) are part of this waste stream.</p> <p>By definition, hazardous wastes are a significant threat to the environment and human health if not managed properly and require a stricter control regime than for non-hazardous wastes. Despite the danger and cost of its treatment, which should be a reason to maximise the prevention of this waste stream, the amount of hazardous waste is still increasing in Europe (97 490 tonnes produced in 2010, and 99 850 tonnes in 2012).</p> <p>The Waste Framework Directive 2008/98/EC, which describes the properties which render waste hazardous in its Annex III, provides some legal requirements for the management of this waste stream, such as labelling, record keeping, monitoring and control obligations from the “cradle to the grave” (from the waste producer to the final disposal or recovery). In order to prevent accidents, it is also banned to mix different kinds of hazardous waste together. The installations dealing with hazardous wastes have also more difficulties to obtain permit exemptions than those dealing with other wastes. The list of wastes considered as hazardous by the European Union is in the <a href="http://ec.europa.eu/environment/waste/studies/pdf/household_report.pdf">Decision 2000/532/EC establishing a List of Wastes as last amended by Decision 2014/955/EU</a>.</p>
2	Waste quantitative data	<ul style="list-style-type: none"> <li>• Average consumption or waste production per person in EU or in member states.</li> </ul> <p>198 kg of hazardous waste per inhabitant have been reported in the EU in 2012</p>

98 [http://ec.europa.eu/environment/waste/studies/pdf/household\\_report.pdf](http://ec.europa.eu/environment/waste/studies/pdf/household_report.pdf), p.9

		<p>(99.9 million tonnes in total)<sup>99</sup>.</p> <ul style="list-style-type: none"> <li>• Range of percentage by weight or volume of the material-product in total waste stream.</li> </ul> <p>Hazardous waste represents 4.0% of the total waste stream<sup>100</sup>.</p> <ul style="list-style-type: none"> <li>• Assessment of percentage variation of the material-product in total waste stream according to the special characteristics of the country, region or local authority.</li> </ul> <p>From a low 27 kg per inhabitant in Greece to a high of 593 kg per inhabitant in Luxembourg, Member States are producing really different amounts of hazardous waste. Those differences seem to be mainly linked their wealth.</p> <ul style="list-style-type: none"> <li>• Assessment of seasonal variation of waste production in a typical European LA.</li> </ul> <p>No data.</p> <ul style="list-style-type: none"> <li>• Assessment of areas a typical LA that produce high volume of waste</li> </ul> <p>In Estonia, Bulgaria and Serbia, a significant amount of hazardous waste is produced because of the mining of specific natural resources present in these countries. In Luxembourg, the high amount of hazardous waste produced is explained by the numerous construction activities held in this country. A LA that produces a high volume of hazardous waste is therefore a LA where mining and construction activities occur in a significant amount.</p>
3	Environmental impacts of the product – material as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Small</b></li> </ul> <p>There is no precise data available about the energy consumption related to the hazardous waste treatment, but the energy consumption is probably significant because of the transport towards the specialised treatment plants and the special processes that require probably more energy than for the other waste streams. However, given that it represents a very small part of the total waste stream, the energy consumption related to hazardous waste may be small compared to the other waste streams.</p> <ul style="list-style-type: none"> <li>• Water consumption: <b>Small</b></li> </ul> <p>Given that it represents a very small part of the total waste stream, the water consumption related to hazardous waste may be small compared to the other waste streams.</p> <ul style="list-style-type: none"> <li>• Consumption of raw materials: <b>Small</b></li> </ul> <p>Given that it represents a very small part of the total waste stream, the consumption of raw materials related to hazardous waste may be small compared to the other waste streams.</p> <ul style="list-style-type: none"> <li>• Increase of air pollution: <b>Significant</b></li> </ul> <p>Several different chemicals included in the hazardous waste are air pollutants<sup>101</sup>.</p> <ul style="list-style-type: none"> <li>• Pollution increase of water recipients: <b>Significant</b></li> </ul> <p>Several different chemicals included in the hazardous waste are water pollutants<sup>102</sup>.</p> <ul style="list-style-type: none"> <li>• Increasing rain acidity: <b>Significant</b></li> </ul> <p>Given that the release of nitric oxides<sup>103</sup> and sulfur dioxides<sup>104</sup> are the main reason why acid rains are falling, and that those substances can be considered as hazardous waste, there is obviously a link between acid rains and this waste stream.</p> <ul style="list-style-type: none"> <li>• Climate Change: <b>Small</b></li> </ul> <p>Dichlorofluoromethane and trichlorofluoromethane are two hazardous substances which have a significant impact on climate change<sup>105</sup>.</p>

99 [http://ec.europa.eu/eurostat/statistics-explained/index.php/Waste\\_statistics#Hazardous\\_waste\\_generation](http://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_statistics#Hazardous_waste_generation)

100 [http://ec.europa.eu/eurostat/statistics-explained/index.php/Waste\\_statistics#Hazardous\\_waste\\_generation](http://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_statistics#Hazardous_waste_generation)

101 [http://ec.europa.eu/environment/waste/studies/pdf/household\\_report.pdf](http://ec.europa.eu/environment/waste/studies/pdf/household_report.pdf), p.14

102 [http://ec.europa.eu/environment/waste/studies/pdf/household\\_report.pdf](http://ec.europa.eu/environment/waste/studies/pdf/household_report.pdf), p.14

103 <http://nj.gov/health/eoh/rtkweb/documents/fs/1357.pdf>

104 <http://nj.gov/health/eoh/rtkweb/documents/fs/1759.pdf>

105 [http://ec.europa.eu/environment/waste/studies/pdf/household\\_report.pdf](http://ec.europa.eu/environment/waste/studies/pdf/household_report.pdf), p.14

		<ul style="list-style-type: none"> <li>Contribution in the "Ozone Hole": <b>Significant</b></li> </ul> <p>Ozone-depleting substances may be considered as hazardous waste<sup>106</sup>.</p> <ul style="list-style-type: none"> <li>Negative impact on terrestrial and water ecosystems, flora, fauna, marine species, endangered species, birds and contains dangerous substances for the environment: <b>Significant</b></li> </ul> <p>A substance is called hazardous because of its impacts on the environment. Hazardous waste is therefore obviously harmful for all those ecosystems and species.</p> <ul style="list-style-type: none"> <li>Deteriorates the landscape: <b>Small</b></li> </ul> <p>Given that hazardous waste represents a small part of the total waste stream, its impacts on landscapes is small compared to other waste streams such as construction and demolition waste for example.</p>
4	Health impact	<p>14. It may enter the food chain: <b>Significant</b></p> <p>Mercury and certain chemicals found in pesticides may enter the food chain through bioaccumulation. For example, fish raises concerns about bioaccumulation of mercury<sup>107</sup>.</p> <p>15. It contains hazardous to public health substances and increases the risk of mortality, morbidity: <b>Significant</b></p> <p>By definition, this waste stream may be a threat to public health if not managed properly.</p> <p>16. It increases the risk of accidents and explosions: <b>Significant</b></p> <p>Hazardous waste caused many accidents which have been very harmful for public health. A comprehensive document about accidents that occurred within hazardous waste management plants in the USA between 1977 and 1995 can be found <a href="#">here</a>.</p>
5	Other negative characteristics as waste	<ul style="list-style-type: none"> <li>Increases the risk of fire: <b>Significant</b></li> </ul> <p>Hazardous waste caused many accidents, including accidental fires. A comprehensive document about accidents that occurred within hazardous waste management plants in the USA between 1977 and 1995 can be found <a href="#">here</a>.</p> <ul style="list-style-type: none"> <li>Increases Child labor: <b>Significant</b></li> </ul> <p>Many hazardous wastes have been illegally shipped to developing countries for 'treatment' and are still nowadays manipulated by children<sup>108</sup>. The following links provides some examples of what happens:</p> <p><a href="http://news.discovery.com/tech/indias-poor-risk-slow-death-recycling-e-waste.htm">http://news.discovery.com/tech/indias-poor-risk-slow-death-recycling-e-waste.htm</a>  <a href="http://www.dailymail.co.uk/travel/travel_news/article-2993216/Shocking-images-horror-child-labour-toxic-Cambodia-rubbish-site-tourists-visit-photograph-them.html">http://www.dailymail.co.uk/travel/travel_news/article-2993216/Shocking-images-horror-child-labour-toxic-Cambodia-rubbish-site-tourists-visit-photograph-them.html</a>  <a href="http://news.mongabay.com/2011/09/children-on-the-frontlines-the-e-waste-epidemic-in-africa/">http://news.mongabay.com/2011/09/children-on-the-frontlines-the-e-waste-epidemic-in-africa/</a></p> <ul style="list-style-type: none"> <li>Increases illegal work: <b>Significant</b></li> </ul> <p>Many hazardous wastes have been illegally shipped to developing countries<sup>109</sup></p> <ul style="list-style-type: none"> <li>Increases the hidden economy: <b>Significant</b></li> </ul> <p>Hazardous waste being illegally shipped is then part of the hidden economy.</p>
6	Management cost	<ul style="list-style-type: none"> <li>Is the management cost of Household Hazardous Waste higher or lower of the average waste management cost: <b>Higher</b></li> <li>Assessment of the typical range of management cost: <b>From 99 €/t to 353 €/t</b> (ERS, 2015)</li> </ul> <p>It is considered as waste that goes to landfill along with other non-hazardous waste.</p> <p>Other management cost:</p> <p>The following data are taken from a study which was produced in 2002 and</p>

106 [http://ec.europa.eu/clima/policies/ozone/faq\\_en.htm](http://ec.europa.eu/clima/policies/ozone/faq_en.htm)

107 <http://www.nrdc.org/health/effects/mercury/guide.asp>

108 [http://www.europarl.europa.eu/RegData/bibliothek/briefing/2011/110174/LDM\\_BRI\(2011\)110174\\_REV1\\_EN.pdf](http://www.europarl.europa.eu/RegData/bibliothek/briefing/2011/110174/LDM_BRI(2011)110174_REV1_EN.pdf)

109 [http://www.europarl.europa.eu/RegData/bibliothek/briefing/2011/110174/LDM\\_BRI\(2011\)110174\\_REV1\\_EN.pdf](http://www.europarl.europa.eu/RegData/bibliothek/briefing/2011/110174/LDM_BRI(2011)110174_REV1_EN.pdf)

		<p>concerning EU-15. Those data are therefore to be considered obsolete, but are still the most recent information concerning the management cost of household hazardous waste:</p> <p>Collection at civic amenity (CA) sites: From € 0.12 to € 1.7 per kg</p> <p>Annual mobile collection: From € 3.2 to € 5 per kg</p> <p>More frequent collection with a specialised vehicle: From €2 to €10 per kg</p> <p>Regular door to door collection: € 1.7 to € 10 per kg</p> <p>Cost of HHW treatment (depending on the method adopted and the standards to which the chosen method has to comply with): From € 0.42 to € 2.2 per kg</p> <p>Total cost for managing HHW: From € 1 and € 2 per kg – From € 1.5 to € 3 billion per annum</p>
7	Possible advantages of prevention activities	<p>Are there prevention activities that can reduce "significantly" or even "little" waste production: <b>Yes</b> (Urban development limitation, Be a pesticide free town)</p> <p>Are there prevention activities that can reduce "significantly" or even "a little" the danger of remaining waste: <b>Yes</b> (Urban development limitation, Be a pesticide free town)</p> <p>Are there prevention activities that can reduce "significantly" or even " little " the management costs of the remaining waste: <b>Yes</b> (Urban development limitation, Be a pesticide free town)</p> <p>are there prevention activities that cause "no" or "little" organizational problems to the LA: <b>Yes</b> (Awareness raising campaign about hazardous waste reduction, Workshop on hazardous waste reduction, Hazardous waste minimisation contest)</p> <p>are there prevention activities with 'no' or 'small' implementation costs for the LA: <b>Yes</b> (Awareness raising campaign about hazardous waste reduction)</p> <p>Are there prevention activities that create "a few", "several" or "many" jobs: <b>No data</b></p>
8	Useful document-tation	<ul style="list-style-type: none"> <li>• <a href="http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32014D0955">http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32014D0955</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/studies/pdf/household_report.pdf">http://ec.europa.eu/environment/waste/studies/pdf/household_report.pdf</a></li> <li>• <a href="http://www3.epa.gov/region5/waste/solidwaste/p2pages/pdfs/tb-hhw.pdf">http://www3.epa.gov/region5/waste/solidwaste/p2pages/pdfs/tb-hhw.pdf</a></li> <li>• <a href="http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2011/110174/L_DM_BRI%282011%29110174_REV1_EN.pdf">http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2011/110174/L_DM_BRI%282011%29110174_REV1_EN.pdf</a></li> <li>• <a href="http://www.pan-uk.org/files/PN100_pesticide_free_final.pdf">http://www.pan-uk.org/files/PN100_pesticide_free_final.pdf</a></li> </ul>

9	Prevention ideas	<p><b>Awareness raising campaign about hazardous waste reduction</b></p> <p>With a targeted communication campaign, you can inform your citizens about the different ways to reduce their hazardous waste. You can use your classic communication means such as the local newspaper or your municipal website to keep the campaign dematerialised and save paper.</p> <p>You can get inspired <a href="#">here</a>.</p> <p><b>Workshop on hazardous waste reduction</b></p> <p>There are several ways to diminish hazardous waste by replacing the products containing hazardous substances, such as pesticides, insecticides and cleaning products, through purchasing natural and non-hazardous products. The recipes of those products are, most of the time, really easy to follow, and could be the subject of a workshop organised by a local authority.</p> <p>To find examples of natural recipes, please check <a href="#">here</a>.</p> <p><b>Hazardous waste minimisation contest</b></p> <p>To motivate the companies dealing with hazardous waste within your territory to reduce the amount of this waste stream, you may organise a contest showcasing their best practices. Reward the best practices in each category of activity which produces a significant amount of hazardous waste (agriculture, construction, manufacturing, health, laboratories...) with a grant.</p> <p><b>Urban development limitation</b></p> <p>Because of the significant use and release of hazardous substances in construction and demolition activities, it is important for municipalities to keep the urban development at its strict minimum. By encouraging restoration instead of demolition, and by limiting the land for property development, you will also find a way to keep the soul of your city and to prevent the loss of green areas.</p> <p><b>Be a pesticide free town</b></p> <p>Pesticides, being really armful for ecosystems and for public health, should be as much avoided as possible by the local authorities who want to reduce their hazardous waste and their impact on the environment. Make mandatory for your municipal services to use alternative ways to manage your green spaces. Get inspired by the Toronto's case study <a href="#">here</a>.</p> <p><b>Green public procurement for products bought by the local authority</b></p> <p>Implement green public procurement clauses for the products purchased by the local authority to replace hazardous products by green ones. This also includes clauses for services providers to include non hazardous products.</p>
10	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://ec.europa.eu/environment/waste/hazardous_index.htm">http://ec.europa.eu/environment/waste/hazardous_index.htm</a></li> <li>• <a href="http://www.hazardouswasteeurope.eu/">http://www.hazardouswasteeurope.eu/</a></li> <li>• <a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=14678">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=14678</a></li> <li>• <a href="http://www.dec.ny.gov/chemical/8781.html">http://www.dec.ny.gov/chemical/8781.html</a></li> <li>• <a href="http://www.pan-uk.org/pesticide-free-towns-and-cities/pesticide-free-towns-and-cities">http://www.pan-uk.org/pesticide-free-towns-and-cities/pesticide-free-towns-and-cities</a></li> </ul>
11	Prevention Ideas	<p>You can see all the suggested Prevention ideas for the specific product – material at the website o LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a></p>
12	Suggest your Prevention ideas	<p>Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a></p>

### 1.1.13 Household goods

<b>a/α</b>	<b>Data Categories</b>	<b>Household goods</b>
1	General Information	<p>For the purpose of this prevention guide, household goods is defined as the following:</p> <ul style="list-style-type: none"> <li>• containing hazardous materials or products containing dangerous substances</li> <li>• They can be found in a household or in a business for the same purpose as in a household and used for various uses.</li> </ul> <p>Such household items can be: all kinds of kitchen utensils, tables, decorations, all kinds of books, magazines, music CD, DVD, videos, sports instruments and equipment, accessories hobbies, clothing accessories, travel goods, tools, glassware, office supplies, small items, antiques, rugs, carpets, and even bicycles etc. Such items are frequently disposed of in the waste while they are in perfect working condition and could be extended for a long period of their lifetime. These household items could go to, if they could be gathered and chosen, they could be given for free or at very low prices in the economy of reuse activities.. Also, in many cities, there are bazaars for "second hand" items or exchanges are often organized.</p> <p>In many cities in Europe and elsewhere these types of goods are collected either in Green Points, or by social economy actors, either by municipalities or by operators of classical economics for reuse or charity. The municipalities can play an important role in facilitating these activities.</p>
2	Quantitative data on waste	If you do not include furniture, tourism and electrical devices, other household goods may be 0.2% -2% of municipal household waste, depending on the season, region and country. It is known that a significant proportion of the household goods in many countries is sent to reuse by the consumers themselves with the ways mentioned above. Where no data is available, municipalities require the waste composition analysis to separately identify household goods end up for disposal.
3	Environmental impacts as waste	<ul style="list-style-type: none"> <li>• Energy consumption: <b>Significant</b></li> <li>• Water consumption: <b>Small</b></li> <li>• Consumption of raw materials: <b>Significant</b></li> <li>• Worsening of air pollution: <b>Significant</b></li> <li>• Worsening of water pollution recipients: <b>Significant</b></li> <li>• Increases rainfall acidity: <b>Small</b></li> <li>• Worsening Climate Change: <b>Significant</b></li> <li>• Deterioration of the Ozone layer: <b>Zero</b></li> <li>• Negative impact on terrestrial ecosystems: <b>Small</b></li> <li>• Negative impact on aquatic ecosystems: <b>Small</b></li> <li>• Negative effect on flora: <b>Small</b></li> <li>• Negative impact on wildlife: <b>Small</b></li> <li>• Negative impact on marine species: <b>Zero</b></li> <li>• Negative impact on endangered species: <b>Zero</b></li> <li>• Negative impact on birds: <b>Small</b></li> <li>• Contains quantity of dangerous substances to the environment: <b>Small</b></li> <li>• Creates deterioration of the landscape: <b>Significant</b></li> </ul>
4	Health effects as waste	<ul style="list-style-type: none"> <li>• It can enter to the food chain: <b>Very significant</b></li> <li>• It contains a quantity of dangerous substances for the public health: <b>Significant</b></li> <li>• It has been found a negative impact on public health: <b>Significant</b></li> <li>• It increases the risk of mortality: <b>significant</b></li> <li>• It increases the risk of morbidity: <b>Very significant</b></li> <li>• It increases the risk of accidents: <b>Very significant</b></li> <li>• It increases the risk of explosions: <b>a little</b></li> </ul>
5	Other possible	<p>Increases the risk of fires: <b>Very</b></p> <p>It increases the child labor: <b>Very</b></p>

	negative characteristics as waste	<p>It increases the "black" work: <b>Very</b></p> <ul style="list-style-type: none"> <li>• It increases the underground economy: <b>Very</b></li> </ul>
6	Management cost	<p>Household goods in the collection - transport and land filling process are estimated to have about 1.5 times less weight than that of the average waste composition. So, based on the most likely mixed waste management costs, ranges are evaluated (ERS, 2015) as follows:</p> <ul style="list-style-type: none"> <li>• Does it have a higher, lower or the same management costs than the average waste costs?: <b>It has higher</b></li> <li>• What is the estimated range management costs of the material - product as waste: <b>From 225€/t to 450€/t</b></li> </ul>
7	Possible advantages of actions for Prevention	<ul style="list-style-type: none"> <li>• Are there Prevention actions that can reduce this stream's waste production "significantly" or even "a little"? : <b>Yes</b></li> <li>• Are there Prevention actions that can reduce "significantly" or even "a little" the dangerousness of the remaining waste? : <b>Yes</b></li> <li>• Are there Prevention actions that can reduce "significantly" or even "a little" the management cost of the remaining waste of the Municipalities? : <b>Yes</b></li> <li>• Are there Prevention actions for this waste stream that create "no" or "little" organizational problems for Municipalities? : <b>Yes</b></li> <li>• Are there Prevention actions implementable with "no" or "small" implementation costs for Municipalities? : <b>Yes</b></li> <li>• Are there Prevention actions that create "a few", "enough" or "many" jobs? : <b>Yes</b></li> </ul>
8	Useful Documents	<ul style="list-style-type: none"> <li>• <a href="http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention-actions_v4_EN.pdf">http://waste-prevention.gr/waste/wp-content/uploads/2015/10/Prevention-actions_v4_EN.pdf</a></li> <li>• <a href="http://www.uk-energy-saving.com/home_composting.html">http://www.uk-energy-saving.com/home_composting.html</a></li> <li>• <a href="http://users.auth.gr/darakas/Solid_Waste.pdf">http://users.auth.gr/darakas/Solid_Waste.pdf</a></li> <li>• <a href="http://www.larissa-dimos.gr/new/pdf/%CE%A4%CE%A3%CE%91%CE%94_final.pdf">http://www.larissa-dimos.gr/new/pdf/%CE%A4%CE%A3%CE%91%CE%94_final.pdf</a></li> <li>• <a href="http://www.ednsa.gr/attachments/article/473/%CE%94%CE%97%CE%9C%CE%9F%CE%A5%20%CE%A7%CE%91%CE%9B%CE%91%CE%9D%CE%94%CE%A1%CE%99%CE%9F%CE%A5.pdf">http://www.ednsa.gr/attachments/article/473/%CE%94%CE%97%CE%9C%CE%9F%CE%A5%20%CE%A7%CE%91%CE%9B%CE%91%CE%9D%CE%94%CE%A1%CE%99%CE%9F%CE%A5.pdf</a></li> <li>• <a href="http://www.ednsa.gr/attachments/article/473/%CE%94%CE%97%CE%9C%CE%9F%CE%A5%20%CE%A0%CE%95%CE%99%CE%A1%CE%91%CE%99%CE%91.PDF">http://www.ednsa.gr/attachments/article/473/%CE%94%CE%97%CE%9C%CE%9F%CE%A5%20%CE%A0%CE%95%CE%99%CE%A1%CE%91%CE%99%CE%91.PDF</a></li> </ul>
9	Prevention Ideas	<ol style="list-style-type: none"> <li>8. Promote an information campaign for the up-cycling of household goods by the residents e.g. ``Make your Christmas ornaments from useless objects''</li> <li>9. The Municipality creates an event where in a specific outdoor area on a regular periodic basis the residents bring household items and can have a swap or a boot/yard sale.</li> <li>10. Organization and implementation of a preventive action entitled: "<i>Giving my old books to whoever is in need</i>". In this action collected books and given to institutions such as prisons, hospitals, rehabilitation centers, etc. Or promote "<i>take a book, leave a book</i>" initiatives in local Businesses (eg hotels, cafes...).</li> <li>11. Small local un-manned stands can be created (eg 1 m2), where people can leave some goods and others pick them up discreetly. The passers of the neighborhood check these items and get that need. The whole process works very discreetly and support for the neighborhood.</li> <li>12. Organization and implementation of a preventive action titled "Create a free lending library on public transport of my town". The Municipality with this action utilizes a portion of the collected books, which can be collected in a household reuse program. The Municipality in cooperation with the city's public transportation operators set up a pilot at the beginning and after an extensive free library on every bus or train station, where each passenger can borrow a book or a magazine and return it another day at a corresponding library of public transport. The action is for the mutual trust between local authorities and citizens for the success. Thus, the passenger can read something that interests</li> </ol>

		<p>him during his transportation and return the book or magazine another day, since it has already read it.</p> <p>13. Promote sites and information on repurposing and up-cycling household goods.  <a href="http://www.diyncrafts.com/6081/repurpose/100-ways-repurpose-reuse-broken-household-items">http://www.diyncrafts.com/6081/repurpose/100-ways-repurpose-reuse-broken-household-items</a>  <a href="http://www.listinspired.com/50-creative-ways-to-repurpose-and-reuse-household-items/">http://www.listinspired.com/50-creative-ways-to-repurpose-and-reuse-household-items/</a></p> <p>14. Initiate a contest where residents can submit and demonstrate their up-cycling and repurposing of household items.</p>
10	Useful web pages	<ul style="list-style-type: none"> <li>• <a href="http://www.recyclenow.com/">http://www.recyclenow.com/</a></li> <li>• <a href="https://waste-prevention.gr">https://waste-prevention.gr</a></li> <li>• <a href="http://www.ypeka.gr/Default.aspx?tabid=238&amp;">http://www.ypeka.gr/Default.aspx?tabid=238&amp;</a></li> </ul>
11	Prevention Ideas	<p>See all the ideas for Prevention for this material - product in the following website of the project LAWPreT  <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a></p>
12	Suggest ideas for prevention	<p>Suggest your own ideas for Prevention for this material - product in the following website of the project LAWPreT  <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a></p>

## 1.2 Waste prevention in special sites

This chapter presents basic data and relevant information on specific areas of municipal activities, which can contribute significantly to the implementation of waste prevention measures. For each such space: a) basic information are given, b) possible contributions to prevention actions are presented, c) basic documents and international Best Practices are given and d) successful prevention ideas are presented.

### 1.2.1 Green Points (GP)

No	Data categories	Green points
1	General information	<p>Green points, sometimes called green spots or re-use corners, consist of established areas dedicated to the separate collection of waste. The range of services provided by this system may vary depending on the technology or the means available. On the one hand, according to the definition provided by the European project 'Low Cost - Zero Waste Municipality'<sup>110</sup>, a green point is placed within the municipality and benefits from having permanent staff. But on the other hand, deposit boxes where people can freely give their reusable items, or help themselves with those items, could be considered as green points and do not require permanent staff. Also, a green point can collect one or several of the following waste streams: packaging materials, printed paper, pruning, wood, household debris, furniture, clothing, footwear, household hazardous, tires, batteries, bulky, etc. The aim of the collection may be recycling, re-use or both. The only common criterion is that a green point always necessitate that citizens bring their waste themselves or their unwanted reusable items to the collection location.</p> <p>As a system which relies on the good will of citizens, the implementation of green points in a municipality necessitates to be accompanied by an active awareness raising and communication campaign. It is also really important to make the kinds of</p>

110 [http://www.med-zero-waste.eu/deliverables/DST\\_Final/index.htm](http://www.med-zero-waste.eu/deliverables/DST_Final/index.htm)

		items collected and the quality of those items (clean or unbroken) really clear to make the collection as efficient as possible.
2	Waste production quantitative data	<p>Given that green points are named in several different ways all over the world, and that there is no comprehensive study or common definition about this system, there is no global data about the efficiency of this method. Nonetheless, TransWaste did a study about 'ReUse Corners'<sup>111</sup> and gives interesting data about this system in Flanders (2010):</p> <ul style="list-style-type: none"> <li>• 57.000 tonnes of items collected</li> <li>• 25.000 tonnes reused (4 kg/cap.)</li> <li>• 4.500 employees (3.500 full-time equivalent); 80% disadvantaged</li> <li>• 3,8 million customers</li> <li>• Continuous growth since 1995 (e.g. 25-fold amounts)</li> </ul>
3	Materials - products for which prevention activities can be effective	<p>Given that almost every kind of waste could be collected at a green point, it is more relevant to state which of those wastes could be easily reused (which is closer from prevention than recycling).</p> <ul style="list-style-type: none"> <li>• <b>Plastic bags: Minor impact</b> - A green point for plastic bag would be not very efficient. There is little prospect that people will want to take a plastic bag used by someone else before (hygiene and quality concerns). Plastic bags are also hardly washable. A green point dedicated to plastic bags would be only useful for recycling, which is not enough developed and stays a second-rate solution compared to prevention and reuse.</li> <li>• <b>Food and kitchen waste: Significant impact</b> - Neighbourhood composting could be considered as a green point dedicated to the collection of food and kitchen waste. Those systems of organic waste collection can be very useful in urbanised areas where people seldom have a garden.</li> <li>• <b>Green Waste: Significant impact</b> - As for food and kitchen waste, green waste may also be collected via green points.</li> <li>• <b>Plastic bottles: Minor impact</b> - Terracycle, a company specialised in the collection, the reuse and the recycling of waste, did collect and reuse plastic bottles to sell their fertilizer. However, plastic bottles are fragile and can't be reused for ever.</li> <li>• <b>Packaging: Minor impact</b> - By using second-hand items, we avoid the packaging implied by the buying of new products. But putting packaging waste in a green point, except maybe for those which are reusable (cardboard, glass jar, re-closable packaging, etc.), will mainly be useful for recycling.</li> <li>• <b>Clothing &amp; textiles: Major impact</b> - Green points dedicated to the collection of second-hand textiles are very well established in Europe and is proved to have a great impact on the re-use of waste<sup>112</sup>.</li> <li>• <b>Games: Quite good impact</b> - Games (board games, video games, sporting goods) could be items that would be collected via green points, even if not really developed. However, those items are most of the time already reused via second-hand shops.</li> <li>• <b>Furniture: Significant impact</b> - Green points dedicated to the collection of second-hand textile are very well established in Europe and is proved to have a great impact on the re-use of waste<sup>113</sup>.</li> <li>• <b>WEEE: Significant impact</b> - Green points dedicated to the collection of second-hand textile are very well established in Europe and are proven to have a significant impact on the re-use of waste<sup>114</sup>.</li> <li>• <b>Paper: Significant impact</b> - Green points may also be able to receive paper waste and related items such as books and newspaper that could be easier to reuse</li> </ul>

111<http://www.transwaste.eu/file/001551.pdf>

112[http://www.rreuse.org/wp-content/uploads/2008\\_second\\_hand\\_sector\\_europe.pdf](http://www.rreuse.org/wp-content/uploads/2008_second_hand_sector_europe.pdf), p.28-30

113[http://www.rreuse.org/wp-content/uploads/2008\\_second\\_hand\\_sector\\_europe.pdf](http://www.rreuse.org/wp-content/uploads/2008_second_hand_sector_europe.pdf), p.32-33

114[http://www.rreuse.org/wp-content/uploads/2008\\_second\\_hand\\_sector\\_europe.pdf](http://www.rreuse.org/wp-content/uploads/2008_second_hand_sector_europe.pdf), p.30-32

		<p>than paper waste.</p> <ul style="list-style-type: none"> <li>• <b>C&amp;D waste: Minor impact</b> - Apart maybe from paint leftovers or some products related to everyday renovations, C&amp;D waste cannot be managed properly through green points.</li> <li>• <b>Hazardous household waste: Little</b> - Apart from the hazardous household waste contained in WEEE, and through the green points dedicated to WEEE, this waste stream is unlikely to be managed through this collection system.</li> <li>• <b>Various household items: Very</b> - Bikes, household utensils, playback audio and video, decoration items, gifts, lamps, old tools, etc. may be collected at green points.</li> </ul>
4	Efficiency of prevention related initiatives	<ul style="list-style-type: none"> <li>• <b>Implementation of Sustainable Procurement strategy: Quite significant</b> - A sustainable procurement strategy could be used to foster waste management companies to use green points to encourage the separated collection of waste.</li> <li>• <b>Implementation of PAYT: Quite significant</b> - After the implementation of a PAYT system, green points could be a good complementary solution for all the reusable or recyclable waste that cannot enter the paid door-to-door collection (WEEE, . People will be encouraged to bring those wastes to green points instead of paying for their collection.</li> <li>• <b>Implementation of awareness campaigns: Very significant</b> - Being a system which relies on the good will of citizens, the implementation of green points in a municipality necessitates to be accompanied by an active awareness raising and communication campaign.</li> <li>• <b>Implementation of e-Government policies by the LA: Probably significant</b> - E-Government may help to implement a rational management of the green points put in a municipality. With an interactive map indicating the locations and the collection capacity of the green points, this system may be so much more efficient.</li> <li>• <b>Implementation of other initiatives (see chapter 1.3.5)</b></li> </ul>
5	Possible advantages Prevention activities	<ul style="list-style-type: none"> <li>• Are there prevention activities that can reduce "significantly" or even "a little" waste production?: <b>Yes</b> (Green vouchers, Opening of a thrift store)</li> <li>• Are there prevention activities that can reduce "significantly" or even "a little" the danger of remaining waste?: <b>No data</b></li> <li>• Are there prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste?: <b>Yes</b> (Green vouchers, Compost sharing system)</li> <li>• Are there prevention activities that cause "no" or "little" organizational problems to the LA: <b>A few</b> (Awareness raising campaign)</li> <li>• Are there prevention activities with 'no' or 'small' implementation costs for the LA?: <b>A few</b> (Awareness raising campaign)</li> <li>• Are there prevention activities that create "a few", "several" or "many" jobs?: <b>Yes</b> (Opening of a thrift store, Compost sharing system, Reused games centre)</li> </ul>
6	Useful document- ation	<ul style="list-style-type: none"> <li>• <a href="http://www.transwaste.eu/file/001551.pdf">http://www.transwaste.eu/file/001551.pdf</a></li> <li>• <a href="http://www.rreuse.org/wp-content/uploads/2008_second_hand_sector_europe.pdf">http://www.rreuse.org/wp-content/uploads/2008_second_hand_sector_europe.pdf</a></li> </ul>

7	Prevention ideas	<p><b>Awareness raising campaign</b></p> <p>Being a system which relies on the goodwill of citizens, the implementation of green points in a municipality must be accompanied by an active awareness raising and communication campaign. Use all your communication means (local newspaper, website, billboards, etc.) to communicate about the usefulness of green points, and give all the practical details (location, type of waste collected, timetable, etc.).</p> <p><b>Green vouchers</b></p> <p>In order to motivate your citizens to bring their waste to the green points, you can implement a system of green vouchers which rewards those who make an effort. You therefore need to set up a voluntary agreement with the shops on your municipality. Make sure that the green vouchers will only give access to sustainable products.</p> <p>Find more information <a href="#">here</a>.</p> <p><b>Opening of a thrift store</b></p> <p>Via public procurement, it is possible for a municipality to encourage the creation of a social enterprise in charge of running a thrift store. Your citizens will then be able to dispose of their unwanted items, as well as to buy second-hand products at a really affordable price. The benefits of this store will then be used for charitable purpose.</p> <p><b>Compost sharing system</b></p> <p>After the settlement of a green point dedicated to organic waste, you can implement a system which rewards those who brought their organic waste by giving them 10% of the weight they brought in compost. This will motivate those who do not have a garden for composting, but who still have place to grow indoor plants, to bring their organic waste to the green point.</p> <p><b>Reused games centre</b></p> <p>Board games, video games and juggling products fill everyone's cupboard and are most of the time unused. Encourage your citizens to bring those items to a reused game centre where people can also meet and play with all the games collected. Being more than a green point, this will be also a good opportunity to create social links.</p>
8	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://www.greenspotdropoff.org/">http://www.greenspotdropoff.org/</a></li> <li>• <a href="http://www.med-zero-waste.eu/deliverables/DST_Final/index.files/Page1735.htm">http://www.med-zero-waste.eu/deliverables/DST_Final/index.files/Page1735.htm</a></li> <li>• <a href="http://reuse.berkeley.edu/about">http://reuse.berkeley.edu/about</a></li> </ul>
9	Prevention Ideas	<p>You can see all the suggested Prevention ideas for the specific site category at the website o LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality">www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality</a></p>
10	Suggest your prevention ideas	<p>Suggest your own prevention idea for the specific site category at the website o LAWPreT</p> <p><a href="http://www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention">www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention</a></p>

## 1.2.2 Schools

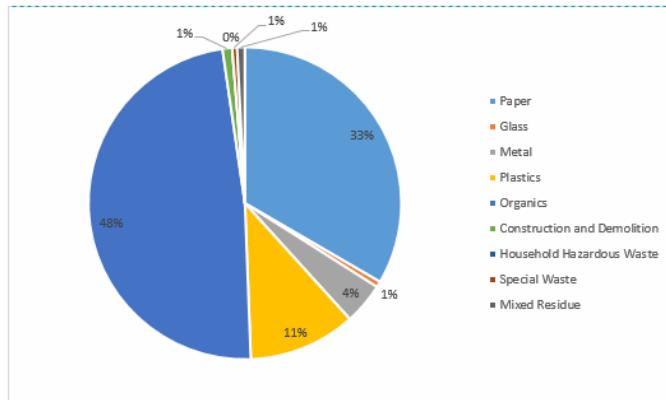
No	Data Categories	Schools
1	General Information	<p>Schools are found in every local authority. This section addresses waste prevention in schools (public and private) at the primary and secondary levels but also nursery schools and kindergartens. Which means that the target group for waste prevention in schools is that of the ages between 1 and 18 years old. This section does not address tertiary level schools.</p>

		<p>There are various to implement and develop waste prevention in schools. The most important action information and awareness raising of teachers and students as well as of the personnel that works in schools.</p> <p>With waste prevention actions, schools can constitute a model organization for the promotion of waste prevention and its adoption, results, in the long term and gradual –in combination with other environmental education actions- in the creation of an environmental culture in the school and of an ethos oriented to sustainable development.</p> <p>Prevention actions can be applied in the school program and implemented systematically, interdisciplinarily, and spherically from early childhood and throughout the whole life through the connection of typical and non-typical education, beginning from the student and his immediate social environment. These kind of actions help in the shaping of active citizens that will be environmentally aware, will be critical thinkers and will intervene in social activities aiming at the changes that are necessary for sustainable waste management.</p> <p>Besides information and awareness raising of school community, other (indicative) waste prevention actions that can be implemented in schools are:</p> <ul style="list-style-type: none"> <li>• Use of recycled products, especially stationery</li> <li>• Recycling of paper and other packaging (e.g. glass, aluminum) as well as some types of hazardous wastes (e.g. batteries)</li> <li>• Using the other side of printed paper, as draft</li> <li>• Use of double sided photocopies</li> <li>• Reuse of old cardboard boxes for storage</li> <li>• Reuse of school books</li> <li>• Reuse of school material (folders, pens, pencils, envelopes, schoolbags)</li> <li>• Purchase of non-toxic products as pens, inks and art material</li> <li>• Provide unpackaged and unbottled foods and beverages (e.g. for the canteen, restaurant etc...) or, if not possible, make purchases with the least possible packaging</li> <li>• Reuse or recycle of Electrical and Electronic Equipment (EEA)</li> <li>• Reduction of wastes from lunch (bringing crockery from home, use of thermos etc)</li> <li>• Better programming of meals at the canteen/cafeteria</li> <li>• Cooperation with the municipality and other social organizations for leftovers from school cafeteria/canteen to go worthy causes.</li> <li>• Composting in school</li> <li>• Installation of water saving systems in the bathrooms.</li> <li>• Monitoring of energy consumption</li> </ul> <p>The municipalities have to cooperate systematically with schools, in order to know which wastes are produced by the school and take collaborative on-going measures for their reduction and also to implement best practices for their proper management. The targeted actions of the municipalities for waste prevention in schools concern:</p> <ul style="list-style-type: none"> <li>• The designing of integrated waste prevention programs</li> <li>• the safeguarding of the possibility of occurrence of proper sites and equipment (e.g. for recycling and alternative management), as well as the systematic cooperation with the competent systems for alternative waste management, organizations and bodies so that prevention actions are feasible.</li> <li>• the systematic involvement of persons and bodies at the municipal level</li> </ul>
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		<ul style="list-style-type: none"> <li>• the development of pilot programs</li> <li>• the information and encouragement of suppliers</li> <li>• the implementation of motivational activities (e.g. awards, promotion through local media)</li> <li>• the acting as a “good example”, proving that resource efficiency is implemented at the various levels of public administration, through sustainable contracts, implementation of waste prevention systems, of good practices etc.</li> </ul> <p>In addition, with waste prevention in schools, the municipalities ensure multiply<sub>er</sub> effects, since teachers, students and personnel may start implementing the practices in their homes and transfer the message to their families and friends.</p> <p><b>Useful web links:</b></p> <ul style="list-style-type: none"> <li>• <a href="http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&amp;rep=file&amp;fil=LIFE05_ENV_FIN_000539_LAYMAN.pdf">http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&amp;rep=file&amp;fil=LIFE05_ENV_FIN_000539_LAYMAN.pdf</a></li> <li>• <i>Waste Prevention Kit for Enterprises, Education and Households (WastePrevKit), a project by YTV Waste Management in 2005-2007</i></li> <li>• <a href="http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guideline_s.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guideline_s.pdf</a></li> </ul> <p><a href="http://www.baltimorecountymd.gov/Agencies/publicworks/recycling/kidspages/">http://www.baltimorecountymd.gov/Agencies/publicworks/recycling/kidspages/</a></p> <ul style="list-style-type: none"> <li>○ Kids Recycling and Waste Prevention- Baltimore</li> <li>• <a href="http://www.calrecycle.ca.gov/reducwaste/home/BackToSch.htm">http://www.calrecycle.ca.gov/reducwaste/home/BackToSch.htm</a></li> </ul>
2	Waste production quantitative data	<p>One of the first steps for the development of an integrated waste prevention program at schools is the identification of the characteristics of the wastes produced at the different school sites (internal as classrooms, offices, canteens, cafeterias and external as yards, playgrounds etc). In general, the largest quantity –by weight– comes mainly from two waste streams: a. paper and cardboard and b. food wastes. This means that the prevention actions should priorities these two streams.</p> <p>Below, data from indicative studies that concern the composition of school wastes from different countries are presented.</p> <p>In England 258,300 tons of waste is produced each year. It is estimated that around 201,439 tons of this quantity could be easily recycled or composted. This represents 78% of the waste produced in schools. Waste that is produced daily from primary and secondary levels in England equals the weight of 185 double-deckers full of wastes. According to a study of Recycle Now, which is the national campaign in England, at the secondary level, an average of 22kg of waste is produced per student each academic year, while in elementary school an average of 45kg of wastes is produced per student each academic year. Food wastes, paper and cardboard represent more than 75% of the wastes (by weight) in the schools at the primary level and 70% of waste (by weight) in those at the secondary level. Plastics, also, stand for 9% of wastes in the schools of primary education and for 17% of wastes in the schools of secondary education.</p> <ul style="list-style-type: none"> <li>• In Wales, paper and cardboard stands for a similar percentage (30-35%) in schools at the primary and secondary levels, while in regards to the percentage of food wastes, it is 35% at the primary level and 21% at the secondary level. This may be due to the fact that elementary school students use school-meal-services more than those at the secondary level.</li> <li>• Food waste in Swedish schools are estimated at 10-30,000 tons per year, which corresponds to a cost of 23-68,000,000 euros (<i>REPORT U2011:05 Good Examples of Waste Prevention in Municipalities. A compilation of ideas for more sustainable production and consumption, Gothenburg, Sweden, March 2011</i>).</li> <li>• According to New York's Department of Environmental Conservation, each student produces 20-40 kg of food waste at school per school year. A study of</li> </ul>

The National School Lunch Program showed that food loss costs more than \$600 million, besides the significant nutritional loss (*Environmental News Network, In School Cafeterias, Trash Piling High Despite Recycling Efforts, May 13, 2005, By Ben Feller, Associated Press*).

The following graph shows the estimated composition of school wastes in California, USA, according to data from the Department of Resources Recycling and Recovery (CalRecycle):



The fluctuation of waste produced in schools depends on the operational period of schools, which differs in the member states of EU. In general, the duration of the school year doesn't show significant differences between EU states. The things that differ are the beginning and the closing as well as the various intermediate vacation between the northern and southern countries.

The climatic conditions play an important role on the definition of the teaching period. In southern countries, in general, school starts for the students around the second week of September and ends at the end of June. Vacation is specific at national level (Christmas, Easter, summer and certain religious holidays) e.g. in Croatia, Cyprus, Greece, Turkey, Spain, Portugal. Also, in these countries the teachers start earlier than the students in order to organize the sites, the annual educational work and to prepare the school. In the north, the school year starts around mid or end of August and ends by the end of June or early July, but during the year there is a lot of vacation: autumn vacation (from a few days to up to one month in Germany), long winter vacation besides Christmas, spring vacation, vacation for relaxation between quarters (Great Britain) and local holidays. This established vacation differs from region to region and is decided upon at a local level.

#### Useful web links:

- <http://www3.epa.gov/epawaste/education/pdfs/toolkit/tools.pdf>
- [http://www2.wrap.org.uk/downloads/Report\\_into\\_the\\_Nature\\_and\\_Scale\\_of\\_Waste\\_produced\\_by\\_schools\\_in\\_England.896587ae.5723.pdf](http://www2.wrap.org.uk/downloads/Report_into_the_Nature_and_Scale_of_Waste_produced_by_schools_in_England.896587ae.5723.pdf)
- <http://www.recyclenow.com/recycle/recycle-school/get-your-recycling-collected/how-much-does-your-school-waste>
- [http://www.wrapcymru.org.uk/sites/files/wrap/Wales\\_compositional\\_analysis\\_report\\_2.9076.pdf](http://www.wrapcymru.org.uk/sites/files/wrap/Wales_compositional_analysis_report_2.9076.pdf)
- <http://www.calrecycle.ca.gov/reducwaste/schools/Composition.htm>
- <http://www.calrecycle.ca.gov/reducwaste/home/BackToSch.htm>
- [http://www2.wrap.org.uk/downloads/Food\\_waste\\_in\\_schools\\_full\\_report\\_.517a74f4.10460.pdf](http://www2.wrap.org.uk/downloads/Food_waste_in_schools_full_report_.517a74f4.10460.pdf)
- <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3788640/>
- [http://www.hounslow.gov.uk/waste\\_prevention\\_strategy\\_2011\\_2015.pdf](http://www.hounslow.gov.uk/waste_prevention_strategy_2011_2015.pdf)

		<ul style="list-style-type: none"> <li>REPORT U2011:05 Good Examples of Waste Prevention in Municipalities A compilation of ideas for more sustainable production and consumption (Gothenburg, Sweden, March 2011)</li> </ul>
3	Materials - products for which prevention activities can be effective	<ul style="list-style-type: none"> <li>Plastic bags: <b>Very</b></li> <li>Food and kitchen waste: <b>Very</b></li> <li>Green Waste: <b>Quite</b></li> <li>Plastic bottles: <b>Very</b></li> <li>Packaging: <b>Very</b></li> <li>Clothing &amp; textiles: <b>Quite</b></li> <li>Toys: <b>Very</b></li> <li>Furniture: <b>Quite</b></li> <li>WEEE: <b>Quite</b></li> <li>Paper: <b>Very</b></li> <li>C&amp;D waste: <b>Quite</b></li> <li>Hazardous household waste: <b>Quite</b></li> <li>Various household items: <b>Quite</b></li> </ul>
4	Efficiency of prevention related initiatives	<p>How effective can the following prevention initiatives be in the schools:</p> <ul style="list-style-type: none"> <li>Implementation of Sustainable Procurement strategy: <b>Very</b></li> <li>Implementation of PAYT: <b>Very</b></li> <li>Implementation of awareness campaigns: <b>Very</b></li> <li>Implementation of eGovernment policies by the LA: <b>Quite</b></li> <li>Implementation of other initiatives (see chapter 1.24): <b>Quite</b></li> </ul>
5	Possible advantages of Prevention activities	<ul style="list-style-type: none"> <li>There are prevention activities that can reduce waste generation "significantly" or even "a little": <b>Yes</b></li> <li>There are prevention activities that can reduce "significantly" or even "a little" the hazardousness of remaining waste: <b>Yes</b></li> <li>There are prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste: <b>Yes</b></li> <li>There are prevention activities that create "no" or "little" organizational problems to the LA: <b>Yes</b></li> <li>There are prevention activities with 'no' or 'small' implementation costs for the LA: <b>Yes</b></li> <li>There are prevention activities that create "a few", "several" or "many" new jobs: <b>Yes</b></li> </ul>
6	Useful documentation	<ul style="list-style-type: none"> <li><a href="http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&amp;rep=file&amp;fil=LIFE05_ENV_FIN_000539_LAYMAN.pdf">http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&amp;rep=file&amp;fil=LIFE05_ENV_FIN_000539_LAYMAN.pdf</a> Waste Prevention Kit for Enterprises, Education and Households (WastePrevKit), a project by YTV Waste Management in 2005-2007</li> <li><a href="http://www.ewwr.eu/downloads/free/Communication_strategy_EWWR.pdf">http://www.ewwr.eu/downloads/free/Communication_strategy_EWWR.pdf</a> Communication strategy- European Week for Waste Reduction (EWWR)</li> <li><a href="http://www2.wrap.org.uk/downloads/Food_waste_in_schools_full_report_517_a74f4.10460.pdf">http://www2.wrap.org.uk/downloads/Food_waste_in_schools_full_report_517_a74f4.10460.pdf</a> Food waste in schools- WRAP</li> <li><a href="http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/00368-2007LEF-EN.pdf">http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/00368-2007LEF-EN.pdf</a> Top tips to reduce waste in schools</li> <li><a href="http://www.sustainability.vic.gov.au/~media/resources/documents/services%20and%20advice/schools/5star%20sustainability%20certification/waste%20module/waste%20module%20resources/sv%20rs%20reducereuserecycle1.pdf">http://www.sustainability.vic.gov.au/~media/resources/documents/services%20and%20advice/schools/5star%20sustainability%20certification/waste%20module/waste%20module%20resources/sv%20rs%20reducereuserecycle1.pdf</a> How to reduce, reuse and recycle waste in schools- Australia</li> <li><a href="http://cest.gnest.org/cest15proceedings/public_html/papers/cest2015_00494">http://cest.gnest.org/cest15proceedings/public_html/papers/cest2015_00494</a></li> </ul>

		<p><a href="#"><u>oral paper.pdf</u></a> SOCIAL BEHAVIOUR IN THE FRAMEWORK OF WASTE PREVENTION STRATEGY IN INSULAR COMMUNITIES</p> <ul style="list-style-type: none"> <li>• <a href="http://www.twinning-waste-bacau.ro/waste-3/what-can-we-do/materials/school-composting-manual">http://www.twinning-waste-bacau.ro/waste-3/what-can-we-do/materials/school-composting-manual</a> School Composting. A First Step In Waste Prevention! A manual for Romanian Schools</li> <li>• <a href="http://www.broward.org/PermittingAndLicensing/WasteManagement/WastePrevention/Pages/WastePreventionatSchool.aspx">http://www.broward.org/PermittingAndLicensing/WasteManagement/WastePrevention/Pages/WastePreventionatSchool.aspx</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf</a></li> <li>• <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3788640/">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3788640/</a> School Lunch Waste among Middle School Students: Implications for Nutrients Consumed and Food Waste Costs</li> </ul> <p><a href="http://www.baltimorecountymd.gov/Agencies/publicworks/recycling/kidspages/">http://www.baltimorecountymd.gov/Agencies/publicworks/recycling/kidspages/</a> Kids Recycling and Waste Prevention- Baltimore</p> <p><a href="http://www.earthshare.org/2010/09/green-quiz-answer-school-lunch-waste-.html">http://www.earthshare.org/2010/09/green-quiz-answer-school-lunch-waste-.html</a> Green Quiz Answer - School Lunch Waste</p> <p><a href="http://greenactioncentre.ca/content/waste-reduction-week-for-schools/">http://greenactioncentre.ca/content/waste-reduction-week-for-schools/</a> Waste Reduction Ideas for Schools</p> <p><a href="https://ocrra.org/how-do-i/reduce-waste/reduce-waste-at-school">https://ocrra.org/how-do-i/reduce-waste/reduce-waste-at-school</a></p>
7	Prevention ideas	<p><b>Pre-waste</b> action (<a href="http://www.prewaste.eu/">http://www.prewaste.eu/</a>) aims at the supporting of local and regional authorities for the prevention of waste production. It is co-funded by the European Regional Development Fund and is implemented through INTERREG IVC program. The following projects regarding school waste prevention have also been implemented in the framework of pre-waste action.</p> <p><a href="http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=281&amp;Itemid=101&amp;file:///C:/Users/SEK-3/Downloads/281_Pre_waste_22_BE_accompanied_schools_Brussels_19012012.pdf">http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=281&amp;Itemid=101&amp;file:///C:/Users/SEK-3/Downloads/281_Pre_waste_22_BE_accompanied_schools_Brussels_19012012.pdf</a></p> <p><b>ACCOMPANIED PAPER WASTE PREVENTION IN SCHOOLS IN BRUSSELS</b></p> <p>The aim of the sub-project (which is implemented in the framework of European project pre-waste since 1999) is the change in the behavior of students and school as a whole, in order to produce less wastes and, more specifically, to consume less paper and thus reduce paper waste production.</p> <p>The target group is around 650 schools of primary and secondary education in the region of Brussels with around 200,000 students. Teachers / schools that wish to participate (a class or the school as a whole) are supported in actions for reduction of paper consumption (with parallel programs relating to other issues, as the reduction of food waste and the waste prevention in general). The schools can participate by choosing the level of commitment that fits them better: a. Short-term support (access to free educational material and equipment, free training seminars for teachers) or b. commitment for actions for the whole year round.</p> <p>b. <a href="http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=175:09-acr-ferda-estonian-schools&amp;Itemid=83&amp;file:///C:/Users/SEK-3/Downloads/Pre_waste_09_ET_Ferda_schools_21_11_2011_1.pdf">http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=175:09-acr-ferda-estonian-schools&amp;Itemid=83&amp;file:///C:/Users/SEK-3/Downloads/Pre_waste_09_ET_Ferda_schools_21_11_2011_1.pdf</a></p> <p><b>Let's do it with Ferda in Estonian Schools</b></p> <p>The «Let's do it with Ferda in Estonian Schools» is a pilot project in the framework of pre-waste European project, that is implemented since 2010 at national level in Estonia and concerns the environmental education of students (7-19 years old) and of teachers aiming at waste reduction. An educational guide for students and teachers has been developed in the framework of the</p>

		<p>project. All schools of Estonia can participate in the special presentations and actions that take place (free of charge). Ferda, the mascot of the project, is used for presentations to students of smaller ages. After presentations at schools, special educational material is distributed for further use by teachers and students. In certain regions, more partners are involved as e.g. youth centers which contribute with additional games and contests.</p> <p><a href="http://ecoactive.org.uk/waste-prevention-project/">http://ecoactive.org.uk/waste-prevention-project/</a>  <a href="http://ecoactive.org.uk/schools/">http://ecoactive.org.uk/schools/</a></p> <p><b>Waste prevention projects in 14 schools across north London</b></p> <ul style="list-style-type: none"> <li>○</li> <li>○ <i>The EcoACTIVE project is implemented in cooperation with NLWA (North London Waste Authority) for the provision of long-term waste prevention plans in 14 schools in northern London. This project concerns mainly the following kinds of school wastes: food waste, clothing and textile wastes and WEEE (Wastes of Electrical and Electronic Equipment).</i></li> <li>○</li> <li>○ <i>Every school participates with a different viewpoint and various actions that are designed and implemented by the students. The actions include student workshops, interdisciplinary seminars, personnel training, family festivals and events which concern issues of waste management and recycling, composting, energy and climate change as well as proper water management.</i></li> </ul> <p><a href="http://www.stopwaste.org/preventing-waste/schools">http://www.stopwaste.org/preventing-waste/schools</a></p> <p><b>Preventing Waste for Schools</b></p> <p>StopWaste is a public organization qualified for the reduction of wastes in the regions of Alameda, in California, USA. It helps local governments, enterprises, schools and citizens for the reduction of wastes with: resource reduction and recycling, market development, technical aid and public education.</p> <p>StopWaste supports students, teachers and school personnel of the region of Alameda regarding waste prevention in schools, by offering a wide range of services and resources for the training of teachers and students on waste reduction, reuse, recycling and composting, in order to help schools to reduce the cost and function more effectively. All public schools can participate for free.</p> <p><a href="http://www.ewwr.eu/docs/ewwr/Factsheet_PWR_schools_EN.pdf">http://www.ewwr.eu/docs/ewwr/Factsheet_PWR_schools_EN.pdf</a>  <a href="http://www.ewwr.eu/en">http://www.ewwr.eu/en</a></p> <p><b>EUROPEAN WEEK FOR WASTE REDUCTION- Paper waste prevention at school</b></p> <p>The European week for waste reduction is an initiative that takes place every year, aiming at the promotion of implementation of awareness actions for the sustainable waste and resources' management during the period of one week. In 2015, the events took place under the auspices of the European Parliament. During the European week for waste reduction there is the chance for schools, for public services and for enterprises to implement –besides other things- a certain initiative for the paper waste reduction, in order to use this material in a more effective and sustainable way.</p> <p>The aim of the initiative at schools is to highlight the paper waste production and the ways that schools can use it during a school day. The schools that participate must make a general estimation of the paper waste quantity that is produced during a school day, evaluate their participation at the event (qualitative and quantitative evaluation) with the use of a special methodology and communicate the results. Besides students, teachers and personnel, the events aim also at the active participation of the families.</p> <p><a href="http://www.resourceefficientscotland.com/resource/food-waste-prevention-schools-0">http://www.resourceefficientscotland.com/resource/food-waste-prevention-schools-0</a></p>
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		<p><b>How can you reduce and prevent food waste in your school (Resource Efficient Scotland)</b></p> <p>Resource Efficient Scotland, a project of the Government of Scotland, has been designed to help public, private and tertiary sectors in the reduction of cost through the implementation of resource efficiency in the fields of energy, water, raw materials and waste management.</p> <p>Specifically for the raising of awareness of students and teachers, they have created in their web page an educational e-guide for the ways to reduce food waste in schools.</p> <p style="text-align: center;"><a href="http://www.oregonmetro.gov/tools-living/garbage-and-recycling/recycling-education-resources-schools">http://www.oregonmetro.gov/tools-living/garbage-and-recycling/recycling-education-resources-schools</a></p> <p><b>Recycling education resources for schools</b></p> <p>Metro is a public organization that cooperates with the communities, the enterprises and the inhabitants in the metropolitan area of Portland, USA in order to engrave a sustainable route for the future of the area. Its actions concern more than 1.5 million people.</p> <p>The personnel of Metro cooperates with the teachers in order to implement a wide range of programs for schools in the states of Clackamas, Multnomah and Washington. Through these programs, Metro is trying to involve students in actions and discussions, encouraging them towards critical thinking regarding the choices that affect our lives, resources and the future, aiming at the improvement of waste reduction practices at school and at home.</p> <p>Metro offers free class presentations, puppetry, educational theater performances, videos, web pages as well as other educational material regarding waste prevention.</p>
8	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://www.greeningschools.org/resources/view_cat_teacher.cfm?id=189">http://www.greeningschools.org/resources/view_cat_teacher.cfm?id=189</a> Waste Reduction - Back-to-school Waste</li> <li>• <a href="http://www.eeb.org/EEB/?LinkServID=A18351AC-5056-B741-DBC96B7204BF4AA1&amp;showMeta=0">http://www.eeb.org/EEB/?LinkServID=A18351AC-5056-B741-DBC96B7204BF4AA1&amp;showMeta=0</a> European Environmental Bureau (EEB)</li> <li>• <a href="http://celfducation.org/documents/RecyclingNYC-School-RRResources.pdf">http://celfducation.org/documents/RecyclingNYC-School-RRResources.pdf</a> NYC RRResources for Schools Department of Sanitation Waste Prevention Reuse &amp; Recycling</li> <li>• <a href="http://www.re-sources.org/programs/sustainableschools/middleandhighschoolprograms">http://www.re-sources.org/programs/sustainableschools/middleandhighschoolprograms</a> The Sustainable Schools – Middle and High School Programs</li> <li>• <a href="http://reduce.org/school/index.html">http://reduce.org/school/index.html</a></li> <li>• <a href="http://www.auburn-reporter.com/news/317572941.html#">http://www.auburn-reporter.com/news/317572941.html#</a> Lea Hill Elementary School named a Best Workplace for Waste Prevention and Recycling</li> <li>• <a href="http://www.endfoodwaste.org/food-waste-prevention-2.html">http://www.endfoodwaste.org/food-waste-prevention-2.html</a> FOOD WASTE PREVENTION AT SCHOOL</li> <li>• <a href="HTTP://WWW.CALRECYCLE.CA.GOV/REDUCEWASTE/HOME/BACKTOSCH.HTM">HTTP://WWW.CALRECYCLE.CA.GOV/REDUCEWASTE/HOME/BACKTOSCH.HTM</a></li> <li>• <a href="HTTPS://WWW.CAPETOWN.GOV.ZA/EN/SOLIDWASTE2/WASTEWISE/PAGES/SCHOOLS.ASPX">HTTPS://WWW.CAPETOWN.GOV.ZA/EN/SOLIDWASTE2/WASTEWISE/PAGES/SCHOOLS.ASPX</a></li> <li>• <a href="HTTPS://WWW.NWF.ORG/ECO-SCHOOLS-USA/BECOME-AN-ECO-SCHOOL/PATHWAYS/CONSUMPTION-AND-WASTE/FACTS.ASPX">HTTPS://WWW.NWF.ORG/ECO-SCHOOLS-USA/BECOME-AN-ECO-SCHOOL/PATHWAYS/CONSUMPTION-AND-WASTE/FACTS.ASPX</a></li> </ul>
9	Prevention Ideas	You can see all the suggested Prevention ideas for the specific site category at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
10	Suggest your prevention ideas	Suggest your own prevention idea for the specific site category at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.2.3 Offices

No	Data categories	Offices
1	General information	<p>Offices are places where, usually, more than one person works and often accepts visitors during the day. Depending on the municipality, offices can be located together in a certain district and/or buildings but can also be found spread intermittently over various areas. In the first case, waste collection can be planned for the specific types and quantities collected whereas in the second case planning can be more complicated.</p> <p>Offices are characterized by mobile assets which mainly include furniture, air-conditioning units, pc's, printers, projectors, photocopy machines, as well as stationery supplies which are mainly paper, plastic or paper folders and ink for printers and fax machines. During the day, people who work in offices most of the times have something to drink or take a small snack or meal, so vending machines and/or kitchen white goods including a refrigerator and a dishwasher as well as other electrical appliances like coffee machines, kettles etc may also exist. Finally offices are cleaned, usually every day.</p>
2	Waste production quantitative data	<p>The main wastes produced in offices on a daily basis are paper, ink cartridges and food packaging. Volatile organic compounds deriving from inks may also be emitted, as well as CFCs (chlorofluorocarbon) or other ozone-depleting compounds coming from old air-conditioning units or refrigerators after their lifespan. Office furniture stock, in office environments, is usually replaced every 3- 20 years after their purchase date. The period is shorter for electrical appliances, fax and photocopy machines, printers, PCs etc. Another source of waste is cleaning agents and their packaging. At last, energy consumption is also an issue for consideration (eg. light bulbs, tube lights).</p> <p><b>Paper:</b> According to the Minnesota Office of Environmental Assistance, the average office worker uses <b>10,000 sheets</b> of copy paper each year. The U.S. EPA estimates that paper and paperboard account for almost 40 percent of our garbage. Office paper is highly recyclable, but a lot is discarded as residual waste. Waste reduction is more cost-effective than recycling because it reduces the amount of material that needs to be collected, transported and processed. Waste reduction can save money for businesses and institutions of any size. Nearly <b>3.7 million tons</b> of copy paper are used annually in the United States alone. That's over <b>700 billion</b> sheets. Recycling one tonne of paper can save 7,000 gallons of water. It also saves 17 trees, 380 gallons of oil, three cubic yards of landfill space, and 4,000 kilowatts of energy. The average office worker uses 50 sheets of paper a day in unnecessary printing..</p> <p><b>Inks:</b> As a result of conducting its business, a printer may generate waste that is considered hazardous. If not handled and disposed of properly, this waste can cause serious problems, injury or in extreme cases death of humans, animals, and/or plant life; or damage or pollute land, air, or water.</p> <p><b>WEEE:</b> According to a study of 2003 which analyzes data from 1990 to 1999, the potential quantity of WEEE for five types of appliances (refrigerators, personal computers, TV sets, photocopiers and small household appliances) is estimated at 3.3 - 3.6 kg per inhabitant per year for EU15. (This is an estimation due to the fact that data necessary to carry out the calculations was rather poor, the period of this study). Reduce.org (<a href="http://156.98.19.245/workplace/index.html">http://156.98.19.245/workplace/index.html</a>)</p> <p>The Guardian (<a href="http://www.theguardian.com/environment/2008/feb/21/waste.recycling">http://www.theguardian.com/environment/2008/feb/21/waste.recycling</a>)</p> <p>Dr Matthew Crowe et al, (2003) Waste from electrical and electronic equipment –</p>

		<p>quantities, dangerous substances and treatment methods, Dimitrios Tsotsos, Project Manager, European Environment Agency.</p> <p>Printers' National Environmental Assistance Center (Pneac.org) (<a href="http://www.pneac.org/sheets/all/whatisahazwaste.cfm">http://www.pneac.org/sheets/all/whatisahazwaste.cfm</a>)</p>
3	Materials - products for which prevention activities can be effective	<ul style="list-style-type: none"> <li>• Plastic bags: <b>Little</b></li> <li>• Food and kitchen waste: <b>Little</b></li> <li>• Green Waste: <b>Not at all</b></li> <li>• Plastic bottles: <b>Quite</b></li> <li>• Packaging: <b>Quite</b></li> <li>• Clothing &amp; textiles: <b>Little</b></li> <li>• Toys: <b>Not at all</b></li> <li>• Furniture: <b>Very</b></li> <li>• WEEE: <b>Very</b></li> <li>• Paper: <b>Very</b></li> <li>• C&amp;D waste: <b>Not at all</b></li> <li>• Hazardous household waste: <b>Little</b></li> <li>• Various household items: <b>Little</b></li> </ul>
4	Efficiency of prevention related initiatives	<p>How effective can be the following prevention initiatives in the specific "site" category:</p> <ul style="list-style-type: none"> <li>• Implementation of Sustainable Procurement strategy: <b>Very</b></li> <li>• Implementation of PAYT: <b>Very</b></li> <li>• Implementation of awareness campaigns: <b>Quite</b></li> <li>• Implementation of e-Government policies by the LA: <b>Very</b></li> <li>• Implementation of EMAS or ISO 14001: <b>Quite</b></li> </ul>
5	Possible advantages Prevention activities	<ul style="list-style-type: none"> <li>• There are prevention activities that can reduce "significantly" or even "a little" waste generation: <b>Yes</b></li> <li>• There are prevention activities that can reduce "significantly" or even "a little" the hazardousness of remaining waste: <b>Yes</b></li> <li>• There are prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste: <b>Yes</b></li> <li>• There are prevention activities that create "no" or "a little" organizational problems to the LA: <b>Yes</b></li> <li>• There are prevention activities with 'no' or 'small' implementation costs for the LA: <b>Yes</b></li> <li>• There are prevention activities that create "a few", "several" or "many" new jobs: <b>Yes</b></li> </ul>
6	Useful documentation	<ol style="list-style-type: none"> <li>1. EN 643-2013_European List of Standard Grades of Paper &amp; Board for Recycling_EN (LAWPreT Library/Prevention documents on specific waste type/paper waste)</li> <li>2. Quality Counts - Fact Sheet_EN (LAWPreT Library/Prevention documents on specific waste type/paper waste)</li> <li>3. Recovered Paper Sourcing and Quality for UK End Markets -PAS105 introduction_EN (LAWPreT Library/Prevention documents on specific waste type/paper waste)</li> <li>4. Dr Matthew Crowe et al, (2003) Waste from electrical and electronic equipment – quantities, dangerous substances and treatment methods, Dimitrios Tsotsos, Project Manager, European Environment Agency.</li> <li>5. EU ecolabel - PRINTED PAPER USER'S MANUAL (Commission Decision 2012/481/EU)<a href="http://ec.europa.eu/environment/ecolabel/documents/User_Manual_printed_paper.pdf">http://ec.europa.eu/environment/ecolabel/documents/User_Manual_printed_paper.pdf</a></li> <li>6. Wrap – Collection and handling of LCD Screens (LAWPreT Library/Prevention documents on specific waste type/WEEE-batteries/General)</li> </ol>

7	Prevention ideas	<ul style="list-style-type: none"> <li><b>Buying green for your office:</b> Here are some purchasing ideas for offices to make the workplace more environmentally friendly.</li> <li><b>Buy goods</b> (eg. Cleaning agents, electrical appliances, paper etc) <b>according to the criteria of Eco-label</b> or other equivalent label as “Blue Angel” of Germany or Scandinavian “Swan”.</li> <li><b>Refurbish</b> and <b>buy refurbished</b> office equipment.</li> <li><b>Reuse</b> and <b>refill</b> toner cartridges and ribbons.</li> <li>Purchase <b>non-toxic, biodegradable</b> cleaners that contain low- or no-volatile organic compounds.</li> <li>Buy <b>concentrates</b>.</li> <li>Buy in <b>bulk</b>.</li> <li>Buy products that are <b>reusable, returnable</b> or <b>refillable</b>.</li> <li>Buy recycled office products that contain <b>post-consumer recycled material</b>.</li> <li>Use <b>flexible interior features</b>, such as movable walls, to reduce waste associated with renovation.</li> <li>Choose <b>durable</b> materials and furnishings to reduce the costs and waste associated with replacement.</li> <li>Prefer long-life and energy saving light bulbs.</li> <li>Purchase electrical appliances that can be disassembled to recover parts and also for easy repair.</li> <li>Purchase compostable waste bags that conform to the European Standard EN 13432</li> <li>Large LAs must contribute, in cooperation with the state, to the creation of the framework and the specifications for the integration of recycle bins and trash cans inside office buildings, which will also provide access to collection vehicles. This measure can be of decisive importance in effectively applying the PAYT (Pay as you throw) in every LA.</li> <li>Creation and distribution of informative brochure about prevention. A special brochure that can propose certain waste prevention actions can be designed and distributed to offices</li> <li>Creation and continuous updating of a dedicated webpage at the LA website about Prevention – Recycling – Reuse in offices.</li> <li>Organization of regular Door-to-Door awareness briefings of companies with offices, by dedicated teams of LA employees, about Prevention – Recycling – Reuse issues.</li> <li>Reduce.org (<a href="http://156.98.19.245/workplace/index.html">http://156.98.19.245/workplace/index.html</a>)</li> </ul>
8	Useful websites	<ul style="list-style-type: none"> <li><a href="http://www.calrecycle.ca.gov/reducewaste/office/">http://www.calrecycle.ca.gov/reducewaste/office/</a> (waste prevention and recycling at the office)</li> <li><a href="http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=286&amp;Itemid=101">http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=286&amp;Itemid=101</a> (Dematerialisation in Brussels offices, Belgium (Pre-waste factsheet 23))</li> <li><a href="http://156.98.19.245/workplace/index.html">http://156.98.19.245/workplace/index.html</a> (reduce.org)</li> <li><a href="http://www.theguardian.com/environment/2008/feb/21/waste.recycling">http://www.theguardian.com/environment/2008/feb/21/waste.recycling</a> (The Guardian)</li> <li><a href="https://www.nibusinessinfo.co.uk/content/recycle-your-office-waste">https://www.nibusinessinfo.co.uk/content/recycle-your-office-waste</a> (NIBUSINESSINFO.CO.UK – Office resource efficiency)</li> <li><a href="http://www.calrecycle.ca.gov/reducewaste/office/">http://www.calrecycle.ca.gov/reducewaste/office/</a> (waste prevention and recycling at the office)</li> <li><a href="http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=286&amp;Itemid=101">http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=286&amp;Itemid=101</a> (Dematerialisation in Brussels offices, Belgium (Pre-waste factsheet 23))</li> </ul>
9	Prevention Ideas	You can see all the suggested Prevention ideas for the specific site category at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
10	Suggest your prevention	Suggest your own prevention idea for the specific site category at the website o LAWPreT

	ideas	<a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>
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## 1.2.4 Hotels

No	Data Categories	Hotels
1	General Information	<p>Waste management in Hotels has many difficulties but, due to the many different kinds of wastes that have to be managed, it also possesses opportunities and continuous effort is needed in order to have good results. The hierarchy of waste management as it is described in the EU Waste Directive is considered effective for successful programs (major economic, environmental and social benefit) in Hotels: Prevention, reuse, recycling (including composting), different kind of recovery and final disposal. Briefly, the above can be applied to Hotels as follows:</p> <ul style="list-style-type: none"> <li>• Prevention (avoidance of purchases of single-use products and of useless packaging)</li> <li>• Reduction (avoidance of purchases of goods with excess packaging, purchase of more durable, long-life and recycled products)</li> <li>• Reuse (food that has not been consumed, can –if it conforms to the Standards of Safe Consumption- be given for consumption, donation of used clothing and furniture, reuse of copy paper that has been printed on one side, purchase of refillable containers, use of rechargeable batteries, reuse of “gray” water (e.g use of water from collecting tanks for the washing of outdoor areas and for the watering of plants), construction materials, printer inks etc).</li> <li>• Recycle and Composting (a. Recycling of all possible materials: glass, plastic, paperboard, paper, metal, aluminum and other packaging and b. Composting of kitchen organics as well as “green” wastes from gardens (plant trimmings etc). Composting can be applied with the use of special bins or/and mechanical composters at the premises of the hotel or of the municipality).</li> </ul> <p>For the effective waste management, proper studies should be carried out for each hotel in order to determine the sources, the kinds and the quantities of wastes that are produced. This way, priority will be given to simple measures for the reduction of wastes, for money saving and for the accomplishment of a long term sustainable waste management.</p> <p>The hidden costs that have to do with the purchase of raw material, the participation of the personnel in waste management programs, the transportation of materials and products as well as the proper management and storage of raw materials could contribute to the significant reduction of the operating costs of a hotel.</p> <p>The targeted actions of LAs for the minimization of hotel wastes that are disposed in landfills consist of:</p> <ul style="list-style-type: none"> <li>• the designing of integrated waste prevention programs for the hotels (e.g. studies and issuing of guidelines)</li> <li>• the provision of proper spaces and equipment (e.g. for recycling, composting and for alternative management) as well as of continuous cooperation with the competent systems of alternative waste management, organizations and bodies, in order to assure the feasibility of waste prevention actions</li> <li>• the updating and encouragement of hotels and their employees (provision of information, training, expertise, practical alternative solutions) so that they can see the challenges and opportunities deriving from the implementation of such programs and they implement the entrepreneurial changes that are needed for the accomplishment of the goals</li> </ul>

		<ul style="list-style-type: none"> <li>• the engagement of persons and bodies at the municipality level, in the development of pilot programs as well as in the possibility of benefiting from the existing networks and seminars with the participation of experts and main stakeholders.</li> <li>• the updating and encouragement of suppliers.</li> <li>• The implementation of motivation tools (e.g. awards, promotion in the local media, investment grants, financial incentives, sanctions, comparative assessment)</li> <li>• the acting as a good example, proving that resource efficiency is implemented in various levels of local authorities, through sustainable contracts, implementation of environmental management systems, implementation of good practices etc.</li> </ul> <p>The actions of Local Authorities, in order to be effective, must contribute to the recognition by hotel owners of the connection of environmental benefit from waste reduction with a) the financial benefit of the enterprises, b) the reinforcement of their corporate image, since the relevant successful programs are easily understood by their customers more than other “green” initiatives and c) the strengthening of the morale of the employees deriving from their participation in such efforts.</p> <p>In addition, the LA ensures multiple benefits: the waste prevention in their working environment may lead the employees to implement relevant practices in their homes and convey the message to their family and friends.</p> <p>The LA have to cooperate continuously with the hotels, in order to know the kind and quantity of their wastes, to commonly decide upon measures for their reduction and to implement the best practices of their proper management.</p> <p>Useful links:</p> <ul style="list-style-type: none"> <li>• <a href="http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20prevention%20guidelines.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20prevention%20guidelines.pdf</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf</a></li> <li>• <a href="http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf">http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf</a></li> <li>• <a href="https://www.google.gr/url?sa=t&amp;rct=j&amp;q=&amp;esrc=s&amp;source=web&amp;cd=1&amp;cad=ria&amp;uact=8&amp;ved=0CCYQFjAAahUKEwjTw82UsYHJAhUEcRQKHZy6Dww&amp;url=http%3A%2F%2Fwww.calrecycle.ca.gov%2Freducewaste%2Fbusiness%2FFactSheets%2FHotels.htm&amp;usg=AFQjCNG023F2qP3Es3fJ97FT9TAOFRYJYw">https://www.google.gr/url?sa=t&amp;rct=j&amp;q=&amp;esrc=s&amp;source=web&amp;cd=1&amp;cad=ria&amp;uact=8&amp;ved=0CCYQFjAAahUKEwjTw82UsYHJAhUEcRQKHZy6Dww&amp;url=http%3A%2F%2Fwww.calrecycle.ca.gov%2Freducewaste%2Fbusiness%2FFactSheets%2FHotels.htm&amp;usg=AFQjCNG023F2qP3Es3fJ97FT9TAOFRYJYw</a></li> <li>• <a href="http://zerowaste.org/publications/GREEN_HO.PDF">http://zerowaste.org/publications/GREEN_HO.PDF</a></li> <li>• <a href="http://www.dec.ny.gov/docs/materials_minerals_pdf/hotels.pdf">http://www.dec.ny.gov/docs/materials_minerals_pdf/hotels.pdf</a></li> <li>• <a href="http://residus.gencat.cat/web/.content/home/lagencia/publicacions/publicacions_destacats/guia_elaboraplanlocals_en.pdf">http://residus.gencat.cat/web/.content/home/lagencia/publicacions/publicacions_destacats/guia_elaboraplanlocals_en.pdf</a></li> </ul>						
2	Waste production quantitative data	<p>The wastes that are produced daily from the hotels include large quantities of useful materials, as food wastes, green wastes from gardens, paper and paperboard, glass bottles, plastic bottles and other plastic packaging, aluminum and ferric cans, cooked and used oils. In addition, other kinds of wastes (including hazardous ones) are produced periodically, as for example furniture, electrical and electronic equipment, batteries, solvents, paintings, construction and demolition wastes etc.</p> <p>The following tables show the various hazardous and non-hazardous wastes that are produced in the different areas of a hotel:</p> <p><b>1. Types of non-hazardous hotel wastes</b></p> <table border="1"> <thead> <tr> <th>Type of waste</th> <th>Found at</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>Household</td> <td>Food/kitchen wastes, used or</td> <td>Various hotel departments</td> </tr> </tbody> </table>	Type of waste	Found at	Source	Household	Food/kitchen wastes, used or	Various hotel departments
Type of waste	Found at	Source						
Household	Food/kitchen wastes, used or	Various hotel departments						

wastes	dirty packaging paper, plastic packaging or bags, composite packaging	
Paperboard	Packaging	Supplies and other services
Paper	Printed documents, brochures, menus, maps, magazines, newspapers	Administration, reception, rooms, restaurants
Plastic	Plastic bags, bottles (that do not contain hazardous material), household use items, individual unit dose packages for various products	Kitchen, restaurants, bars, rooms, administration
Metals	Metal containers, jar lids, food packaging, food tubes, aluminum packaging	Kitchen, restaurants, bar, rooms
Glass	Glass bottles, jars, vials	Kitchen, restaurants, bar, rooms
Textile	Tablecloths, sheets, towels, clothes, pieces of textile	Kitchen, restaurants, bars, bathrooms, rooms
Wood	Wood packaging, pallets	Supplies department
Organic	Fruit and vegetable peels, plants, branches, leaves, grass	Kitchen, restaurants, bars, rooms, gardens

## 2. Hazardous hotel wastes

Type of waste	Source
Cooking oils	Kitchen, restaurants
Lubricants	Maintenance services
Solvents	Maintenance services
Flammable materials (fuel gas, petroleum etc)	Kitchen, garden, maintenance services
Fertilizers and chemicals (insecticides, fungicides, herbicides)	Garden
Chemical cleaning agents	Maintenance services
Ink cartridges	Administration
CD's	Administration, rooms
Batteries	Maintenance services, administration, rooms
Chemical cleaning agents and solvents that are used for dry cleaning	Laundries
Fluorescent light bulbs, neon and long life lamps	Maintenance services
Electrical and electronic equipment (TVs, refrigerators, stoves, washing machines, small appliances etc)	Rooms and all areas
Furniture	Mainly rooms, reception areas, restaurants, bars
Vehicles after their use	Possible transportation services

The quantity and composition of hotel wastes depends on the following:

- the size and type of the hotel
- the occupancy of the hotel
- the number and the size of meals that are offered
- the activities of visitors and personnel
- the supplies department activities

		<ul style="list-style-type: none"> <li>the number and the type of enterprises that possibly rent a space/store in the hotel</li> </ul> <p>The larger quantity of wastes is produced during the tourist season which is different between countries, but usually refers to the summer months.</p> <p>It has been estimated that in the hotel sector, each lodger produces nearly 1kg of wastes per day.</p> <p>The majority of wastes consist of organics and recyclable materials. The recyclable materials (mainly plastic, paper, paperboard and metal) stand for more than 50% or wastes whereas organics (from kitchen, gardens etc.) stand for more than 40%.</p> <ul style="list-style-type: none"> <li>According to a study conducted for the Greek hotels, the average composition of wastes produced in a typical Greek all-inclusive hotel consists of 45% organics, 52% recyclable material (mainly glass, plastic, paperboard and metals). In total, organics and recyclable material stand for the 97% of hotel wastes. It is estimated that 60-80% of this waste could be exploited through reuse, recycling and composting.</li> <li>The hotels of the UK produce 289.700 tons of wastes per year, of which the 79.000 tones are food wastes. In total, 43% of all wastes is recycled (including composting)</li> <li>In the UK, <del>t</del><sup>F</sup>he annual cost of food wastes from hotels is £318 million or £4.000/tonne (including food supplies, employment, enterprises of general interest and waste management cost).</li> <li>In Barcelona, it is estimated that wastes from hotels that are certified according to EMAS are nearly 1kg per lodger and per night of stay. Taking into account the number of overnight stays in hotels in Barcelona, in 2011, the volume of wastes that was produced was between 18.000 and 28.000 tones, which is between 2,2% and 3,5% of the total wastes that are produced from the city.</li> </ul> <p>It has to be noted that the real cost of hotel wastes management is usually much larger than the costs of disposal and collection because the inadequate management of resources and wastes can bring extra costs to the hotel and its operations, as for example, the use of raw material that can be avoided, food spoilage, personnel working time dedicated to the management and transportation of wastes etc.</p> <p>Useful links:</p> <ul style="list-style-type: none"> <li><a href="http://www.researchgate.net/publication/265387304_Solid_waste_management_in_the_hospitality_industry_A_review">http://www.researchgate.net/publication/265387304_Solid_waste_management_in_the_hospitality_industry_A_review</a></li> <li><a href="http://www.wrap.org.uk/sites/files/wrap/Hotel.pdf">http://www.wrap.org.uk/sites/files/wrap/Hotel.pdf</a></li> <li><a href="http://uest.ntua.gr/tinos2015/proceedings/pdfs/tsakona_mavropoulos.pdf">http://uest.ntua.gr/tinos2015/proceedings/pdfs/tsakona_mavropoulos.pdf</a></li> <li><a href="https://www.melbourne.vic.gov.au/enterprisemelbourne/environment/Documents/WasteWiseHotelToolkit.pdf">https://www.melbourne.vic.gov.au/enterprisemelbourne/environment/Documents/WasteWiseHotelToolkit.pdf</a></li> <li><a href="http://w110.bcn.cat/MediAmbient/Continguts/Vectors_Ambentials/Neteja_i_Gestio_de_Residus/Documents/Fitxers/waste prevention plan.pdf">http://w110.bcn.cat/MediAmbient/Continguts/Vectors_Ambentials/Neteja_i_Gestio_de_Residus/Documents/Fitxers/waste prevention plan.pdf</a></li> </ul>
3	Materials - products for which prevention activities can be effective	<p>How <b>effective</b> can a prevention action for the following materials-products be in the hotels:</p> <ul style="list-style-type: none"> <li>Plastic bags: <b>Very</b></li> <li>Food and kitchen waste: <b>Very</b></li> <li>Green Waste: <b>Very</b></li> <li>Plastic bottles: <b>Very</b></li> <li>Packaging: <b>Very</b></li> <li>Clothing &amp; textiles: <b>Very</b></li> <li>Toys: <b>A little</b></li> <li>Furniture: <b>Very</b></li> </ul>

		<ul style="list-style-type: none"> <li>WEEE: <b>Very</b></li> <li>Paper: <b>Very</b></li> <li>C&amp;D waste: <b>Very</b></li> <li>Hazardous household waste: <b>Quite</b></li> <li>Various household items: <b>Quite</b></li> </ul> <p><b>Useful links:</b></p> <ul style="list-style-type: none"> <li><a href="http://www.thetravelfoundation.org.uk/green_business_tools/greener_accommodations/waste/">http://www.thetravelfoundation.org.uk/green_business_tools/greener_accommodations/waste/</a></li> <li><a href="http://www.greenhotelier.org/our-themes/waste-management/">http://www.greenhotelier.org/our-themes/waste-management/</a></li> <li><a href="http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf">http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf</a></li> </ul>
4	Efficiency of prevention related initiatives	<p>How effective can be the following prevention initiatives in the hotels:</p> <ul style="list-style-type: none"> <li>Implementation of Sustainable Procurement strategy: <b>Very</b></li> <li>Implementation of PAYT: <b>Very</b></li> <li>Implementation of awareness campaigns: <b>Quite</b></li> <li>Implementation of e-Government policies by the LA: <b>Very</b></li> <li>Implementation of other initiatives (EMAS or ISO 14001): <b>Quite</b></li> </ul> <p><b>Useful links:</b></p> <ul style="list-style-type: none"> <li><a href="http://www.wrap.org.uk/sites/files/wrap/WRAP_Case_Study_City_RR.pdf">http://www.wrap.org.uk/sites/files/wrap/WRAP_Case_Study_City_RR.pdf</a></li> <li><a href="http://www.greenhotelier.org/our-themes/waste/increasing-employee-engagement-in-recycling/">http://www.greenhotelier.org/our-themes/waste/increasing-employee-engagement-in-recycling/</a></li> <li><a href="http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&amp;n_proj_id=3255">http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&amp;n_proj_id=3255</a></li> <li><a href="http://www.hersonisos.gr/files/items/4/4427/anaptyxi_systimatos_pay_as_threw.pdf?rnd=1382367039">http://www.hersonisos.gr/files/items/4/4427/anaptyxi_systimatos_pay_as_threw.pdf?rnd=1382367039</a></li> </ul>
5	Possible advantages of Prevention activities	<ul style="list-style-type: none"> <li>There are prevention activities that can reduce "significantly" or even "a little" waste generation: <b>Yes</b></li> <li>There are prevention activities that can reduce "significantly" or even "a little" the hazardousness of remaining waste: <b>Yes</b></li> <li>There are prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste: <b>Yes</b></li> <li>There are prevention activities that create "no" or "a little" organizational problems to the LA: <b>Yes</b></li> <li>There are prevention activities with 'no' or 'small' implementation costs for the LA: <b>Yes</b></li> </ul> <p>There are prevention activities that create "a few", "several" or "many" new jobs: <b>Yes</b></p> <p><b>Useful links:</b></p> <ul style="list-style-type: none"> <li><a href="http://greenbusiness.ie/resources/?subject=waste-prevention">http://greenbusiness.ie/resources/?subject=waste-prevention</a></li> <li><a href="http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf">http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf</a></li> <li><a href="http://www.parliament.uk/documents/lords-committees/eu-sub-com-d/food-waste-prevention/154.pdf">http://www.parliament.uk/documents/lords-committees/eu-sub-com-d/food-waste-prevention/154.pdf</a></li> <li><a href="http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&amp;n_proj_id=3255">http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&amp;n_proj_id=3255</a></li> <li><a href="http://www.hersonisos.gr/files/items/4/4427/anaptyxi_systimatos_pay_as_threw.pdf?rnd=1382367039">http://www.hersonisos.gr/files/items/4/4427/anaptyxi_systimatos_pay_as_threw.pdf?rnd=1382367039</a></li> </ul>
6	Useful documentation	<ol style="list-style-type: none"> <li>Waste Mapping Guidance for Hotels in Cyprus: Saving money and improving the environment <ul style="list-style-type: none"> <li><a href="http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf">http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf</a> (english)</li> <li><a href="http://www.visitcyprus.com/media/b2b_gr/News_Releases/Waste_Mapping_Guidance_Hotels.pdf">http://www.visitcyprus.com/media/b2b_gr/News_Releases/Waste_Mapping_Guidance_Hotels.pdf</a> (ελληνικά)</li> </ul> </li> </ol>

		<p>2. Lose Your Waste and Grow Your Profits: Waste Reduction, Reuse and Recycling for Hotels  <a href="http://www.ct.gov/deep/lib/deep/p2/business_industry/hospitality/waste_management_gui.pdf">http://www.ct.gov/deep/lib/deep/p2/business_industry/hospitality/waste_management_gui.pdf</a></p> <p>3. Waste Management - Green Hotelier <a href="http://www.greenhotelier.org/our-themes/waste-management/">http://www.greenhotelier.org/our-themes/waste-management/</a></p> <p>4. The NYC guide to Hotel Waste Prevention  <a href="http://infohouse.p2ric.org/ref/05/04499.pdf">http://infohouse.p2ric.org/ref/05/04499.pdf</a></p> <p>5. Hotel, Motel, Resort, and Casino Waste Reduction  <a href="http://www.co.thurston.wa.us/solidwaste/business/docs/tips/Hotels.pdf">http://www.co.thurston.wa.us/solidwaste/business/docs/tips/Hotels.pdf</a></p>
7	Prevention ideas	<p><b>1. Waste management case studies of hotels in Cyprus</b></p> <p>❖ <a href="http://csti-cyprus.org/wp-content/uploads/2012/12/Cyprus_plastics_summary_FINAL.pdf">http://csti-cyprus.org/wp-content/uploads/2012/12/Cyprus_plastics_summary_FINAL.pdf</a></p> <p>The Travel Foundation, the Cyprus Sustainable Tourism Initiative, (CSTI), and the enterprise Thomas Cook cooperated with 21 hotels in Agia Napa and Pafos of Cyprus aiming at the reduction of the quantity of plastic wastes. The results were the following:</p> <ul style="list-style-type: none"> <li>• The participating hotels saved an average of 19% of the total number of plastic items that were used, compared to the previous year.</li> <li>• The total number of plastic items that were saved was 2,2 million only for a period of 4-5 months</li> <li>• 50% of the hotel customers mentioned that this initiative for the reduction of plastics had a positive impact on their vacation</li> <li>• 98% of the customers mentioned that they would like to see the implementation of similar programs at other destinations also.</li> </ul> <p>❖ <a href="http://www.accor.com/en/sustainable-development/experts-and-analysts-corner/management-method.html">http://www.accor.com/en/sustainable-development/experts-and-analysts-corner/management-method.html</a></p> <p>The sustainable strategy “Planet 21” is implemented at Accor Hotels in Cyprus since 2011, aiming at a route towards sustainable development for the hotel group, the personnel, the cooperators and the hotel customers.</p> <p>The Accor Hotels produce 2,3 million tons of wastes per year, of which, 70% comes for construction and demolition wastes. The target for 2015 is that the 85% of the hotels recycle their wastes as well as that they possess the means for measuring the waste volume and the separation and collection costs. Until the end of 2012:</p> <ul style="list-style-type: none"> <li>• 79% of the hotels recycled their wastes</li> <li>• 91% of the hotels separated and recycled batteries</li> <li>• 90% of the hotels separated and recycled fluorescent lights and bulbs</li> <li>• 86% of the hotels separated and recycled paper and paperboard</li> </ul> <p><a href="http://www.wrap.org.uk/sites/files/wrap/WRAP_Case_Study_City_RR.pdf">http://www.wrap.org.uk/sites/files/wrap/WRAP_Case_Study_City_RR.pdf</a></p> <p>Working together towards zero waste - City Hotel Derry &amp; RiverRidge Recycling The Hotel Derry in Northern Ireland and the waste management enterprise RiverRidge Recycling, being fully conscious of the cost deriving from the food wastes of the enterprises, cooperated aiming at the prevention of food wastes.</p> <p>The 4 star City Hotel Derry in Northern Ireland possesses 158 rooms. It has already started the efforts for the reduction of wastes by using a waste compressor, by recycling all potential materials (paper, plastic and paperboard) and by returning packaging for reuse (glass and wood). The hotel has been engaged since 2006 to reduce the quantities of wastes that are disposed to landfills and as a result the 140 tones were reduced to 49 tones for 2012. This saving target was accomplished while the occupancy rate of the hotel showed a stable increase. From the changes in the waste management, the hotel saved £10.000 from the disposal of wastes.</p> <p><b>2. Waste management case studies of hotels in Greece</b></p> <p><a href="http://gettingstarted.travelife.org/index.php?id=5">http://gettingstarted.travelife.org/index.php?id=5</a></p>

		<p>Travelife (<a href="http://www.travelife.org/Hotels/landing_page.asp">http://www.travelife.org/Hotels/landing_page.asp</a>) is a web-based certification system that allows owners of accommodation to monitor and self-evaluate the performance of their sustainability. The system and its criteria have been developed through a process of consultation with many stakeholders (tourist agents, hotel owners, professional associations, NGOs, auditing enterprises and universities). It began in 2007 and today it is recognized by the travel and tourism industry as one of the most integrated and reliable tools.</p> <p>As a case study in the area of wastes, Travelife mentions the Atlantica Caldera Palace - Sensatori Resort in Crete (Greece).</p> <p>The basic measures that are implemented consist of:</p> <ul style="list-style-type: none"> <li>• All garbage are separated and placed in separate bins, ready for recycling. The local authorities collect them and forward them for recycling.</li> <li>• The hotel has installed its own glass compressor</li> <li>• There is a special concern for purchases of recyclable materials (e.g. laundry bags) so that the total quantity of wastes is reduced. The way supplies are conducted has significant impact in the reduction of the total quantity of wastes that are produced.</li> </ul> <p>❖ <a href="http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=searchdspPage&amp;n_proj_id=3255">http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=searchdspPage&amp;n_proj_id=3255</a></p> <p>In the framework of LIFE+ project: «RECYCLING SYMPRAxis: Public-private Partnerships to optimize waste prevention, recovery and recycling systems in mass tourism destinations» (2009- 2011), a study as well as the development and the pilot implementation of advanced local/regional public and private sector partnerships were conducted for the reduction, the recovery and the recycling of wastes. In addition, three pilot schemes for recovery-recycling of wastes were designed and implemented in Chalkidiki, for packaging (plastic, paper, glass and aluminum), organic wastes (plant trimmings, food wastes etc), special WEEE and Construction and Demolition Wastes.</p> <p><b>3. Composting of food wastes in the hotels of San Diego (USA)</b></p> <ul style="list-style-type: none"> <li>• <a href="http://www.biocycle.net/2014/01/21/food-waste-composting-at-san-diego-hotels/">http://www.biocycle.net/2014/01/21/food-waste-composting-at-san-diego-hotels/</a></li> <li>• <a href="http://www.biocycle.net/2015/02/13/san-diego-hotel-goes-big-on-sustainability/">http://www.biocycle.net/2015/02/13/san-diego-hotel-goes-big-on-sustainability/</a></li> <li>• <a href="https://www.youtube.com/watch?v=2FxotojtDnI">https://www.youtube.com/watch?v=2FxotojtDnI</a> (video)</li> </ul> <p>With the program for composting of food wastes in the hotels of San Diego (USA), the local authorities of the city have assisted the participating hotels to the increase of total percentage of wastes that are not forwarded to landfills, in some cases more than 400%.</p> <p>Some of the hotels that participate in the program have more than 1.000 rooms and all of them have conference facilities. The food wastes are collected by municipality services and are forwarded to the municipal open unit to be turned into fertilizers. A prerequisite for the participation of the hotels is the training of their staff by the municipality employees on recycling and composting programs for food wastes and their cooperation for the continuous recording of recyclable material and food wastes that can avoid their route to landfills.</p> <p>The hotels are also encouraged to work for the reduction of wastes <u>at_in_the</u> source and to donate (with the assistance of local authorities) the consumable left food to local charities and food banks.</p> <p>The participating hotels stand for the 13% of all participants of the municipality in the program of commercial food waste management and create nearly 30% of the total amount of the program. The municipality organizes annual awards setting as criteria the percentage of wastes that are not forwarded in landfills.</p> <p><b>4. Hotel Association of New York's collaboration with NYC's Department of</b></p>
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		<p><b>Sanitation's Partnership for Waste Prevention.</b> Local Authorities can work closely with hotels in their community to help promote and implement waste prevention and reduction practices. This will result in a win-win situation for both the local authority and the hotels by reducing waste produced and reducing hotel expenses and attracting more tourists to "greener hotels". A long-standing successful example of this is New York City. In 1993, the Hotel Association of New York City joined the New York City Department of Sanitation's Partnership for Waste Prevention. <a href="#">The New York City Guide to Hotel Waste Prevention</a> has been produced to help hotels reduce their costs and at the same time contribute to New York City's waste prevention goals. Examples of actions that can be taken include:</p> <ul style="list-style-type: none"> <li>-Providing refillable dispensers for soap, shampoo and conditioners, rather than individual containers. The Boston Park Plaza Hotel a large hotel saved 2 million bottles each year by implementing this. In cases where hotels still use single use bottles, the leftover bottles containing shampoo and lotion are donated to charitable organizations.</li> <li>- Leftover foods from the kitchen and restaurants are also donated to charity to avoid food waste.</li> <li>-Newspapers, shower-caps, and shoe shine kits were made available freely upon request when a survey of 1000 guests showed that 90% never used them and would not mind only having them upon request.</li> <li>-They provide water pitchers instead of bottled water, provide sugar and milk, ketchup, mustard etc... in dispensers rather than individually wrapped packets.</li> </ul> <p>5. <a href="http://www.resourceefficientscotland.com/sites/default/files/Case%20study%20-%20Westerwood%20Hotel.pdf">http://www.resourceefficientscotland.com/sites/default/files/Case%20study%20-%20Westerwood%20Hotel.pdf</a></p> <p>The Westerwood Hotel and Golf Resort (<b>Scotland</b>) is part of Q Hotels group and has 148 rooms, a pool and a fitness center, a spa, bar and restaurants as well as a golf court.</p> <p>In 2013, the hotel produced nearly 138 tons of wastes, more than 70% of which were recycled, or, in the case of food wastes, were forwarded to an installation of anaerobic digestion for energy recovery.</p> <p>A relevant study for waste management in different sectors in the hotel showed the following:</p> <ul style="list-style-type: none"> <li>• Food waste prevention (it was estimated that the hotel could have avoided the production of 11,9 tons of food waste saving more than £ 72.000)</li> <li>• Separation of recyclable materials in the rooms of the visitors (the annual savings for the working time of personnel only would be £ 918)</li> <li>• Reduction of packaging wastes (annual savings of £ 206 from waste disposal charges)</li> <li>• Promotion of resource efficiency (water savings, energy savings etc)</li> </ul> <p>The annual benefit for the hotel is the reduction of the quantity of produced wastes of nearly 24 tons and cost savings of more than £ 73.000.</p>
8	Useful websites	<ul style="list-style-type: none"> <li>• Green Hotel Program, NYS Pollution Prevention Institute <a href="http://www.dec.ny.gov/docs/materials_minerals_pdf/hotels.pdf">http://www.dec.ny.gov/docs/materials_minerals_pdf/hotels.pdf</a></li> <li>• INTRODUCTION TO WASTE MINIMISATION - Hotels &amp; Accommodations (Travelife) <a href="http://www.travelife.org/Hotels/documents/audit_preparation/factsheet3.pdf">http://www.travelife.org/Hotels/documents/audit_preparation/factsheet3.pdf</a></li> <li>• Waste Reduction in Hotels and Motels (CalRecycle) <a href="http://www.calrecycle.ca.gov/reducewaste/business/FactSheets/Hotels.htm">http://www.calrecycle.ca.gov/reducewaste/business/FactSheets/Hotels.htm</a></li> <li>• <b>Waste Prevention &amp; Reduction Tips for Planning a Green Conference or Event</b> Vermont Agency of Natural Resources <a href="http://www.vtgreenhotels.org/articles/grnconf.htm">http://www.vtgreenhotels.org/articles/grnconf.htm</a></li> <li>• Zero Waste Hotels: Challenges &amp; Opportunities The Greek Case <a href="http://uest.ntua.gr/tinos2015/proceedings/pdfs/tsakona_mavropoulos.pdf">http://uest.ntua.gr/tinos2015/proceedings/pdfs/tsakona_mavropoulos.pdf</a></li> <li>• <b>Waste management and hotels in Rhodes, Greece: an overview</b></li> </ul>

		<p><a href="http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=15121">http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=15121</a></p> <ul style="list-style-type: none"> <li>• Neptune Hotels – resort, convention centre &amp; spa sustainability progress report tourist period 2013-2014 <a href="http://www.neptune.gr/images/documents/neptune_hotels_sustainability_progress_report.pdf">http://www.neptune.gr/images/documents/neptune_hotels_sustainability_progress_report.pdf</a></li> <li>• RECYCLING SYMPRAxis - Public-Private Partnerships to optimise waste prevention, recovery and recycling systems in mass tourism destinations <a href="http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&amp;n_proj_id=3255">http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&amp;n_proj_id=3255</a></li> <li>• ECOTEL hotels - Waste Management Globe <a href="http://www.ecotelhotels.com/Waste.shtml">http://www.ecotelhotels.com/Waste.shtml</a></li> <li>• Discussion paper on the development of a Voluntary Agreement for the Hospitality and Food Service sector <a href="https://www.instituteofhospitality.org/Publications/Insight_e-newsletter/2011-news/December-2011/wrap-report">https://www.instituteofhospitality.org/Publications/Insight_e-newsletter/2011-news/December-2011/wrap-report</a></li> <li>• Sustainable Hotel- Waste management <a href="http://www.sustainablehotel.co.uk/Improve_waste.html">http://www.sustainablehotel.co.uk/Improve_waste.html</a></li> <li>• Waste prevention –Hotels- Honolulu <a href="http://www.opala.org/solid_waste/Waste_Prevention.html#hotel">http://www.opala.org/solid_waste/Waste_Prevention.html#hotel</a></li> <li>• <a href="http://greenhotelsgr.blogspot.gr/">http://greenhotelsgr.blogspot.gr/</a></li> <li>• The Travel Foundation <a href="http://www.thetravelfoundation.org.uk/green_business_tools/greener_accommodations/waste/">http://www.thetravelfoundation.org.uk/green_business_tools/greener_accommodations/waste/</a></li> <li>• Reduction of the amount of plastic wastes in Cyprus hotels. <a href="http://csti-cyprus.org/wp-content/uploads/2012/12/Cyprus_plastics_summary_FINAL.pdf">http://csti-cyprus.org/wp-content/uploads/2012/12/Cyprus_plastics_summary_FINAL.pdf</a></li> <li>• IHG Green Engage <a href="http://www.ihgplc.com/index.asp?pageid=751">http://www.ihgplc.com/index.asp?pageid=751</a></li> <li>• Less Garbage Overnight A Waste Prevention Guide for the Lodging Industry <a href="http://infohouse.p2ric.org/ref/03/02129.pdf">http://infohouse.p2ric.org/ref/03/02129.pdf</a></li> <li>• A welcome sign: Hotels adopt reuse and recycling (WMW) <a href="http://waste-management-world.com/a/a-welcome-sign-hotels-adopt-reuse-and-recycling">http://waste-management-world.com/a/a-welcome-sign-hotels-adopt-reuse-and-recycling</a></li> <li>• Prevent &amp; Save - Best Practice Guidelines in Waste Management <a href="http://www.preventandsave.ie/documents/Best%20Practice/Waste%20Management%20for%20Hotels.pdf">http://www.preventandsave.ie/documents/Best%20Practice/Waste%20Management%20for%20Hotels.pdf</a></li> <li>• HOTEL WASTE MANAGEMENT- Rain drops <a href="https://businessimpactenvironment.wordpress.com/2012/01/08/hotel-waste-management-rain-drops/">https://businessimpactenvironment.wordpress.com/2012/01/08/hotel-waste-management-rain-drops/</a></li> <li>• WASTE REDUCTION &amp; RECYCLING TIPS FOR HOTELS, RESORTS and MOTELS <a href="http://www.wastecare.com/Articles/Waste_Reduction_Recycling_Tips_Hotels.htm">http://www.wastecare.com/Articles/Waste_Reduction_Recycling_Tips_Hotels.htm</a></li> <li>• Hotel reduces ecological footprint <a href="http://www.zerowaste.sa.gov.au/upload/REAP/91392%20ZWSA%20UpClose%20Hilton%20WEB.pdf">http://www.zerowaste.sa.gov.au/upload/REAP/91392%20ZWSA%20UpClose%20Hilton%20WEB.pdf</a></li> <li>• Dubai's first zero waste hotel to open in H1 2017 <a href="http://www.emirates247.com/business/economy-finance/dubai-s-first-zero-waste-hotel-to-open-in-h1-2017-2015-05-19-1.591165">http://www.emirates247.com/business/economy-finance/dubai-s-first-zero-waste-hotel-to-open-in-h1-2017-2015-05-19-1.591165</a></li> <li>• <a href="#">The New York City Guide to Hotel Waste Prevention</a></li> </ul>
9	Prevention Ideas	You can see all the suggested Prevention ideas for the specific site category at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
10	Suggest your prevention	Suggest your own prevention idea for the specific site category at the website o LAWPreT

	ideas	<a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>
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## 1.2.5 Restaurants & catering

No	Categories of Data	Restaurants & catering
1	General information	<p>Food service businesses, restaurants and catering companies, are part of the “hospitality industry”; they produce significantly large amounts of waste. The disposal to landfill can be avoided for almost the total amount of this waste. The proper management of “hospitality industry” waste consists of the following (in order of importance):</p> <ul style="list-style-type: none"> <li>• Prevention for the reduction of waste</li> <li>• Feeding the needy</li> <li>• Animal feeding</li> <li>• Industrial use</li> <li>• Composting</li> <li>• Disposal to landfill</li> </ul> <p>The targeted actions of LA for the prevention of waste production from food service businesses include:</p> <ul style="list-style-type: none"> <li>• designing of integrated waste prevention programs for businesses (e.g. studies, issuing of guidelines);</li> <li>• ensuring of the possibility of existence of proper space and equipment (e.g. for recycling) as well the continuous cooperation with the competent systems of recycling, organizations and bodies so that prevention actions are feasible;</li> <li>• the information and encouragement of businesses and their employees (provision of information, training, know-how, practical alternative solutions) to implement waste prevention;</li> <li>• the involvement of persons and bodies at municipality level, in the development of pilot programs as well as exchange of know-how from the existing networks and seminars/workshops with the participation of experts and major stakeholders;</li> <li>• Involving the entire supply chain e.g. providing information and awareness to suppliers.</li> <li>• implementing incentives (e.g. awards, promotion through the local media, investment grants, economic incentives, penalties, comparative evaluation-benchmarking)</li> <li>• Having the Local authority act as a “good example” proving that resource efficiency is implemented in various levels of public administration through sustainable contracts, implementation of environmental management systems, implementation of good practices where catering services are involved.</li> </ul> <p>The actions of Local Authorities, in order to be effective, must contribute to getting businesses to recognize the connection of environmental benefits from waste prevention and reduction with a) the financial benefit to the enterprises, b) the enhancement of their corporate image as well as c) the strengthening of the morale of the employees deriving from their participation in such efforts.</p> <p>In addition, the LA ensures multiple benefits: the waste prevention in their working environment may lead the employees to implement relevant practices in their homes and convey the message to their family and friends.</p>

	<p>The LA have to cooperate continuously with the businesses, in order to know the kind and quantity of their wastes, to commonly decide upon measures for their reduction and to implement the best practices of their proper management.</p> <p>The cornerstone actions include:</p> <p><b>Reduction of waste and especially the food waste:</b> food waste from food service businesses are produced during the preparation of snacks or meals as well as of drinks (alcoholic or non-alcoholic) for the customer and can be derived from every point of the production process, including the following:</p> <ul style="list-style-type: none"> <li>• storage (e.g. the food that ends up as wastes before use)</li> <li>• preparation (e.g. fruit and vegetable peels, egg shells, meat residues)</li> <li>• over-production of food for a certain period of service or/and food remaining in the plate of the customer (leftovers).</li> </ul> <p>The food wastes from restaurants and catering are usually classified in two categories referring to the existence or not of meat in them:</p> <p>A) not including meat: vegetable peels, fruit residues, teabags, coffee sediments, egg shells, dairy products and bread and</p> <p>B) including meat: cooked food, meat, fish, bones etc.</p> <p>The surplus of food from food service business is due to the overproduction of food, to the inability to be sold or to the provision of very large quantities of the product by the supplier or the manufacturer.</p> <p><b>Reuse/Recycling:</b> the actions concern a) the food and b) the packaging. The decay of food and other wastes in landfills produces significant quantities of methane (In the USA the methane emitted from landfills stands for the 34% of the total methane emissions). Reuse (e.g. donation and redistribution of food) and recycling (e.g. composting) are ways by which the organic material doesn't end up in landfills or for incineration. This way the greenhouse gas emissions from these places are reduced, while, at the same time they ensure financial benefits for the LA, due to the reduction of wastes that are confined for disposal.</p> <p>Significant environmental and financial benefits for the LA, also derive from actions of reuse and recycling of packages and other material.</p> <p><b>Environmentally friendlier choices:</b> Single-use products as napkins and other paper products as well as plastic and other kinds of packaging are widely used by the "Hospitality Industry" Single-use packaging facilitate the operation of the businesses in coping with hygiene needs, in minimizing maintenance as well as in the reduction of the need for dish washing. However, due to the large quantities of these products that are used by the food service industry, the impact for the environment can be greater than the energy consumed by these businesses. So, when alternative to single-use products choices are used, the impact to the environment is minimized, while, at the same time, financial benefits are secured for the LA, due to the reduction of wastes ending up for disposal.</p> <p>The actions that can be implemented for waste prevention in food service businesses are:</p> <ol style="list-style-type: none"> <li>1. <b>Monitoring of wastes aiming at their gradual reduction</b> <ul style="list-style-type: none"> <li>• Separation of wastes in different bins: food, recyclable and solid wastes</li> <li>• Weight and volume recording of the separated wastes</li> <li>• Comparing of current and previous situation</li> </ul> </li> <li>2. <b>Reduction of wastes on a daily basis</b></li> </ol>
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		<ul style="list-style-type: none"> <li>• Proper design and forecasting can reduce the overproduction as well as the products that have been expired. Purchase of products that require less packaging material, reusable packaging as well as purchasing of concentrated or unpacked products or products in the biggest available packaging (jams, cereals, juices, milk).</li> <li>• Control of portions: in self-service, the consumers can choose the quantity they want and pay by weight. Also the provision of meals of different size.</li> <li>• Monitoring of wastes, of mistakes in preparation, regular evaluation of wastes in combination with implemented practices and proper adaptation</li> <li>• Control – use of reusable products, where possible. When consumables as napkins or straws are used, control of possible alternative choices is required.</li> </ul> <p><b>3. Reuse and recycling of wastes</b></p> <ul style="list-style-type: none"> <li>• Free offering of all food that is suitable for human consumption in cooperation with local bodies. Free offering of the remaining that is not suitable for human consumption but is suitable for animal feeding, in cooperation with animal welfare organizations, local farms and zoos.</li> <li>• Recycling of used oils and fats (possibility of transforming them to biodiesel or possible utilization in small scale soap manufacturing)</li> <li>• Composting of food waste residues. Composting can be applied by different forms or methods including on the spot methods (bins – mechanical composters), commercial organic residues, those of the municipality and of the farms.</li> <li>• Recycling of all possible materials: paper and paperboard, aluminum, plastic, metal, glass. Research for ways of recycling printers' and other equipment's ink, recycling of batteries, of lamps.</li> </ul> <p><b>4. Purchase of single-use products according to environmental criteria</b></p> <p>If single-use products cannot be avoided, then their purchase should be done according to environmental criteria, as:</p> <ul style="list-style-type: none"> <li>• Recycled paper, without chlorine</li> <li>• Plastic products that come from recycling (labeled), not only recyclable. Use of plastic containers made of recycled HDPE instead of those made of LDPE or LLDPE. Avoidance of polystyrene and PVC products that contain teflon.</li> <li>• Use of alternative solutions instead of offering water in plastic bottles, as filtered tap water.</li> <li>• Replacement of single-use plastic tablecloths with textile ones of multiple uses.</li> </ul> <p><b>Useful websites:</b></p> <ul style="list-style-type: none"> <li>• <a href="http://www.greenseal.org/portals/0/documents/standards/gs-46/gs-46_waste_management_guide.pdf">http://www.greenseal.org/portals/0/documents/standards/gs-46/gs-46_waste_management_guide.pdf</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf</a></li> </ul>
2	Waste production quantitative data	<p>The food service sector is responsible for a significant part of food waste that is produced in Europe.</p> <ul style="list-style-type: none"> <li>• According to data from EUROSTAT (2006) and from other EU national sources, it is estimated that the percentage distribution of waste quantities in the 27 EU member states is: <ul style="list-style-type: none"> <li>- Manufacturing/processing: 39%</li> <li>- Households: 42%</li> <li>- Wholesale/retail: 5%</li> <li>- Food service businesses/ catering: 14%</li> </ul> </li> </ul> <p>According to the above estimation:</p> <ul style="list-style-type: none"> <li>- The wholesale/retail sector produces almost 8 kg of food waste per inhabitant (with significant differences between member states) per year</li> </ul>

		<p>that represent about 4,5 million tons for EU27.</p> <ul style="list-style-type: none"> <li>- The food service sector produces annually an average of 25 kg of food waste per inhabitant for EU27 that represent nearly 12,3 Mt for the EU27.</li> <li>• It is expected that food waste will reach the amount of 126 Mt by 2020 from 89 Mt in 2006, if prevention programs and policies are not implemented. If EU waste management and prevention policies are implemented by the member states, it is estimated that by 2020 the amount of food waste in landfills will be reduced from about 40,5 million tons to about 4,0 million tons. This means that about 122 million tons of food wastes in the EU27 will still be managed by other methods.</li> <li>• The cost for the separate collection of food wastes varies in the EU member states, depending on the differences in the waste management, but it is comparable with the mixed wastes management cost, according to a study of UK (Eunomia, 2007) which shows: <ul style="list-style-type: none"> <li>1. Cost estimation of separate food waste collection. <ul style="list-style-type: none"> <li>- Cost of separate collection with composting: 35-75 € / ton</li> <li>- Cost of separate collection with anaerobic digestion: 80-125 € / ton</li> </ul> </li> <li>2. Comparison with landfills and incineration <ul style="list-style-type: none"> <li>- Landfilling cost of mixed wastes: 55 € / ton</li> <li>- Incineration cost of mixed wastes: 90 € / ton.</li> </ul> </li> </ul> </li> <li>• In Scandinavian countries 27% of the total food waste comes from the food service sector (Norden, 2012). The sector consists of: <ul style="list-style-type: none"> <li>- More than 60.000 businesses</li> <li>- Nearly 370.000 employees and</li> <li>- Turnover of more than 28 billion € annually (2009)</li> </ul> </li> <li>• In the UK the volume of food waste equals 1,3 billion meals per year (enough to offer a meal for every hungry person on the earth) and is responsible for a financial loss of more than £2.500.000.000 (WRAP, 2011). The studies show that almost 70% of the food waste can be avoided, which means that absolutely edible food goes to the garbage bin. In the UK, from a total of 3.415.000 tons of solid wastes that are produced by the food sector every year: <ul style="list-style-type: none"> <li>- 1.473.000 tons are sent for disposal</li> <li>- 600.000 tons (41%) of the wastes from the bars, the restaurants, the hotels and the fast food restaurants are leftovers.</li> </ul> </li> <li>• In Scotland, the “hospitality” sector is estimated to produce annually around 53.500 tons of food waste, the 2/3 of which could have been eaten. A food waste bin could cost a business more than £12.000 annually. This amount of money could have been saved if a different way of management had been chosen.</li> </ul> <p><b>Useful websites:</b></p> <ol style="list-style-type: none"> <li>1. European Commission (DG ENV) Directorate C - Industry PREPARATORY STUDY ON FOOD WASTE ACROSS EU 27 (2010)  <a href="http://ec.europa.eu/environment/eussd/pdf/bio_foodwaste_report.pdf">http://ec.europa.eu/environment/eussd/pdf/bio_foodwaste_report.pdf</a> </li> <li>2. Prevention of food waste in restaurants, hotels, canteens and catering (Nordic Council of Ministers, 2012)  <a href="http://norden.diva-portal.org/smash/get/diva2:701203/FULLTEXT01.pdf">http://norden.diva-portal.org/smash/get/diva2:701203/FULLTEXT01.pdf</a> </li> <li>3. FOOD WASTE REDUCTION Case studies from the contract catering industry (FoodServiceEurope, July 2014)  <a href="http://www.foodserviceeurope.org/gallery/60/FoodServiceEurope%20database%20Food%20Waste%20-%20FINAL.pdf">http://www.foodserviceeurope.org/gallery/60/FoodServiceEurope%20database%20Food%20Waste%20-%20FINAL.pdf</a> </li> <li>4. LESS FOOD WASTE MORE PROFIT- A guide to minimizing food waste in the catering sector (EPA – IRELAND)  <a href="http://www.foodwaste.ie/web-images/Food-Waste-Prevention-Guide.pdf">http://www.foodwaste.ie/web-images/Food-Waste-Prevention-Guide.pdf</a> </li> <li>5. Overview of Waste in the UK Hospitality and Food Service Sector (WRAP, 2013)</li> </ol>
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3	Materials - products for which prevention activities can be effective	<p>How <b>effective</b> can a prevention action for the following materials-products be in the places and activities of food services:</p> <ul style="list-style-type: none"> <li>• Plastic bags: <b>Very</b></li> <li>• Food and kitchen waste: <b>Very</b></li> <li>• Green Waste: <b>Very</b></li> <li>• Plastic bottles: <b>Very</b></li> <li>• Packaging: <b>Very</b></li> <li>• Clothing &amp; textiles: <b>Quite</b></li> <li>• Toys: <b>Not at all</b></li> <li>• Furniture: <b>Quite</b></li> <li>• WEEE: <b>Quite</b></li> <li>• Paper: <b>Very</b></li> <li>• C&amp;D waste: <b>Little</b></li> <li>• Hazardous household waste: <b>Little</b></li> <li>• Various household items: <b>Quite</b></li> </ul> <p><b>Useful links:</b></p> <ol style="list-style-type: none"> <li>1. Prevention of food waste in restaurants, hotels, canteens and catering (Nordic Council of Ministers, 2012)  <a href="http://norden.diva-portal.org/smash/get/diva2:701203/FULLTEXT01.pdf">http://norden.diva-portal.org/smash/get/diva2:701203/FULLTEXT01.pdf</a></li> <li>2. Overview of Waste in the UK Hospitality and Food Service Sector (WRAP, 2013)  <a href="http://www.wrap.org.uk/sites/files/wrap/Overview%20of%20Waste%20in%20the%20UK%20Hospitality%20and%20Food%20Service%20Sector%20FINAL.pdf">http://www.wrap.org.uk/sites/files/wrap/Overview%20of%20Waste%20in%20the%20UK%20Hospitality%20and%20Food%20Service%20Sector%20FINAL.pdf</a></li> </ol>
4	Efficiency of prevention related initiatives	<p>How effective can be the following prevention initiatives in places and activities of food services:</p> <ul style="list-style-type: none"> <li>• Implementations of Sustainable Procurement strategy: <b>Very</b></li> <li>• Implementation of PAYT: <b>Very</b></li> <li>• Implementation of awareness campaigns: <b>Very</b></li> <li>• Implementation of e-Government policies by the LA: <b>Quite</b></li> <li>• Implementation of other initiatives (EMAS or ISO 14001): <b>Very</b></li> </ul> <p><b>Useful links:</b></p> <ul style="list-style-type: none"> <li>• <a href="http://thinkeatsave.org/downloads/UNEP-FW-Guidance-content-VERSION-WEB.pdf">http://thinkeatsave.org/downloads/UNEP-FW-Guidance-content-VERSION-WEB.pdf</a> Prevention and reduction of food and drink waste in businesses and households: Guidance for governments, local authorities, businesses and other organizations (FAO/UNEP, 2014)</li> <li>• <a href="http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf</a> GUIDELINES ON THE PREPARATION OF FOOD WASTE PREVENTION PROGRAMMES As part of the study on the evolution of (bio-) waste generation/prevention and (BIO-) waste prevention indicators (European Commission DG ENV)</li> </ul>

		<ul style="list-style-type: none"> <li><a href="http://www.resourceefficientscotland.com/sites/default/files/Managing%20Food%20Waste%20in%20the%20Hospitality%20%26%20Food%20Service%20Industry.pdf">http://www.resourceefficientscotland.com/sites/default/files/Managing%20Food%20Waste%20in%20the%20Hospitality%20%26%20Food%20Service%20Industry.pdf</a> Managing Food Waste in the Hospitality and Food Service Industry (Resource Efficient Scotland programme)</li> </ul>
5	Possible advantages of Prevention activities	<ul style="list-style-type: none"> <li>Are there prevention activities that can reduce "significantly" or even "a little" waste generation?: Yes</li> <li>Are there prevention activities that can reduce "significantly" or even "a little" the hazardousness of remaining waste?: Yes</li> <li>Are there prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste?: Yes</li> <li>Are there prevention activities that create "no" or "a little" organizational problems to the LA?: Yes</li> <li>Are there prevention activities with 'no' or 'small' implementation costs for the LA?: Yes</li> <li>Are there prevention activities that create new jobs?: Yes</li> </ul> <p><b>Useful links:</b></p> <ul style="list-style-type: none"> <li>Prevention and reduction of food and drink waste in businesses and households: Guidance for governments, local authorities, businesses and other organizations (FAO/UNEP, 2014) <a href="http://thinkeatsave.org/downloads/UNEP-FW-Guidance-content-VERSION-WEB.pdf">http://thinkeatsave.org/downloads/UNEP-FW-Guidance-content-VERSION-WEB.pdf</a></li> <li>Prevention of food waste in restaurants, hotels, canteens and catering (Nordic Council of Ministers, 2012) <a href="http://www.keepeek.com/Digital-Asset-Management/oecd/agriculture-and-food/prevention-of-food-waste-in-restaurants-hotels-canteens-and-catering_fn2012-537#page1">http://www.keepeek.com/Digital-Asset-Management/oecd/agriculture-and-food/prevention-of-food-waste-in-restaurants-hotels-canteens-and-catering_fn2012-537#page1</a></li> </ul>
6	Useful documentation	<ol style="list-style-type: none"> <li>GUIDELINES ON THE PREPARATION OF FOOD WASTE PREVENTION PROGRAMMES As part of the study on the evolution of (bio-) waste generation/prevention and (BIO-) waste prevention indicators (European Commission DG ENV) <a href="http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/prevention_guidelines.pdf</a></li> <li>European Commission [DG Environment] Waste Prevention – Handbook: Guidelines on waste prevention programmes (2012) <a href="http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20prevention%20guidelines.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20prevention%20guidelines.pdf</a></li> <li>Prevention and reduction of food and drink waste in businesses and households: Guidance for governments, local authorities, businesses and other organizations (FAO/UNEP, 2014) <a href="http://thinkeatsave.org/downloads/UNEP-FW-Guidance-content-VERSION-WEB.pdf">http://thinkeatsave.org/downloads/UNEP-FW-Guidance-content-VERSION-WEB.pdf</a></li> <li>Prevention of food waste in restaurants, hotels, canteens and catering (Nordic Council of Ministers, 2012) <a href="http://www.keepeek.com/Digital-Asset-Management/oecd/agriculture-and-food/prevention-of-food-waste-in-restaurants-hotels-canteens-and-catering_fn2012-537#page1">http://www.keepeek.com/Digital-Asset-Management/oecd/agriculture-and-food/prevention-of-food-waste-in-restaurants-hotels-canteens-and-catering_fn2012-537#page1</a></li> <li>FOOD WASTE REDUCTION Case studies from the contract catering industry (FoodServiceEurope, July 2014) <a href="http://www.foodserviceeurope.org/gallery/60/FoodServiceEurope%20database%20Food%20Waste%20-%20FINAL.pdf">http://www.foodserviceeurope.org/gallery/60/FoodServiceEurope%20database%20Food%20Waste%20-%20FINAL.pdf</a></li> <li>DATA &amp; TRENDS OF THE EUROPEAN FOOD AND DRINK INDUSTRY 2014-15 (FOODDRINK EUROPE) <a href="http://www.fooddrinkeurope.eu/uploads/publications_documents/Data_and_Trends_2014-2015.pdf">http://www.fooddrinkeurope.eu/uploads/publications_documents/Data_and_Trends_2014-2015.pdf</a></li> <li>LESS FOOD WASTE MORE PROFIT- A guide to minimizing food waste in the</li> </ol>

		<p>catering sector (EPA – IRELAND)  <a href="http://www.foodwaste.ie/web-images/Food-Waste-Prevention-Guide.pdf">http://www.foodwaste.ie/web-images/Food-Waste-Prevention-Guide.pdf</a></p> <p>8. Overview of Waste in the UK Hospitality and Food Service Sector (WRAP, 2013)  <a href="http://www.wrap.org.uk/sites/files/wrap/Overview%20of%20Waste%20in%20the%20UK%20Hospitality%20and%20Food%20Service%20Sector%20FINAL.pdf">http://www.wrap.org.uk/sites/files/wrap/Overview%20of%20Waste%20in%20the%20UK%20Hospitality%20and%20Food%20Service%20Sector%20FINAL.pdf</a></p> <p>9. Managing Food Waste in the Hospitality and Food Service Industry (Resource Efficient Scotland programme)  <a href="http://www.resourceefficientscotland.com/sites/default/files/Managing%20Food%20Waste%20in%20the%20Hospitality%20%26%20Food%20Service%20Industry.pdf">http://www.resourceefficientscotland.com/sites/default/files/Managing%20Food%20Waste%20in%20the%20Hospitality%20%26%20Food%20Service%20Industry.pdf</a></p> <p>10. Food for Thought: A Restaurant Guide to Waste Reduction and Recycling (The Integrated Waste Management Board, California)  <a href="http://iwrc.uni.edu/services/food-waste/resources/restaurants-catering/">http://iwrc.uni.edu/services/food-waste/resources/restaurants-catering/</a></p> <p>11. RESTAURANT WASTE REDUCTION MANUAL (Full Circle Resources)  <a href="http://infohouse.p2ric.org/ref/03/02368.pdf">http://infohouse.p2ric.org/ref/03/02368.pdf</a></p> <p>12. Prevention Thematic Days 2014- Stop food waste  <a href="http://www.ewwr.eu/docs/PTD/8_EN_PTDs_2014_eco-restaurant.pdf">http://www.ewwr.eu/docs/PTD/8_EN_PTDs_2014_eco-restaurant.pdf</a></p> <p>13. Reducing Wasted Food &amp; Packaging: A Guide for Food Services and Restaurants  United States Environmental Protection Agency  <a href="file:///C:/Users/SEK-3/Downloads/EPA+Reducing+Wasted+Food+Packaging+Toolkit+(Sep.+2014).pdf">file:///C:/Users/SEK-3/Downloads/EPA+Reducing+Wasted+Food+Packaging+Toolkit+(Sep.+2014).pdf</a></p> <p><b>VIDEOS</b>  <a href="http://ec.europa.eu/dgs/health_food-safety/information_sources/videos_en.htm#Food">http://ec.europa.eu/dgs/health_food-safety/information_sources/videos_en.htm#Food</a></p>
7	Prevention ideas	<p>1. <a href="http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=255&amp;Itemid=101">http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=255&amp;Itemid=101</a>  In Germany, Austria and Switzerland, different regulations are implemented for the banning of one-use dinnerware sets at big events, so that a framework for the reuse of dinnerware sets has been set in place.  In Munich, since 1991, a statute of the city of Munich bans the use and selling of one-use dinnerware sets, cups and drink packaging in public places. This ban is valid for all installations and events of the city, as open markets in Olympic Stadium and beer festival in Munich. The banned one-use items are replaced with reusable ones for which the consumers pay a small warranty which they take back when they return them. For smaller scale events (200-300 persons) also, the city of Munich cooperates with the organization Mobielspiel eV which offers the possibility of renting dinnerware sets and dishwashers.  The positive results of waste prevention measures can be proven by numbers: the volume of wastes at these events between 1991 and 2004 was reduced by more than 50%.</p> <p>2. 2. <a href="http://www.ghaward.ie/">http://www.ghaward.ie/</a>  <b>Green Hospitality Award Scheme (Ireland):</b> Is a voluntary program in which businesses of the hospitality sector (150 hotels and 10 big catering businesses) participate. It aims at the development of better environmental practices in the framework of the wider hospitality services sector. An award has been established (Green Hospitality Award (GHA)) by the National Waste Prevention Program of Ireland, which includes targets for the reduction of wastes, specially focusing on food wastes.</p> <p>3. 3. <a href="http://www.med-3r.org/index.php/en/about/results/306-resultat-resto-en-Catering_waste_in_Nice_(France)_and_Genoa_(Italy)">http://www.med-3r.org/index.php/en/about/results/306-resultat-resto-en-Catering_waste_in_Nice_(France)_and_Genoa_(Italy)</a> (« MED-3R Euro-Mediterranean Strategic Platform for a suitable waste management »)  In June 2013, the French Government established the “The National Agreement against food loss” in order to reduce the 50% of food waste by 2025. Taking into consideration that 6.500 tons of organic wastes every year are produced by restaurants in Nice, they implemented a pilot project for the prevention of their wastes. With the participation of the chamber of Commerce and Industry and 73</p>

		<p>other stakeholders “waste prevention kits” were distributed to the restaurants. These consisted of 2.500 biodegradable doggy bags, bags for bottles and bags for the transfer of doggy bags which were offered to customers of the restaurants.</p> <p>In the framework of MED-3R project, for the solution of the waste problem, implementation of composting was chosen. An informative and communication campaign for the restaurants was carried out with proper events and with the distribution of informative leaflets. The municipality provided an encouragement eco-label to the accession restaurants. Bins for the collection of organics as well as biodegradable bags for the transportation of food wastes to the bins were distributed to the 60 restaurants that participated, in order to help them make a self-evaluation regarding the collection and the quantity of organic wastes and in order to make them express their opinion about the new selection process.</p>
		<p>4. 4. <a href="http://www.bancoalimentare.it/en">http://www.bancoalimentare.it/en</a></p> <p>Since 1989, Fondazione Banco Alimentare Onlus has collected food that has not been consumed throughout chain of food supplies and through Rete Banco Alimentare (food bank Network) that consists of 21 food banks has distributed free food to 8.669 charities that offered food aid for 1.909.986 poor people throughout Italy.</p> <p>In 2014, due to the daily activities of 1.869 volunteers, it was possible to recover and save 40.767 tons of food and 1.043.351 prepared meals.</p> <p>5. 5. <a href="http://www.slowfood.com/international/166/what-we-do">http://www.slowfood.com/international/166/what-we-do</a></p> <p>In 2012, Nadja Flohr-Spence from Youth Network Slow Food in Germany had an idea for raising the awareness for food waste which is a global phenomenon, the “DISCO SOUP”. The idea is simple: people gather in a public place with music and a festive atmosphere in order to prepare all together a soup made of vegetables that otherwise would go to the garbage bin (simply because of their appearance). In 2013, the idea was globally recognized with similar events taking place in New York, Sao Paolo and Seoul, aiming at the raising of awareness for food waste in the whole world.</p>
8	Useful websites	<ol style="list-style-type: none"> <li>1. <a href="http://ec.europa.eu/food/safety/food_waste/index_en.htm">http://ec.europa.eu/food/safety/food_waste/index_en.htm</a></li> <li>2. <a href="http://www.fooddrinkeurope.eu/">http://www.fooddrinkeurope.eu/</a></li> <li>3. <a href="http://www.tifsp.org/wrap_preventing_food_waste_guide_legislation_hospitality.html?RequestId=7e458d8">http://www.tifsp.org/wrap_preventing_food_waste_guide_legislation_hospitality.html?RequestId=7e458d8</a></li> <li>4. <a href="#">Food Waste Reduction Alliance</a></li> <li>5. <a href="#">Green Restaurant Association</a></li> <li>6. <a href="#">National Restaurant Association's Conserve Program</a></li> <li>7. <a href="http://iwrc.uni.edu/services/food-waste/resources/restaurants-catering/">http://iwrc.uni.edu/services/food-waste/resources/restaurants-catering/</a></li> <li>8. <a href="https://hospitalityfoodwaste.wordpress.com/2013/04/17/food-waste-in-the-hospitality-industry/">https://hospitalityfoodwaste.wordpress.com/2013/04/17/food-waste-in-the-hospitality-industry/</a></li> <li>9. <a href="http://www.med-3r.org/index.php/en/about/results/306-resultat-resto-en">http://www.med-3r.org/index.php/en/about/results/306-resultat-resto-en</a></li> <li>10. <a href="http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/CA/APM/WP(2014)25/FINAL&amp;docLanguage=En">http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=TAD/CA/APM/WP(2014)25/FINAL&amp;docLanguage=En</a></li> <li>11. <a href="http://nextdoorhelp.it/">http://nextdoorhelp.it/</a></li> </ol>
9	Prevention Ideas	You can see all the suggested Prevention ideas for the specific site category at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
10	Suggest your prevention ideas	Suggest your own prevention idea for the specific site category at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

## 1.2.6 Public places of public events

No	Data categories	Content (Ports, airports, squares, mall, stages, stadiums, camps, railway stations, subway, hospitals, etc...)
1	General information	<p>Some forms of waste prevention, reuse and recycling at home have been common place for many years. In addition, they have become accepted practices at work. People also expect to be able to recycle or reuse in other places they visit, including public places. Also, recycling is increasingly being undertaken at "special events" such as festivals and concerts.</p> <p>Prevention, reuse and recycling in public places are often thought of as an additional service to general waste collection, requested by the local community or users of a public area. If designed and managed well from the beginning, it can become a successful waste management tool, and highlight commitment to waste prevention and resource recovery. The biggest challenge in developing any waste management system is designing a system that will be easy to use, maintain and collect from (if needed). The more convenient the system the higher the reuse and recycling rates, and the lower the contamination and litter. If designed and managed poorly it can become a constant challenge which is likely to fail. Some forethought at the design stage of the service can save a great deal of difficulty, inconvenience and confusion for all involved.</p> <p>In crowded public places we can also include green spaces, offices, coffee shops, restaurants, various goods selling shops etc. Depending on the category of activity taking place in such areas, many of the prevention activities have already been addressed in the corresponding prevention actions that can be found in this Guide (e.g. for green wastes, offices, restaurants, plastic bags use, packaging use etc.)</p> <p>Many special events are now focusing on the upper echelons of the waste hierarchy. In 2012, London hosted the first ever zero waste to landfill Olympic and Paralympic Games. Now the UK events sector has a joint vision for a <a href="#">zero waste to landfill industry by 2020</a>. The 2015 Eurovision song contest held in Vienna was certified under the Austria green events eco-label. This means sustainable waste management was an important aspect for the organizers. Special focus was given to waste preventing and reduction. Wherever possible focus had to be given on avoiding waste production e.g. <i>This included the use of multi-use packages and reusable decoration as well as reusable dishes and beverage containers and a ban of coffee machines using capsule systems. To raise people's awareness for the environmentally friendly reusable bottle the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) also launched the initiative "<b>Sag's am Mehrweg</b>", meaning "Use reusables"</i><sup>115</sup></p> <p><b>Useful links:</b></p> <p><a href="http://www.epa.nsw.gov.au/resources/warrlocal/050156-public-place-recycle-guide.pdf">http://www.epa.nsw.gov.au/resources/warrlocal/050156-public-place-recycle-guide.pdf</a> (Better Practice Guide for Public Place Recycling)</p> <p><a href="http://www.pps.org/reference/wastereceptacles/">http://www.pps.org/reference/wastereceptacles/</a> (Waste receptacles)</p> <p><a href="http://www.wrap.org.uk/content/sustainable-event-management">http://www.wrap.org.uk/content/sustainable-event-management</a> (sustainable event management)</p>
2	Waste production quantitative data	<p>It is estimated that the majority of events currently recycle only 15% of total waste – which is both economically and environmentally unsustainable. There is quite a big variety of wastes generated at crowded public places.</p> <p>These include both recyclables (paper of different kinds, plastic packages, glass, aluminum cans, steel cans) as well as general waste (food, soiled paper, non-recyclable plastics etc). ('Approximately half of ready-to-drink beverage containers are consumed in non-residential locations.' Source: Beverage Industry Environment Council (2002) Joint Action Plan for the National Packaging Covenant). A California study found that the average participant at a public event generates 2.5 pounds of</p>

115 <https://www.bmlfuw.gv.at/en/fields/environment/Sustainableeve/SongContest2015.html> (Eurovision)

		<p>waste per day. Luckily, much of this waste is recyclable. This is the reason that finding a good waste receptacle for a public place – simple as it may sound – is not an easy task.</p> <p>A public event in support of the Basque language in Usurbil, Gipuzkoa adopted the zero-waste approach to the event, which had over 10,000 participants. The event moved away from single used beverage containers and actively promoted re-useable ones. 49,350 glasses were “rented” and 85.89% of them were recovered and washed for future use. In the past, without the zero waste approach and the active campaign the same festival got back about 2/3 of the glass beverage containers. Furthermore, due to the separate collection system in place 7,750 kg of segregated waste was collected during the day of the celebration. More specifically, 1 160kg of packaging, 1 180kg of paper, 1 140kg of biowaste, 3,024kg of glass, 106 litres of oil, 380kg of special plastics, 720kg residual waste, 40kg nappies were collected. For the specific event, this amounts to a total separate collection and recycling rate of 90.19% leaving only 9.81% (760kg) of residual waste.<sup>116</sup></p> <p><b>Useful links:</b></p> <p><a href="#">Better Practice Guide for Public Place Recycling</a></p> <p><a href="#">Waste receptacles</a></p> <p><a href="#">Public place recycling toolbox</a></p> <p><a href="#">Recycling and waste reduction at your special event</a></p>
3	Materials - products for which prevention actions can be effective	<ul style="list-style-type: none"> <li>• Plastic bags: <b>Quite</b></li> <li>• Food and kitchen waste: <b>Very</b></li> <li>• Green Waste: <b>Not at all or Little</b></li> <li>• Plastic bottles: <b>Very</b></li> <li>• Packaging: <b>Very</b></li> <li>• Clothing &amp; textiles: <b>Not at all</b></li> <li>• Toys: <b>Not at all</b></li> <li>• Furniture: <b>Very</b></li> <li>• WEEE: <b>Quite</b></li> <li>• Paper: <b>Very</b></li> <li>• C&amp;D waste: <b>Not at all</b></li> <li>• Hazardous household waste: <b>Not at all</b></li> <li>• Various household items: <b>Little</b></li> </ul>
4	Efficiency of prevention related initiatives	<ul style="list-style-type: none"> <li>• Implementation of Sustainable Procurement strategy: <b>Very</b></li> <li>• Implementation of PAYT: <b>Very</b></li> <li>• Implementation of awareness campaigns: <b>Very</b></li> <li>• Implementation of e-Government policies by the LA: <b>Very</b></li> <li>• Implementation of EMAS or ISO 14001: <b>Quite</b></li> </ul>
5	Possible advantages of Prevention activities	<ul style="list-style-type: none"> <li>• Are there prevention activities that can reduce waste generation "significantly" or "a little"? : <b>Yes</b></li> <li>• Are there prevention activities that can reduce the hazardousness of the remaining waste "significantly" or even "a little"? : <b>Yes</b></li> <li>• Are there prevention activities that can reduce the management costs of the remaining waste "significantly" or even "a little"? : <b>Yes</b></li> <li>• Are there prevention activities that create "no" or "little" organizational problems to the LA ?:<b>Yes</b></li> <li>• Are there prevention activities with 'no' or 'small' implementation costs for the LA?: <b>Yes</b></li> <li>• There are prevention activities that create "a few", "several" or "many" new jobs <b>Yes</b></li> </ul>
6	Useful documentation	Alison Holmes et al (2012), A Feasibility Study on a Legal Obligation Aimed at the Systematic Use of Reusable Containers for Drinks and Food Served at Events Held in

116 <http://www.zerowasteeurope.eu/2015/11/the-first-zero-waste-celebration-of-the-annual-gathering-to-support-the-basque-language/>

	n	<p>Public Places in the Brussels-Capital Region, Eunomia Research &amp; Consulting Ltd. (LAWPreT Library/Prevention documents/Feasibility studies/ 2012_Brussels_Use of Reusable Containers for Drinks and Food in Public Events_Feasibility Study_EN)</p> <p>Public Place recycling toolkit:  <a href="http://www.sustainability.vic.gov.au/~media/resources/documents/services%20and%20advice/funding/regional%20public%20place%20recycling%20grants/funding%20public%20place%20recycling%20toolkit%20third%20edition%20aug%202013.pdf">http://www.sustainability.vic.gov.au/~media/resources/documents/services%20and%20advice/funding/regional%20public%20place%20recycling%20grants/funding%20public%20place%20recycling%20toolkit%20third%20edition%20aug%202013.pdf</a></p> <p>Waste Policy - Local Approvals Policy for managing waste in public places:  <a href="http://www.cityofsydney.nsw.gov.au/_data/assets/pdf_file/0007/194380/waste_policy_local_approvals_policy_for_managing_waste_in_public_places_21_october_2013.pdf">http://www.cityofsydney.nsw.gov.au/_data/assets/pdf_file/0007/194380/waste_policy_local_approvals_policy_for_managing_waste_in_public_places_21_october_2013.pdf</a></p>
7	Prevention ideas	<p><b>1.</b> <b>Ban on disposable food and drink containers at events in Munich, Germany (pre-waste factsheet 99).</b> In Germany, Austria, and Switzerland different regulations have been put into place to ban the use of disposable food and drink containers at large scale events and to establish a framework for the use of reusable crockery. For smaller-scale events (200-300 people), the City of Munich cooperates with Mobielspiel e.V offering the possibility to rent a crockery and dishwasher equipment. The City of Munich also promotes returnable bottles for beverages.</p> <p><b>Results:</b> The positive results of waste prevention measures can be demonstrated with numbers: the volume of waste at these events between 1991 and 2004, fell by more than 50 percent. Waste generated during the Oktoberfest (beer festival), attracting tens of thousands of people from all over the world, was reduced from 11,000 tons in 1990 to 550 tons in 1999. (<a href="http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=255&amp;Itemid=101">http://www.prewaste.eu/index.php?option=com_k2&amp;view=item&amp;id=255&amp;Itemid=101</a>)</p> <p><b>2.</b> LIPOR, the waste management organization of greater Porto, created the “eu nao faço lixo” (or “I don’t create rubbish”) website. Through its multidisciplinary measures designed to tackle behavioral change, LIPOR aims to engage a broad range of stakeholders in its 8 municipalities in waste prevention activities and habits. The information portal includes:</p> <ul style="list-style-type: none"> <li>• An eco-citizen letter of commitment to the prevention of waste. Signees receive regular updates on prevention and reduction activities.</li> <li>• LIPOR’s ten commandments of waste prevention, highlighting ten key actions that are effective and easy to adopt</li> <li>• Practical ideas for reducing or avoiding waste in all the rooms of the house, at the office, at school, at parties, on holiday, in the countryside, at the beach, and when shopping</li> <li>• An interactive space in which citizens can share ideas and a competition entitled “My Idea Counts”, recognizing one useful idea each month</li> <li>• Games and waste simulating tools <a href="http://ec.europa.eu/environment/waste/prevention/pdf/EuNaoFacolLixo_Factsheet.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/EuNaoFacolLixo_Factsheet.pdf</a> (I don’t create rubbish)</li> </ul> <p><b>3.</b> Implementation of awareness campaigns through local media. The LA must make use of the local media, if any, about matters of raising awareness. They are, in many aspects, more effective than national media. (LAWPreT Library/360 Prevention ideas).</p> <p><b>4.</b> Asking all recipients of electronic brochures or messages to forward them to all their mailing contacts, asking them, in turn, to do the same. That way the electronic brochure could reach a large number of recipients in a very short time and with no consumption of paper or other resources.</p> <p><b>5.</b> Promotion of voluntary agreements with large places of public assembly managers to design and implement integrated Prevention Activities, depending on the area conditions.</p>

8	Useful websites	<ul style="list-style-type: none"> <li><a href="http://www.pps.org/reference/wastereceptacles/">http://www.pps.org/reference/wastereceptacles/</a> (Waste Receptacles)</li> <li><a href="http://www.epa.nsw.gov.au/resources/warrlocal/050156-public-place-recycle-guide.pdf">http://www.epa.nsw.gov.au/resources/warrlocal/050156-public-place-recycle-guide.pdf</a> (Better Practice Guide for Public Place Recycling)</li> <li><a href="http://www.sustainability.vic.gov.au/services-and-advice/community/public-place-recycling">http://www.sustainability.vic.gov.au/services-and-advice/community/public-place-recycling</a> (Public Place Recycling Guidelines)</li> <li><a href="http://www.zerowaste.sa.gov.au/at-work/business-recycling-resources/reducing-waste-events-venues">http://www.zerowaste.sa.gov.au/at-work/business-recycling-resources/reducing-waste-events-venues</a> (Events and venues waste management guidelines)</li> <li><a href="http://www.zerowaste.sa.gov.au/upload/resource-centre/publications/events/2010%20EVENTS%20GUIDE.pdf">http://www.zerowaste.sa.gov.au/upload/resource-centre/publications/events/2010%20EVENTS%20GUIDE.pdf</a> (Waste minimization guide – Events and venues)</li> <li><a href="http://www.zerowaste.sa.gov.au/upload/event-guidelines/5_steps_to_success.pdf">http://www.zerowaste.sa.gov.au/upload/event-guidelines/5_steps_to_success.pdf</a> (The five steps to success)</li> <li><a href="http://dnr.wi.gov/files/pdf/pubs/wa/wa1537.pdf">http://dnr.wi.gov/files/pdf/pubs/wa/wa1537.pdf</a> (Recycling and waste reduction at your special event)</li> </ul>
9	Prevention Ideas	You can see all the suggested Prevention ideas for the specific site category at the LAWPreT website <a href="http://www.waste-prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.waste-prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
10	Suggest your prevention ideas	Suggest your own prevention idea for the specific site category at the LAWPreT website <a href="http://www.waste-prevention.gr/Prevention/Suggest your own idea for waste prevention">www.waste-prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

## 1.3 Prevention through administrative initiatives

This chapter presents basic data and relevant information on prevention possibilities through key management initiatives that can be taken by local authorities. In every administrative initiative successful examples and international Best Practices are given, key documents are proposed, and finally puts forward concrete prevention ideas.

### 1.3.1 Sustainable Public Procurement (SPP)

No	Data categories	Sustainable Public Procurement (SPP)
1	General information	<p>The SPP Approach is aimed at guiding policy makers and practitioners in designing and implementing sustainable public procurement policies and actions.</p> <p>Public spending normally represents 15-30% of national GDP and every purchase is an opportunity to drive markets towards innovation and sustainability. Through SPP, governments can lead by example and deliver key policy objectives. SPP enables governments to meet environmental goals such as reducing greenhouse gas emissions, improving energy and water efficiency and supporting recycling. The social benefits of SPP may include poverty reduction, improved equity and respect for core labour standards. From an economic perspective, SPP can generate income, reduce costs and support the transfer of skills and technology. Sustainable development<sup>1</sup>, requires governments and organisations to consider the social, economic and environmental aspects of their operations, with no single aspect dominating. Applying the concept of sustainable development to public procurement, 'sustainable procurement' is defined as:</p> <p>"A process whereby organisations meet their needs for goods, services, works and</p>

		<p>utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment."</p> <p>SPP is not limited to developed economies, but is being increasingly implemented in emerging and developing countries too.</p> <p>SPP includes the three pillars of sustainable development: social, environmental and economic. As in good procurement, essential elements of SPP include transparency, fairness, non-discrimination, competition, accountability, and verifiability. Procurement operates in a globalised market; therefore the impacts of SPP activity are felt on a global basis. SPP needs to take account of these impacts at local, national and international levels</p> <p>SPP can contribute, or be the main means, to the delivery of a wide range of government or organisational objectives. Strategies and objectives (reflecting international and national dimensions) include efficiency, sustainable development, sustainable consumption, and production. Whilst it is possible to achieve good SPP results without a policy, clear and consistent policies that explain objectives help procurers make good procurement decisions. Policy makers need to understand how procurement works so that they can produce policies that procurers can implement. Likewise, procurers should be involved at the early stages of policy development so that they can advise on implementation.</p> <p>SPP must be based on the principle of continuous improvement and on a life cycle approach. It should be supported by the principles of the procurement hierarchy and recognise the benefits, wherever they occur. SPP should use a risk-based approach, targeting the areas of highest impact or priority, whilst also demonstrating immediate success through a 'quick wins' approach. Integrating SPP into organisational management systems, including environmental management systems, helps in making it part of routine procurement practice.</p> <p>Countries committing to invest their time, human resources and funding to implement SPP will have the opportunity to:</p> <ul style="list-style-type: none"> <li>• Contribute to the delivery of a wide range of national policy objectives;</li> <li>• Improve environmental performance;</li> <li>• Deliver financial benefits; and</li> <li>• Develop markets for more sustainable products and services.</li> </ul> <p>SPP can contribute to the delivery of national objectives</p> <p>This buying power means that public procurement provides a significant opportunity to encourage more sustainable production and consumption patterns. Governments can "lead by example" in their own purchasing. By doing so, they can increase demand and help to create new markets for sustainable products and services and thus help to motivate sustainable development.</p>
2	Effectiveness of the administrative Initiative in the Prevention of materials – products	<ul style="list-style-type: none"> <li>• Plastic bags: <b>Very</b></li> <li>• food and kitchen waste: <b>Very</b></li> <li>• Green Waste: <b>Quite</b></li> <li>• Plastic bottles: <b>Very</b></li> <li>• Packaging: <b>Very</b></li> <li>• Clothing &amp; textiles: <b>Little</b></li> <li>• Games: <b>Little</b></li> <li>• Furniture: <b>Quite</b></li> <li>• WEEE: <b>Quite</b></li> <li>• Paper: <b>Very</b></li> <li>• C&amp;D waste: <b>Little</b></li> </ul>

		<ul style="list-style-type: none"> <li>Hazardous household waste: <b>Quite</b></li> <li>Various household items: <b>Quite</b></li> </ul>
3	Effectiveness of the administrative Initiative in the Prevention in site categories	<ul style="list-style-type: none"> <li>Implementation of administrative initiative in Green Points: <b>Little</b></li> <li>In schools: <b>Very</b></li> <li>In offices and business <b>Very</b></li> <li>In hotels: <b>Little</b></li> <li>In dining/feeding facilities <b>Quite</b></li> <li>In sites of people gathering (see chapter 1.3.5): <b>Quite</b></li> </ul>
4	Possible advantages of the implementation of the Administrative initiative	<ul style="list-style-type: none"> <li>Are there prevention activities that can reduce "<b>significantly</b>" or even "a little" waste generation?: <b>Yes</b></li> <li>Are there prevention activities that can reduce "<b>significantly</b>" or even "a little" the hazardousness of remaining waste?: <b>Yes</b></li> <li>Are there prevention activities that can reduce "<b>significantly</b>" or even "a little" the management costs of the remaining waste?: <b>Yes</b></li> <li>Are there prevention activities that create "<b>no</b>" or "a little" organizational problems to the LA?: <b>Yes</b></li> <li>Are there prevention activities with 'no' or '<b>small</b>' implementation costs for the LA?: <b>Yes</b></li> <li>Are there prevention activities that create "<b>a few</b>", "several" or "many" new jobs?: <b>Yes</b></li> </ul>
5	Useful documentation	<p><b>The Impacts of Sustainable Public Procurement</b>  Public spending, which represents between 15 per cent and 30 per cent of GDP in a given country, can help drive markets towards innovation and sustainability, thereby enabling green growth and the transition to a Green Economy. Sustainable Public Procurement (SPP) was identified in Agenda 21 and in Chapter III of the Johannesburg Plan of Implementation as one of the means to achieve sustainability.  <a href="http://www.unep.org/resourceefficiency/Portals/24147/scp/procurement/docsres/ProjectInfo/StudyonImpactsofSPP.pdf">http://www.unep.org/resourceefficiency/Portals/24147/scp/procurement/docsres/ProjectInfo/StudyonImpactsofSPP.pdf</a></p> <p><b>Green Tenders--An Action Plan on Green Public Procurement</b>  Green Tenders, an Action Plan on Green Public Procurement, is the first such Action Plan to be introduced in Ireland. Its overall objective is to assist public authorities to successfully plan and implement green public procurement (GPP) by highlighting existing best-practice and outlining further actions to boost green public procurement.  <a href="http://www.environ.ie/en/Environment/SustainableDevelopment/GreenPublicProcurement/PublicationsDocuments/FileDownLoad,29208,en.pdf">http://www.environ.ie/en/Environment/SustainableDevelopment/GreenPublicProcurement/PublicationsDocuments/FileDownLoad,29208,en.pdf</a></p> <p><b>COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Public procurement for a better environment</b>  Each year European public authorities spend the equivalent of 16% of the EU Gross Domestic Product on the purchase of goods, such as office equipment, building components and transport vehicles; services, such as buildings maintenance, transport services, cleaning and catering services and works<sup>1</sup>. Public procurement can shape production and consumption trends and a significant demand from public authorities for "greener" goods will create or enlarge markets for environmentally friendly products and services. By doing so, it will also provide incentives for companies to develop environmental technologies  <a href="http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0400:FIN:EN:PDF">http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0400:FIN:EN:PDF</a></p> <p><b>Buying Green! – A Handbook on green public procurement</b>  The handbook is a concrete tool to help public authorities to buy goods and services with a lower environmental impact. It is also a useful reference for policy makers and businesses responding to green tenders.  <a href="http://ec.europa.eu/environment/gpp/buying_handbook_en.htm">http://ec.europa.eu/environment/gpp/buying_handbook_en.htm</a></p>

		<p><b>Sustainable Public Procurement Implementation Guidelines</b></p> <p>The present Guidelines incorporate all the lessons derived from the testing of the MTF Approach to SPP that were collected during a revision process which ended in October 2011 and involved a large number of stakeholders in all pilot countries.</p> <p><a href="http://www.unep.org/10yfp/Portals/50150/10YFP%20SPP/UNEPIImplementationGuidelines.pdf">http://www.unep.org/10yfp/Portals/50150/10YFP%20SPP/UNEPIImplementationGuidelines.pdf</a></p>
6	Prevention Ideas	<p><b>RREUSE Position on Public Procurement</b></p> <p>Creating a resource efficient and socially inclusive Europe is at the heart of the EU 2020 strategy. The current proposal on public procurement provides potential to promote the role of social enterprises providing products and public services, including activities relating to waste prevention, repair and reuse and recycling. RREUSE supports the position of ENSIE (Français, English) as well as the position of the NSPP on the reform of the public procurement procedures .</p> <p><b>National Action Plan on Green Public Procurement</b></p> <p>The Programme for Government 2011i envisages public procurement as a tool to support innovative Irish firms. In the health and education sectors, the Programme specifically commits to achieving greater value for money in public procurement, for example through greater efficiencies in the construction of facilities and through pooling back-office functions such as ICT procurement. In accordance with these commitments and with the Government's wider sustainable development objectives, the Irish public sector needs to play an exemplary role in green public procurement (GPP) throughout its spending profile. This National Action Plan on green public procurement aims to make that vision a reality.</p> <p><b>The Green Office Handbook presents you everything you have to know to implement environmental tips in a dynamic way inside your office.</b></p> <p>The handbook contains relevant information on environmental topics for Offices, such as energy and building, waste production and sorting, water consumption, office furniture and consumables, organization of conferences and events, IT, paper consumption, air quality, health, safety and social issues, as well as cleaning and catering activities.</p> <p><b>Waste Prevention through GPP– with focus on plastic</b></p> <p>This paper presents the findings from a study of the experiences gained in the EU targeting Green Public Procurement (GPP) activities on the prevention of the generation of plastic waste. Furthermore, the barriers encountered with plastic waste prevention through GPP are described. The study is undertaken as a desk research. Information is collected via the Internet and literature, and by communication with different stakeholders. Contact is made with some of the Danish municipalities with experience of imposing criteria to limit plastic was</p> <p><b>Promoting Green public procurement in Brussels- Waste prevention for the public sector, Belgium</b></p> <p>Because public procurement functions with tax money, legally stipulated procedures must be followed when procuring goods, providing services or carrying out works. Due account must be taken of basic principles such as free access to public procurement, the equal treatment of candidate contractors, suppliers and service providers and the transparency of procedures. The rules governing public procurement present both opportunities and constraints when it comes to taking into account environmental aspects and waste prevention.</p>
7	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://www.building-spp.eu">www.building-spp.eu</a></li> <li>• <a href="http://www.zerowasteeurope.eu/">http://www.zerowasteeurope.eu/</a></li> <li>• <a href="http://www.rreuse.org/">http://www.rreuse.org/</a></li> <li>• <a href="http://ec.europa.eu/environment/gpp/index_en.htm">http://ec.europa.eu/environment/gpp/index_en.htm</a></li> </ul>

		<ul style="list-style-type: none"> <li>• <a href="http://www.environ.ie/en/Environment/SustainableDevelopment/GreenPublicProcurement/">http://www.environ.ie/en/Environment/SustainableDevelopment/GreenPublicProcurement/</a></li> <li>• <a href="http://www.prewaste.eu/">http://www.prewaste.eu/</a></li> <li>• <a href="http://www.eugreenoffice.eu/ego_trainers">http://www.eugreenoffice.eu/ego_trainers</a></li> </ul>
8	Prevention Ideas	You can see all the suggested Prevention ideas for the specific administrative initiative on the LAWPreT website <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
9	Suggest your prevention ideas	Suggest your own prevention idea for the specific administrative initiative on the LAWPreT website <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.3.2 Pay as You Through (PAYT)

No	Data categories	Pay as You Through (PAYT)
1	General information	<p>In many areas, the fees for waste management services are incorporated in the taxes paid by households to their local authority. Usually, the municipal cleaning fees are determined based on either the surface of the building, or the number of persons residing in the household, or the number of bins that serve the household. Citizens, up until a few decades ago, used to pay a fixed amount of money, independent of the produced amount of waste. The fixed fee is a practice that provides the local authority some flexibility in the management of its budget. This way, citizens do not know the exact way of calculation of the fees they pay for their waste. So, they usually think that there is no immediate connection between them and that the services provided are free. As a consequence, there are no incentives for the citizens to adopt environmentally friendly practices, such as prevention, reuse, recycle and composting.</p> <p>The “Pay-As-You-Throw” (PAYT) waste management systems apply the “polluter pays” principle, in a fair manner, charging the waste producers (households, enterprises, etc) according to the real amount of waste they produce, as well as the relevant provided services required for their management.</p> <p>The application of the PAYT systems is based on three basic pillars:</p> <ol style="list-style-type: none"> <li>1. Recognition of the waste producer. Each one is responsible for their own waste.</li> <li>2. Measurement of the produced quantity of waste and/or the services required for that.</li> <li>3. Charging per relevant unit according to the service provided</li> </ol> <p>In order to effectively apply PAYT systems, the above mentioned basics must be fulfilled, and they also must be supported by a relevant legal background. Furthermore, they must be incorporated in a political framework, wherein the waste producers responsibility, waste production avoidance and material recycling are in priority. The combination of these factors allows the PAYT system to function as a systematic, real waste prevention action.</p> <p>PAYT systems vary according to the manner of waste collection, the unit and the fees charging system. The waste can be collected either by local collection centres (especially the recyclables) either on the sidewalk. Charging can be done according to several schemes:</p> <ul style="list-style-type: none"> <li>• <b>Volume-based:</b> based on the volume of produced waste per household</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Weight-based:</b> based on the weight of the produced waste per household</li> <li>• <b>Frequency-based:</b> based on the frequency of waste collection per household</li> <li>• <b>Hybrid systems:</b> a combination of elements from all of the above.</li> </ul> <p>The main pricing possibilities of PAYT systems (local varieties existing) are:</p> <ul style="list-style-type: none"> <li>• <b>Per-bag charge.</b> Every household must buy special plastic or compostable bags from the local authority to place their waste. Charging is volume-based and costing may include a fixed fee for a certain amount of bags (certain waste volume) and extra charge for each extra bag.</li> <li>• <b>Charge by the volume/frequency of bin collection.</b> Each household chooses a bin from the Local Authority and is being charged by the volume of the bin and the frequency of waste collection.</li> <li>• <b>Charge by bin weight.</b> Each bin is connected to one or more households and bears a code of ID. Each bin is weighted upon collection and is identified. Charge is weight-based combined with a fixed fee.</li> <li>• <b>Charge by weight, using a card.</b> Each household buys units with a special card with a household ID. Units are subtracted from the card upon collection of the household waste in suitable machines that weigh and receive the waste and calculate and subtract the respective units from the card. Charging is done using a hybrid scheme combining weight-based and volume-based charging.</li> </ul> <p>Charging should count in the bin size, the frequency of collection services, as well as the measurement results in combination with the price per unit weight or volume as this arises from the local authority waste management data.</p> <p><b>Advantages</b> resulting from the application of PAYT systems can be summarized as follows:</p> <ul style="list-style-type: none"> <li>• <b>Fairness.</b> Households and enterprises are charged based on the true amount of waste they produce. Consequently, small producers are not financially burdened to the benefit of large waste producers, regarding the cost of final waste disposal.</li> <li>• <b>Financial incentives for waste reduction.</b> PAYT creates an immediate connection between the final disposal of waste and cost, which results to being a real financial incentive for citizens to reduce the quantity of generated waste and a greater participation in recycling.</li> <li>• <b>Reduced amounts of waste,</b> due to the reduction of waste at the source as well as the increased participation in recycling. For the local authorities there are financial benefits from transporting and disposing less waste to landfills, so the cost of final disposal is overall smaller.</li> <li>• <b>Increased participation of citizens in recycling.</b> The easiest way for a user of the waste management system to produce less waste is to participate more in recycling.</li> <li>• <b>Constancy of income.</b> Programs that do not receive constant funding or income can have a constancy of incomes, through direct charging of users of the system.</li> <li>• <b>Lengthening of the life expectancy of landfills.</b> The PAYT systems can help save space in the landfills and thus reduce costs related to construct and develop new landfills..</li> <li>• <b>Environment.</b> Natural resources are saved and energy through the reduction of waste at the source and through recycling. Also, greenhouse gas emissions decrease.</li> <li>• Citizens have increased interest for environmental issues and their belief that they are part of the solution to the waste problem is reinforced.</li> </ul> <p>Successful application and operation of a PAYT system by a local authority depends on certain <b>criteria of suitability</b> that must be taken into account during the design of the system, in order to achieve the goals to reduce the produced domestic waste and promote recycling. These are generated through special studies, relevant to technical,</p>
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	<p>political, financial and social issues</p> <p><b>Technical issues</b></p> <ul style="list-style-type: none"> <li>• Ability to separate waste – operation of collection and separation at the source systems</li> <li>• Accessibility to the service by everybody. The system is able to identify the user – waste producer</li> <li>• Relationship between the volume of available bins and the frequency of their collection (relationship defining the effectiveness of the collection services)</li> <li>• Reliable collection service</li> <li>• Reliable calculation of fees</li> <li>• Transparency of the waste management system</li> <li>• Policy, principles and application: <ul style="list-style-type: none"> <li>- Legal framework for the establishment and application of PAYT systems</li> <li>- Legal sanctions and penalties for illegal disposal</li> <li>- Compatibility with urban regulations</li> <li>- Creation of an office for the alternative management of waste at the Local Authority applying the PAYT system</li> <li>- Creation of a group to systematically train and inform citizens</li> <li>- Participation ways to the decision making procedure relating to waste management</li> </ul> </li> </ul> <p><b>Financial issues, incentives and billing:</b></p> <ul style="list-style-type: none"> <li>• Variable fees</li> <li>• Fair treatment of all citizens, equality and fair billing</li> <li>• Creation of an effective mechanism of collection of fees through bank debit orders</li> <li>• Deposit fee systems in place and/or ability to buy recyclables in bulk</li> </ul> <p><b>Social circumstances:</b></p> <ul style="list-style-type: none"> <li>• Financial situation of citizens</li> <li>• Level of education of citizens</li> <li>• Supply of information and education to citizens</li> <li>• Environmental conscience of citizens</li> </ul> <p><b>Organizational difficulties</b> for LA's to apply PAYT systems concern:</p> <ul style="list-style-type: none"> <li>• <b>Implementation of optimal conditions for PAYT application.</b> Which are the optimal conditions? Which ones of those are most necessary? How will the LAs be supported to implement these conditions?</li> <li>• <b>Law.</b> Are there appropriate laws and the ability to promote necessary changes for their implementation?</li> <li>• <b>PAYT system selection.</b> Which system or systems for PAYT is/are the most suitable for each LA and which are the conditions of success?</li> <li>• <b>Municipal fees billing.</b> How are the households and enterprises going to be charged? How are the current resources of the LAs to be safeguarded?</li> <li>• <b>Municipal fees collection.</b> How are the municipal fees going to be collected? Will the cost of collection of municipal fees rise? Is there a danger for the municipal fees to be decreased?</li> <li>• <b>LA organization.</b> How must a LA be organized to be able to apply effectively a PAYT system?</li> </ul> <p><b>Relevant links:</b></p> <ul style="list-style-type: none"> <li>• <a href="http://www.payt.gr/">http://www.payt.gr/</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/studies/pdf/eucostwaste.pdf">http://ec.europa.eu/environment/waste/studies/pdf/eucostwaste.pdf</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/studies/pdf/Screening_report.pdf">http://ec.europa.eu/environment/waste/studies/pdf/Screening_report.pdf</a></li> <li>• <a href="http://www.zerowasteeurope.eu/tag/pay-as-you-throw-system/">http://www.zerowasteeurope.eu/tag/pay-as-you-throw-system/</a></li> <li>• <a href="http://www.researchgate.net/publication/280625083_Designing_Pay-As-You-Throw_schemes_in_municipal_waste_management_services_A_holistic_approach">http://www.researchgate.net/publication/280625083_Designing_Pay-As-You-Throw_schemes_in_municipal_waste_management_services_A_holistic_approach</a></li> <li>• <a href="http://www3.epa.gov/epawaste/inforesources/pubs/payt.htm">http://www3.epa.gov/epawaste/inforesources/pubs/payt.htm</a></li> </ul>
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2	Effectiveness of the administrative Initiative in the Prevention of materials – products	<p>How effective can prevention actions be for the following material-products at municipalities that implement PAYT systems?</p> <ul style="list-style-type: none"> <li>Plastic bags: <b>Quite</b></li> <li>food and kitchen waste: <b>Very</b></li> <li>Green Waste: <b>Very</b></li> <li>Plastic bottles: <b>Quite</b></li> <li>Packaging: <b>Very</b></li> <li>Clothing &amp; textiles: <b>Quite</b></li> <li>Games: <b>Quite</b></li> <li>Furniture: <b>Very</b></li> <li>WEEE: <b>Very</b></li> <li>Paper: <b>Very</b></li> <li>C&amp;D waste: <b>Very</b></li> <li>Hazardous household waste: <b>Very</b></li> <li>Various household items: <b>Quite</b></li> </ul> <p><b>Relevant links:</b></p> <ul style="list-style-type: none"> <li><a href="http://www.payt.gr/">http://www.payt.gr/</a></li> <li><a href="http://www.ecorec.gr/">http://www.ecorec.gr/</a></li> <li><a href="http://ec.europa.eu/environment/waste/pdf/WASTE%20BROCHURE.pdf">http://ec.europa.eu/environment/waste/pdf/WASTE%20BROCHURE.pdf</a></li> <li><a href="http://archive.epa.gov/wastes/conserve/tools/payt/web/pdf/tlkpt.pdf">http://archive.epa.gov/wastes/conserve/tools/payt/web/pdf/tlkpt.pdf</a></li> <li><a href="http://www.sustainablecitiesinstitute.org/topics/materials-management/recycling/pay-as-you-throw-programs">http://www.sustainablecitiesinstitute.org/topics/materials-management/recycling/pay-as-you-throw-programs</a></li> </ul>
3	Effectiveness of the administrative Initiative in the Prevention in site categories	<p>Please note how <b>effective</b> the administrative initiative can be in the success of prevention activities in the following site categories:</p> <ul style="list-style-type: none"> <li>Implementation of administrative initiative in Green Points: <b>Very</b></li> <li>In schools: <b>Very</b></li> <li>In offices and business <b>Very</b></li> <li>In hotels <b>Very</b></li> <li>In dining/feeding facilities <b>Very</b></li> <li>In sites of people gathering (see chapter 1,19): <b>Very</b></li> </ul> <p><b>Relevant links:</b></p> <ul style="list-style-type: none"> <li><a href="http://www.payt.gr/">http://www.payt.gr/</a></li> <li><a href="http://www.hersonisos.gr/files/items/4/4427/anaptyxi_systimatos_pay_as_throw.pdf?rnd=1382367039">http://www.hersonisos.gr/files/items/4/4427/anaptyxi_systimatos_pay_as_throw.pdf?rnd=1382367039</a></li> <li><a href="http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf">http://media.visitcyprus.com/media/b2b_en/News_Releases/Waste_Mapping_Guidance_Hotels.pdf</a></li> <li><a href="http://reason.org/files/a4e176b96ff713f3dec9a3336cafd71c.pdf">http://reason.org/files/a4e176b96ff713f3dec9a3336cafd71c.pdf</a></li> <li><a href="http://www.decaturga.com/city-government/city-departments/public-works/pay-as-you-throw">http://www.decaturga.com/city-government/city-departments/public-works/pay-as-you-throw</a></li> </ul>

		<ul style="list-style-type: none"> <li>• <a href="http://web.tu-dresden.de/intecuspalyt/results/charging.pdf">http://web.tu-dresden.de/intecuspalyt/results/charging.pdf</a></li> </ul>
4	Possible advantages of the implementation of the Administrative initiative	<ul style="list-style-type: none"> <li>• there are prevention activities that can reduce "significantly" or even "a little" waste generation: <b>Yes</b></li> <li>• there are prevention activities that can reduce "significantly" or even "a little" the hazardousness of remaining waste: <b>Yes</b></li> <li>• there are prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste: <b>Yes</b></li> <li>• there are prevention activities that create "no" or "a little" organizational problems to the LA: <b>Yes</b></li> <li>• there are prevention activities with 'no' or 'small' implementation costs for the LA: <b>Yes</b></li> <li>• there are prevention activities that create "a few", "several" or "many" new jobs: <b>Yes</b></li> </ul> <p><b>Relevant links:</b></p> <ul style="list-style-type: none"> <li>• <a href="http://www.payt.gr/">http://www.payt.gr/</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/pdf/final_report_10042012.pdf">http://ec.europa.eu/environment/waste/pdf/final_report_10042012.pdf</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/pdf/WASTE%20BROCHURE.pdf">http://ec.europa.eu/environment/waste/pdf/WASTE%20BROCHURE.pdf</a></li> <li>• <a href="http://www.zerowasteeurope.eu/category/waste-prevention/">http://www.zerowasteeurope.eu/category/waste-prevention/</a></li> <li>• <a href="http://www.mass.gov/eea/agencies/massdep/recycle/reduce/pay-as-you-throw-basics-for-municipalities.html">http://www.mass.gov/eea/agencies/massdep/recycle/reduce/pay-as-you-throw-basics-for-municipalities.html</a></li> <li>• <a href="http://www2.epa.gov/sites/production/files/2015-09/documents/skumatz.pdf">http://www2.epa.gov/sites/production/files/2015-09/documents/skumatz.pdf</a></li> </ul>
5	Useful documentation	<ul style="list-style-type: none"> <li>• USE OF ECONOMIC INSTRUMENTS AND WASTE MANAGEMENT PERFORMANCES - European Commission (DG ENV) <a href="http://ec.europa.eu/environment/waste/pdf/final_report_10042012.pdf">http://ec.europa.eu/environment/waste/pdf/final_report_10042012.pdf</a></li> <li>• PAY-AS-YOU-THROW / VARIABLE RATES FOR TRASH COLLECTION <a href="http://www2.epa.gov/sites/production/files/2015-09/documents/skumatz.pdf">http://www2.epa.gov/sites/production/files/2015-09/documents/skumatz.pdf</a></li> <li>• Zero Waste Case Studies <a href="http://www.zerowasteeurope.eu/zw-library/case-studies/">http://www.zerowasteeurope.eu/zw-library/case-studies/</a></li> <li>• Guide for the Implementation of Pay-As-You-Throw Systems for Municipal Waste (Environment and Management and Agència de Residus de Catalunya) <a href="http://www20.gencat.cat/docs/arc/Home/LAgencia/Publicacions/Centre%20catala%20del%20reciclatge%20%28CCR%29/Guia%20PXG_EN.pdf">http://www20.gencat.cat/docs/arc/Home/LAgencia/Publicacions/Centre%20catala%20del%20reciclatge%20%28CCR%29/Guia%20PXG_EN.pdf</a></li> <li>• PAYT PROGRAMS IN CANADA <a href="http://www.recyc-quebec.gouv.qc.ca/Upload/Publications/MICI/RENDEZ-VOUS2006/11-MKelleher_8nov.pdf">http://www.recyc-quebec.gouv.qc.ca/Upload/Publications/MICI/RENDEZ-VOUS2006/11-MKelleher_8nov.pdf</a></li> </ul>
6	5 Prevention ideas	<p><b>1. IMPLEMENTATION OF PAYT SYSTEMS IN DRESDEN (GERMANY)</b></p> <ul style="list-style-type: none"> <li>• <a href="http://web.tu-dresden.de/intecuspalyt/">http://web.tu-dresden.de/intecuspalyt/</a></li> <li>• <a href="http://www.arc.cat/jornades/jornadaprevencio2010/pon_4.pdf">http://www.arc.cat/jornades/jornadaprevencio2010/pon_4.pdf</a></li> </ul> <p>Dresden (Germany) has introduced a Pay-as-you-throw system (PAYT) for better waste management. The idea is to make consumers aware of the quantities of waste they create and to make the cost of waste management fair to the consumer. With the PAYT system citizens pay only for the quantity of waste they discard. Before that, waste disposal was included in taxes and municipal fees. This meant that everybody paid the same amount, irrespective of the amount of waste they threw away. With the introduction of the PAYT system in 1994, waste production amount in Dresden has been lowered by 50%, despite the fact that citizen income and consumption are steadily increasing. Consumers have realized how much waste they generate, since the waste are being weighed and disposal is charged per kilo of waste. Citizens now systematically compost and recycle their waste. This inevitably had a positive impact on the environment, since less waste ends up in landfills. Citizens are very satisfied with the system because it is fair, since every household pays for what it throws away, and many households can save money, since they don't have a fixed municipal fee to pay.</p> <p><b>2. IMPLEMENTATION OF PAYT SYSTEMS IN CYPRUS</b></p>

		<ul style="list-style-type: none"> <li>• <a href="http://payt.gr/index.php?option=com_content&amp;view=article&amp;id=37&amp;Itemid=15&amp;lang=el">http://payt.gr/index.php? option=com_content&amp;view=article&amp;id=37&amp;Itemid=15&amp;lang=el</a></li> <li>• <a href="http://payt.gr/">http://payt.gr/</a></li> </ul> <p>As a part of the LIFE 07/ENV/GR/000271 HECPAYT European program “Developing a PayAsYouThrow (PAYT) system in Greece, Estonia and Cyprus” there was an effort to explore the possibilities of choosing and applying the most PAYT proper system or systems in Greece, Estonia and Cyprus for the first time.</p> <p>The most important actions of the program in <b>Cyprus</b> were:</p> <ul style="list-style-type: none"> <li>• Production and distribution of a special leaflet for the PAYT and the LIFE program. The leaflet was distributed mainly to specialized recipients, relevant to PAYT, such as personnel from local authorities, government, alternative waste management, social institutions etc.</li> <li>• Study for the implementation of PAYT systems in municipalities in Cyprus. For the needs of the study there was a public opinion poll about the implementation of PAYT in Cyprus and a research relevant to PAYT in 26 municipalities and communities. Utilizing the experience gained in the program, the study explored the possibilities of applying PAYT systems in Cyprus municipalities. The study showed that necessary conditions exist to implement PAYT systems in Cyprus relatively easily, as long as the government and the local authorities are convinced that its implementation is socially and financially beneficial.</li> <li>• Organizing a final conference to promote the PAYT and to present the outcomes of the program. The conference was addressed to central and local government officials from Cyprus and it had a very positive impact regarding the presentation of the PAYT systems and the transfusion of experience of their implementation in Cyprus.</li> </ul> <p><b>3. IMPLEMENTATION OF PAYT SYSTEMS IN ELEFSINA/GREECE</b></p> <ul style="list-style-type: none"> <li>• <a href="http://payt.gr/index.php?option=com_content&amp;view=article&amp;id=84&amp;Itemid=97&amp;lang=el">http://payt.gr/index.php? option=com_content&amp;view=article&amp;id=84&amp;Itemid=97&amp;lang=el</a></li> <li>• <a href="http://payt.gr/">http://payt.gr/</a></li> </ul> <p>As a part of the LIFE 07/ENV/GR/000271 HECPAYT European program “Developing a PayAsYouThrow (PAYT) system in Greece, Estonia and Cyprus” there was a pilot study to implement PAYT systems in about 1200-1500 households and enterprises in the Municipality of Elefsina, <b>Greece</b>, where invaluable experience about the problems of implementing a PAYT system in a small to medium, as regards to population, municipality in Greece.</p> <p>Actions performed in the area included registration of the trash bins, as well as their geolocation through GIS. Also, the produced waste, residues and packages were recorded and there was an analysis concerning the composition of the residues. There was an extensive campaign of awareness, in order to provide information and details to the residents of the pilot area, using the door-to-door method.</p> <p><b>4. IMPLEMENTATION OF PAYT SYSTEMS IN FLANDERS/BELGIUM</b></p> <p><a href="http://www.regions4recycling.eu/upload/public/Good-Practices/GP_OVAM_PAYT.pdf">http://www.regions4recycling.eu/upload/public/Good-Practices/GP_OVAM_PAYT.pdf</a></p> <p>In the beginning of the 90's there was a high resistance and opposition by part of the Flemish population against landfilling and incineration. At that time most of the Flemish municipalities switched from a flat household tax to Differentiated Tariffs (DifTar).</p> <p>In Belgium, the waste policy is fully regionalised. Therefore, the Flemish government is responsible for the implementation of the PAYT-system. The Public Waste Agency of Flanders (OVAM), the principle authority for waste management</p>
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		<p>in Flanders, carries out the PAYT-system in collaboration with the municipalities or associations of municipalities.</p> <p>First it was implemented by stickers or required waste bags sold at the city hall and local stores. Later on weight-based systems on residual waste and bio-waste with electronic registration are implemented. Waste recycling was promoted very intensively. There have been huge information and awareness campaigns to stimulate the citizens .</p> <p>Results were:</p> <ul style="list-style-type: none"> <li>- Increasing of the separate collection of MSW at source (2012: 71%)</li> <li>- Strong reduction of residual waste (average 149kg/inh/year)</li> <li>- Incineration and landfilling of MSW are pushed away over the last 15 years</li> </ul> <p><b>5. IMPLEMENTATION OF PAYT SYSTEMS IN BATH,MAINE (USA)</b></p> <ul style="list-style-type: none"> <li>• <a href="http://wastezero.com/2013/09/payt-success-bath-maine/">http://wastezero.com/2013/09/payt-success-bath-maine/</a></li> <li>• <a href="http://www.cityofbath.com/PAYT/">http://www.cityofbath.com/PAYT/</a></li> </ul> <p>Over 140 communities in Maine, USA are using today a PAYT program. The City of Bath in Main started implementing a PAYT system in 2007. Bath is a coastal community of around 8,500 residents, applied a program which combines PAYT with recycling for around 3,000 households, and over their first five years they found that they cut their solid waste tonnage by 60%, and they increased their recycling volume by 35%.</p> <p>The citizens saw significant financial benefits from these changes: they had increased revenue from the sale of recyclable goods and valuable municipal budget was freed up for other important civic responsibilities, such as constructing a gas management system to address odor and safety issues at the site, without adding to the residential property tax burden.</p>
7	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://www.payt.gr/">http://www.payt.gr/</a></li> <li>• <a href="http://www.ecorec.gr/">http://www.ecorec.gr/</a></li> <li>• <a href="http://www.zerowasteeurope.eu/tag/payt/">http://www.zerowasteeurope.eu/tag/payt/</a></li> <li>• <a href="http://wastezero.com/category/best-practices/">http://wastezero.com/category/best-practices/</a></li> <li>• <a href="http://wastezero.com/resource-types/presentations/">http://wastezero.com/resource-types/presentations/</a></li> <li>• <a href="http://web.utk.edu/~dfolz/payt.pdf">http://web.utk.edu/~dfolz/payt.pdf</a></li> <li>• <a href="http://www.efc.sog.unc.edu/sites/www.efc.sog.unc.edu/files/WasteZero%20Optional%20Workshop.pdf">http://www.efc.sog.unc.edu/sites/www.efc.sog.unc.edu/files/WasteZero%20Optional%20Workshop.pdf</a></li> <li>• <a href="https://ec.europa.eu/budget/euprojects/pay-you-throw-technology-boots-recycling-portugal_en">https://ec.europa.eu/budget/euprojects/pay-you-throw-technology-boots-recycling-portugal_en</a></li> <li>• <a href="http://waste360.com/mag/waste_payasyou_throw_pay">http://waste360.com/mag/waste_payasyou_throw_pay</a></li> <li>• <a href="https://www.dca.ga.gov/development/EnvironmentalManagement/programs/downloads/pay.pdf">https://www.dca.ga.gov/development/EnvironmentalManagement/programs/downloads/pay.pdf</a></li> </ul> <p><b>VIDEOS</b></p> <ul style="list-style-type: none"> <li>• <a href="https://www.youtube.com/watch?v=TZbMLQxuMT0">https://www.youtube.com/watch?v=TZbMLQxuMT0</a></li> <li>• <a href="https://www.youtube.com/watch?v=yCa38VVma1Y">https://www.youtube.com/watch?v=yCa38VVma1Y</a></li> <li>• <a href="https://www.youtube.com/watch?v=_NVqjA_17Eg">https://www.youtube.com/watch?v=_NVqjA_17Eg</a></li> <li>• <a href="https://www.youtube.com/watch?v=j_dM9FpRSV4">https://www.youtube.com/watch?v=j_dM9FpRSV4</a></li> <li>• <a href="https://www.youtube.com/watch?v=Acd0IU-7qqA">https://www.youtube.com/watch?v=Acd0IU-7qqA</a></li> <li>• <a href="https://www.youtube.com/watch?v=9HhuPPdWWsI">https://www.youtube.com/watch?v=9HhuPPdWWsI</a></li> </ul>
8	Prevention Ideas	You can see all the suggested Prevention ideas for the specific administrative initiative at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
9	Suggest your prevention ideas	Suggest your own prevention idea for the specific administrative initiative at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.3.3 Public Awareness

No	Data categories	Public Awareness
1	General information	<p>Waste prevention sits at the top of the waste hierarchy and is the most sustainable waste management option. Awareness raising is therefore an important component of the process to manage the impacts of waste and promote sustainable waste management. Public awareness is an important factor as it increases enthusiasm and support, stimulates mobilization and action, and mobilizes local knowledge and resources. Raising political awareness is also important as policy makers and politicians are key actors in the policy process of adaptation. Awareness raising requires strategies of effective communication to reach the desired outcome. The combination of these communication strategies for a targeted audience for a given period can broadly be described as 'awareness raising campaigns'. The aim of awareness raising campaigns most often differs between contexts but generally includes an increased concern, informing the targeted audience, creating a positive image, and attempts to change their behavior. Awareness campaigns are tools used worldwide to increase public support and participation for a variety of issues, ranging from environmental protection to election campaigns. The core idea behind them is that popular support for any issue can be greatly increased if the public is informed about it adequately and comprehensively. This is particularly true for issues where non-cooperation from the public will lead to negative effects on themselves.</p> <p>Main Objectives of Public Awareness in local administration for Sustainable Waste Management (SWM) are:</p> <ol style="list-style-type: none"> <li>1. Informing the Public of New Methods and Requirements</li> <li>2. Gaining Public Support for SWM Initiatives</li> <li>3. Building the profile of Sustainable Waste Management</li> </ol> <p>Why raise awareness on waste prevention?:</p> <ul style="list-style-type: none"> <li>• To raise awareness about waste reduction strategies and about the policies of the LA on this subject</li> <li>• To promote sustainable waste reduction actions</li> <li>• To highlight the work accomplished by various actors, through concrete examples of waste reduction</li> <li>• To encourage changes in the behavior of local people (consumption, production) in everyday life.</li> </ul> <p>Public Awareness campaigns can take many shapes and forms. Just a few examples are information leaflets, public hearings, radio programs, advertisements, lectures and school curriculum interventions. Surveys of practices and/or awareness of waste management issues can be a useful first step in telling the community that action is being taken to improve upon the existing situation. To develop a successful strategy the most appropriate mix of tools for the city must be combined. The list below gives an overview of some of the many tools available that can be combined for this purpose, distinguished broadly by cost categories. The list is not complete, and not all of these tools are relevant in all situations and locations. The art is to combine the various tools so, that the knowledge and awareness on a specific SWM issue in a community or target group is maximised.</p> <p><i>Low Cost Tools</i></p> <ol style="list-style-type: none"> <li>1. Mass activities such as: articles in newspapers, press releases, speeches,</li> </ol>

		<p>guest appearances of municipality personnel in radio programs, public service announcements</p> <p>2. Guest lectures for schools , universities , clubs , interest groups/ NGOs, public events</p> <p>3. Simple internet site</p> <p>4. Poster contests and exhibitions</p> <p>5. Workforce courtesy training</p> <p>6. Street plays</p> <p>7. Door to Door visits by (voluntary) awareness workers</p> <p>8. Neighborhood committees for information and awareness building regarding public health, environment and solid waste.</p> <p><i>Medium Cost Tools</i></p> <p>1. In-depth web page on MSWM issues and municipal activities in the field</p> <p>2. Establishing a public complaints unit</p> <p>3. "Waste Telephone Hotline" information service for households, local industry, business</p> <p>4. Information documents such as newsletters, leaflets, posters, facts sheets , briefing papers, Press kits, School resource packs</p> <p>5. Events such as press conferences, pilot project openings, educational events, award ceremonies, specific local workshops, public information evenings</p> <p>6. Community involvement projects such as promotion of local clean-up days, recycling pilot projects, ecological enhancement pilot projects, separate collection week, best-kept-street competitions, children/youth group projects</p> <p>7. Audio-visual aids such as training videos for work force, information videos for the community, slide shows</p> <p>8. Improve appearance of work force for example laundry service for waste workers uniforms regular cleaning of waste collection vehicles supply gloves ,etc</p> <p>9. Eco-award schemes for districts, companies, for outstanding municipality workers, competitions in schools</p> <p><i>High Cost Tools</i></p> <p>1. Improve MSWM service "corporate" identity such as development of a logo, letterheads, paint and keep municipal building clean, new uniforms for workforce</p> <p>2. Employ special information and relations officer for the public and the business community</p> <p>3. Bring SWM issues into schools introduce to curricula as part of environmental or hygiene/health education, develop appropriate textbooks, training programs for teachers and headmasters onSWM/environment/public health</p> <p>4. Buy media space and advertising expertise , advertisements, commercials, billboards</p> <p>5. Ensure aesthetically acceptable designs of MSWM facilities</p> <p>6. Door to Door visits by awareness workers</p> <p><a href="http://www.epa.ie/waste/">http://www.epa.ie/waste/</a></p> <p><a href="http://www.ewwr.eu/">http://www.ewwr.eu/</a></p>
2	Effectiveness of the administrative Initiative in the Prevention of materials – products	<ul style="list-style-type: none"> <li>• Plastic bags: <b>Very</b></li> <li>• Food and kitchen waste: <b>Very</b></li> <li>• Green Waste: <b>Very</b></li> <li>• Plastic bottles: <b>Very</b></li> <li>• Packaging: <b>Very</b></li> <li>• Clothing &amp; textiles: <b>Very</b></li> <li>• Games: <b>Very</b></li> <li>• Furniture: <b>Very</b></li> <li>• WEEE: <b>Very</b></li> <li>• Paper: <b>Very</b></li> </ul>

		<ul style="list-style-type: none"> <li>C&amp;D waste: <b>Very</b></li> <li>Hazardous household waste: <b>Very</b></li> <li>Various household items: <b>Very</b></li> </ul>
3	Effectiveness of the administrative Initiative in the Prevention in site categories	<p>How effective the public awareness can be in the success of prevention activities in the following site categories:</p> <ul style="list-style-type: none"> <li>Implementation of administrative initiative in Green Points: <b>Little</b></li> <li>In schools: <b>Very</b></li> <li>In offices and business: <b>Very</b></li> <li>In hotels: <b>Quite</b></li> <li>In dining/feeding facilities: <b>Very</b></li> <li>In sites of people gathering (see chapter 1.19): <b>Very</b></li> </ul>
4	Possible advantages of the implementation of the Administrative initiative	<ul style="list-style-type: none"> <li>Are there awareness activities that can reduce "significantly" or even "a little" waste generation?: <b>Yes</b></li> <li>Are there awareness activities that can reduce "significantly" or even "a little" the hazardousness of remaining waste?: <b>Yes</b></li> <li>Are there awareness activities that can reduce "significantly" or even "a little" the management costs of the remaining waste?: <b>Yes</b></li> <li>Are awareness activities that create "no" or "a little" organizational problems to the LA?: <b>Yes</b></li> <li>Are there awareness activities with 'no' or "small" implementation costs for the LA?: <b>Yes</b></li> <li>Are there awareness activities that create "a few", "several" or "many" new jobs?: <b>Yes</b></li> </ul>
5	Useful documentation	<p><b>Training guides and “Train the Trainers” course on green waste management solutions.</b> The aim is to train officers of Local Government on alternative waste management practices in order ensure that the knowledge produced will “remain” in municipalities also after the end of the project.  <a href="http://www.zerowastepro.eu/the-project/activities">http://www.zerowastepro.eu/the-project/activities</a></p> <p><b>Public Education Campaigns that Promote Waste Reduction.</b> Overview of several public education campaigns <a href="http://www.calrecycle.ca.gov/Government">http://www.calrecycle.ca.gov/Government</a></p> <p>Effective strategies to promote public awareness of waste prevention and to reduce the generation of specific types of waste are already operating in EU Member States and abroad. Practices have been selected to demonstrate excellent examples of informational, promotional and regulatory measures to stimulate the prevention of waste. They were selected in consideration of the following criteria:</p> <p>Targeted: Practices have a strong waste prevention focus, clearly distinct from other waste management strategies or broad environmental goals</p> <p>Innovative: Practices use original or resourceful techniques for waste prevention</p> <p>Replicable: Practices can be easily reproduced and are similarly relevant in regions across Europe</p> <p>Representative: Practices originate from a wide range of countries, operate at national, regional and local level, and target a variety of waste streams</p> <p>Effective: Practices have clearly defined objectives and measurable results</p> <p>On web page you will find factsheets on the selected waste prevention best practices:  <a href="http://ec.europa.eu/environment/waste/prevention/practices.htm">http://ec.europa.eu/environment/waste/prevention/practices.htm</a></p> <p><b>CO2 Calculator handbook:</b> Instructions for using the CO2 online tool which helps measure the CO2 footprint of the Municipalities and Region.  <a href="http://www.zerowastepro.eu/the-project/activities">http://www.zerowastepro.eu/the-project/activities</a></p>
6	Prevention Ideas	<ul style="list-style-type: none"> <li><b>Wasteless in Chianti.</b> The aim of the project is to contribute to the success of the European and National policies on waste prevention and sustainable consumption through the implementation and monitoring of an integrated waste prevention and reduction program in a significant and internationally known territory as Chianti - Province of Florence-, thus providing to Member States a relevant case</li> </ul>

		<p>study for the establishment of their waste prevention programmes. The most important element of the program implementation is the mobilization and encouragement of a broad range of local stakeholders and the public to take action and so demonstrate also to other territories that waste reduction and sustainable development could be effectively achieved by means of integrated and participated approaches and concrete commitments, actions and tools.</p> <ul style="list-style-type: none"> <li>• <b>Halmstad schools competing to reduce food waste in canteens, Sweden.</b> The project was a long term information campaign targeted at the middle and high schools at Halmstad municipality, Sweden. Within the campaign the food was weighed four times. The campaign was designed as a contest between the schools where the one throwing away the least at each weighing won and receive prizes from local authorities.</li> <li>• <b>Accompanied paper waste prevention in schools in Brussels.</b> The goal of the project is to change the behavior of pupils and the school as a whole to produce less waste, more specifically: consume less paper and thus reduce paper waste generation. Teachers/Schools who wish to engage a class or the entire school in actions in favour of environmental protection can obtain assistance from LA.</li> </ul>
7	Useful websites	<ul style="list-style-type: none"> <li>• <a href="http://www.ewwr.eu/">http://www.ewwr.eu/</a></li> <li>• <a href="http://waste-management-world.com/">http://waste-management-world.com/</a></li> <li>• <a href="http://www.zerowastepro.eu/">www.zerowastepro.eu/</a></li> <li>• <a href="http://www.gdrc.org/uem/waste/swm-finge1.htm">http://www.gdrc.org/uem/waste/swm-finge1.htm</a></li> <li>• <a href="http://www.prewaste.eu/">http://www.prewaste.eu/</a></li> <li>• <a href="http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20prevention%20guidelines.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20prevention%20guidelines.pdf</a></li> </ul>
8	Prevention Ideas	You can see all the suggested Prevention ideas for the specific administrative initiative at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
9	Suggest your prevention ideas	Suggest your own prevention idea for the specific administrative initiative at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.3.4 e-Government

No	Data categories	e-Government
1	General information	<p>According to the United Nations, 'e-government can be referred to as the use and application of information technologies in public administration to streamline and integrate workflows and processes, to effectively manage data and information, enhance public service delivery, as well as expand communication channels for engagement and empowerment of people<sup>117</sup>'. Its main objectives are therefore to improve the democratisation, the transparency and the efficiency of the administration through the use of ICT (Information and Communication Technologies). The positive side effects of e-government are supposed to be a cut in costs, as well as a more sustainable government through the decreasing of paper use and the energy efficiency of public services.</p> <p>Indeed, e-government provides several solutions to cut down the paper consumption of a local authority by providing dematerialised tools concerning its communication and its bureaucracy. Concerning waste management itself, e-government may also provide smart solutions to cut costs and facilitate access to information.</p>

117 [http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/E-Gov\\_Complete\\_Survey-2014.pdf](http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/E-Gov_Complete_Survey-2014.pdf), p.22

2	Effectiveness of the administrative Initiative in the Prevention of materials – products	<p>Apart from the reduction of paper waste aimed by this scheme, e-government also provides several solutions to reduce municipal waste by providing information to citizens and businesses to help them reduce their waste. For example, a Singaporean website provides useful tips to cut food waste<sup>118</sup>.</p> <p>It may also help the collection of specific waste streams. For example, the Rhône-Alpes region proposes a tool which helps individuals and businesses to know where is the most accurate and closest collection point for every type of waste<sup>119</sup>.</p> <p>The other way round, e-government may also facilitate the share of good practices within a community and permit citizens to share their advices and propose services related to waste reduction towards their administration<sup>120</sup>.</p> <p>E-government may therefore provide support in the reduction of the following waste stream, even if it is impossible to know at this stage to what extent.</p> <ul style="list-style-type: none"> <li>• Plastic bags: <b>Maybe</b></li> <li>• Food and kitchen waste: <b>Maybe</b></li> <li>• Green Waste: <b>Maybe</b></li> <li>• Plastic bottles: <b>Maybe</b></li> <li>• Packaging: <b>Maybe</b></li> <li>• Clothing &amp; textiles: <b>Maybe</b></li> <li>• Games: <b>Maybe</b></li> <li>• Furniture: <b>Maybe</b></li> <li>• WEEE: <b>Not at all</b> - In fact, including the use of EEEs to replace the paper work, e-government implies a risk to increase e-waste. LAs have therefore to pay attention to use EEEs that are easily repairable and take a good care of that equipment in order to have an impact as reduced as possible.</li> <li>• Paper: <b>Very</b> - Paper waste is the waste stream which can be reduced the more thanks to e-government. Indeed, it provides dematerialised communication means and ways to avoid using paper within the bureaucracy work<sup>121</sup>.</li> <li>• C&amp;D waste: <b>Maybe</b></li> <li>• Hazardous household waste: <b>Maybe</b></li> <li>• Various household items: <b>Maybe</b></li> </ul>
3	Effectiveness of the administrative Initiative in the Prevention in site categories	<ul style="list-style-type: none"> <li>• Implementation of administrative initiative in Green Points: <b>Very efficient</b> - E-government may help municipalities to inform their citizens about the locations, the type of waste collected, the state in which the wastes/items should be brought, and even the space remaining in the green points. E-government is definitely a helping hand for green points.</li> <li>• In schools: <b>Highly effective</b>- Children are now very accustomed to the use of ICT and are often more comfortable with those tools than with paper. The interactive aspect of ICT makes it so much easier to raise awareness concerning waste reduction towards children. A Hungarian school created and experienced an interesting game concerning the issue of food and packaging waste<sup>122</sup>.</li> <li>• In offices and business: <b>Highly effective</b> - Implementing an E-government, in offices and businesses, is also called 'going paperless'. Apart from reducing the use of paper, it may also help the implementation of waste audits, or internal information about waste reduction.</li> </ul>

118 <http://www.savefoodcutwaste.com/>

119 <http://www.sindra.org/quels-dechets-quelles-solutions/pour-un-particulier> (only in french)

120 [https://books.google.be/books?id=XqclBAAAQBAJ&pg=PA157&lpg=PA157&dq=e-government+waste&source=bl&ots=Du\\_ACMX0Aa&sig=y-8QSWTPK4zN0H3oMX4mzi-fBA&hl=en&sa=X&ved=0ahUKEwjZ98G1qbjJAhWHYA4KHY1ZCeE4ChDoAQgeMAA#v=onepage&q=e-government%20waste&f=false](https://books.google.be/books?id=XqclBAAAQBAJ&pg=PA157&lpg=PA157&dq=e-government+waste&source=bl&ots=Du_ACMX0Aa&sig=y-8QSWTPK4zN0H3oMX4mzi-fBA&hl=en&sa=X&ved=0ahUKEwjZ98G1qbjJAhWHYA4KHY1ZCeE4ChDoAQgeMAA#v=onepage&q=e-government%20waste&f=false), p.157

121 <http://www.docfinity.com/paperless-processing-a-guide-for-municipal-and-state-agencies/>

122 [http://www.ewwr.eu/docs/case\\_studies/HU\\_case-study\\_awards2014\\_%C3%9A%C3%81G.pdf](http://www.ewwr.eu/docs/case_studies/HU_case-study_awards2014_%C3%9A%C3%81G.pdf)

		<ul style="list-style-type: none"> <li>• In hotels: <b>Highly effective</b> - For the same reasons as offices and businesses, with maybe a strong focus on cleaning products and food waste.</li> <li>• In dining/feeding facilities: <b>Highly effective</b> - For the same reasons as offices and businesses, with maybe a strong focus on food wastes.</li> <li>• In sites of people gathering (see chapter 1.3.5)</li> </ul>
4	Possible advantages of the implementation of the Administrative initiative	<ul style="list-style-type: none"> <li>• Are there prevention activities that can reduce "significantly" or even "a little" waste production?: <b>Yes</b> (Creation of a citizen's contacts database, Going paperless within your administration)</li> <li>• Are there prevention activities that can reduce "significantly" or even "a little" the danger of remaining waste?: <b>No</b></li> <li>• Are there prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste: <b>A little</b> (Creation of a waste collection database)</li> <li>• Are there prevention activities that cause "no" or "little" organizational problems to the LA?: <b>Yes</b> (Creation of a citizen's contacts database, Edition of a waste reduction section in the municipal website)</li> <li>• Are there prevention activities with 'no' or 'little' implementation costs for the LA?: <b>Yes</b> (Creation of a citizen's contacts database, Edition of a waste reduction section in the municipal website)</li> <li>• Are there prevention activities that create "a few", "several" or "many" jobs?: <b>No data</b></li> </ul>
5	Useful documentation	<ul style="list-style-type: none"> <li>• <a href="http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/E-Gov_Complete_Survey-2014.pdf">http://unpan3.un.org/egovkb/Portals/egovkb/Documents/un/2014-Survey/E-Gov_Complete_Survey-2014.pdf</a></li> <li>• <a href="http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0743:FIN:EN:PDF">http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0743:FIN:EN:PDF</a></li> </ul>
6	Prevention ideas	<p><b>Creation of a citizen's contacts database</b>  <i>For citizens willing to receive dematerialised information rather than a shelfful of paper in their mailbox, the LA should create and keep a list of e-mail addresses and cell phone numbers in order to be used for the distribution of newsletters, notifications and information via email and/or sms.</i></p> <p><b>Going paperless within your administration</b>  Develop a suitable platform (or use an existing one) on the internet for all types of LA procurements. Within the platform, all relevant information and time schedules about the procurements are given, questions by all parties interested are answered and electronic bids are submitted. Thus, we can save man-hours, financial resources, paper and other office supplies and also reduce personnel transportations and achieve transparency in all procedures.</p> <p><b>Edition of a waste reduction section in the municipal website</b>  Use the LA's website to publish some tips about how to reduce waste. Having a good knowledge about the consumption of its citizens, a municipality can provide an added value to the lists of waste reduction tips that already exists. You can get inspired <a href="#">here</a>.</p> <p><b>Creation of a waste collection database</b>  In order to improve the separate collection of waste, as well as to encourage re-use, you can edit a waste collection database which allows your citizens to know the best solution for the management of their waste. Providing the item they want to dispose of, as well as their location, citizens will know where the closest collection point is. Get inspired with <a href="#">this system</a> (only in FR).</p> <p><b>Municipal sharing network</b>  Use the website of the LA to manage a sharing network where citizens can propose the items that they want to dispose of or to share, and where those who are searching for specific items to buy or to use can do so at competitive prices and in a less wasteful way.</p>

		Get inspired <a href="#">here</a> .
7	Useful websites	<a href="http://www.docfinity.com/paperless-processing-a-guide-for-municipal-and-state-agencies/">http://www.docfinity.com/paperless-processing-a-guide-for-municipal-and-state-agencies/</a>
8	Prevention Ideas	You can see all the suggested Prevention ideas for the specific administrative initiative at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality">www.Waste-Prevention.gr/Prevention/Choose what prevention action fit in your municipality</a>
9	Suggest your prevention ideas	Suggest your own prevention idea for the specific administrative initiative at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention">www.Waste-Prevention.gr/Prevention/Suggest your own idea for waste prevention</a>

### 1.3.5 Other Administrative Initiatives

No	Categories of Data	Other Administrative Initiatives
1	General information	<p>Except for the previous 4 basic administrative initiatives, LAs can undertake to implement many more that will result in waste prevention in their area. The LAs, knowing better than anyone the conditions and needs of their municipalities, can investigate which other initiatives they can implement. An indicative, but not exhaustive, list of such initiatives follows:</p> <ol style="list-style-type: none"> <li>1. Development of a full Prevention Plan for the LA, complete with an implementation schedule and commitment of financial resources for the implementation. This Guide can contribute significantly to the development and implementation of a full Prevention Plan for all possible actions and initiatives that the LA could undertake, presently and in the future, by committing certain systematic funds of the LA.</li> <li>2. Compilation of an annual report by the LA, containing: a) a presentation of all the prevention activities that the LA implemented the previous year, b) the extent to which the goals set were achieved, c) commitment and scheduling for the following year of the goals, activities, time schedules and resources for the continuation of the existing Prevention Activities and the scheduling new ones.</li> <li>3. Adoption and gradual implementation of the EMAS European Standard or the ISO 14001 International Standard by the LA. Implementation of such standards in the LA, besides including activities for the integrated waste management in the LA, will accelerate the procedures for the effective application of other prevention activities in the LA.</li> <li>4. Promotion of the EMAS European Standard or the ISO 14001 International Standard to the businesses and organizations in the LA. The example of the implementation of the EMAS European Standard or the ISO 14001 International Standard by the LA can be catalytic for the adoption of these standards by organizations and businesses in the area.</li> <li>5. Production and promotion of a «Special Prevention Sign» awarded by the LA to enterprises in the LA that have proven to have taken Prevention - Recycle – Reuse initiatives. Such environmental signs can be easily adopted by large businesses within their Corporate Social Responsibility policy.</li> <li>6. The previous activity can be enhanced furthermore by a campaign to inform residents to prefer enterprises that have been awarded the «Special Prevention mark/brand/sign» by the LA.</li> <li>7. Adoption of a time schedule to enforce the obligation for LA suppliers to apply Sustainable Purchasing as a precondition of cooperation with the LA. It is very important that all suppliers to the LA are informed that they will also have to apply Sustainable Purchasing if they wish to remain as suppliers to the LA. The adoption of such initiatives has multiplier effects for the LA. The results will have a</li> </ol>

		<p>much more significant impact if the entire supply chain is addressed.</p> <p>8. Annual rewarding of Prevention initiatives in the area by the LA. The institution of annual awards by the LA is a very effective tool – an institution that an LA should seriously consider implementing. In cases of LAs with many large businesses and many social initiatives about Prevention, such an institution could enhance the effectiveness of every Prevention Activity in the area.</p> <p>9. The LA, while organizing various types of events, applies the suggestions of the relative Guide in order to minimize the environmental impact from the event. Self-committing to this activity by the LA is a significant administrative initiative, one that must be carefully prepared in order to be applied in every event organized by the LA. The following are required: a) suitable know-how by the LA staff when organizing such an event, b) suitable suppliers of products or services in the area. So, the minimization of environmental impacts (and thus, the waste) in every event of the LA, shall always be sought.</p> <p>10. The previous activity can be enhanced furthermore by a campaign to encourage its partners to apply the suggestions of the relative Guide, whenever any of them organize any of various types of events, in order to minimize the environmental impact from the event.</p> <p>11. If there are Industrial Areas in the LA area, the LA can institute systematic awareness activities about the benefits of Industrial Symbiosis, where the waste of one industry is the raw material for another, aiming at Zero Production of Waste. This initiative could be easily be implemented in cooperation with the Industrial Areas managers, who would have a vested interest in its success.</p> <p><b>Relevant links:</b></p> <ul style="list-style-type: none"> <li>• <a href="http://ec.europa.eu/environment/emas/index_en.htm">http://ec.europa.eu/environment/emas/index_en.htm</a></li> <li>• <a href="http://ems.iema.net/emas">http://ems.iema.net/emas</a></li> <li>• <a href="http://ems.iema.net/iso14001">http://ems.iema.net/iso14001</a></li> <li>• <a href="http://www.iso.org/iso/home/standards/management-standards/iso14000.htm">http://www.iso.org/iso/home/standards/management-standards/iso14000.htm</a></li> <li>• <a href="http://www.eur-isa.org/">http://www.eur-isa.org/</a></li> <li>• <a href="http://ec.europa.eu/environment/resource_efficiency/re_platform/index_en.htm">http://ec.europa.eu/environment/resource_efficiency/re_platform/index_en.htm</a></li> <li>• <a href="https://en.wikipedia.org/wiki/Industrial_symbiosis">https://en.wikipedia.org/wiki/Industrial_symbiosis</a></li> <li>• <a href="http://www.innovationseeds.eu/Network-Library/Core-Articles/European-Industrial-Symbiosis-Association-EUR-ISA.kl">http://www.innovationseeds.eu/Network-Library/Core-Articles/European-Industrial-Symbiosis-Association-EUR-ISA.kl</a></li> <li>• <a href="http://ec.europa.eu/environment/emas/local/pdf/emascities_en.pdf">http://ec.europa.eu/environment/emas/local/pdf/emascities_en.pdf</a></li> <li>• <a href="http://www.innovationseeds.eu/Network-Library/Core-Articles/GreenEcoNet-Connecting-SMEs-For-A-Green-Economy.kl">http://www.innovationseeds.eu/Network-Library/Core-Articles/GreenEcoNet-Connecting-SMEs-For-A-Green-Economy.kl</a></li> <li>• <a href="http://www.innovationseeds.eu/Network-Library/Core-Articles/ECO-INNOVERA.kl">http://www.innovationseeds.eu/Network-Library/Core-Articles/ECO-INNOVERA.kl</a></li> <li>• <a href="http://www.eventimpacts.com/environmental/">http://www.eventimpacts.com/environmental/</a></li> <li>• <a href="http://www.eventimpacts.com/environmental/basic/">http://www.eventimpacts.com/environmental/basic/</a></li> <li>• <a href="http://www.eventimpacts.com/environmental/intermediate/">http://www.eventimpacts.com/environmental/intermediate/</a></li> <li>• <a href="http://www.eventimpacts.com/environmental/advanced/">http://www.eventimpacts.com/environmental/advanced/</a></li> <li>• <a href="http://www.unep.org/awards/">http://www.unep.org/awards/</a></li> <li>• <a href="http://ec.europa.eu/environment/awards/index.html">http://ec.europa.eu/environment/awards/index.html</a></li> <li>• <a href="http://www.goldmanprize.org/">http://www.goldmanprize.org/</a></li> <li>• <a href="http://www.environment.nsw.gov.au/greenglobes/">http://www.environment.nsw.gov.au/greenglobes/</a></li> </ul>
2	Effectiveness of the administrative Initiative in the Prevention	<p>How effective can prevention actions be for the following material-products at municipalities that implement some of the above initiatives?</p> <ul style="list-style-type: none"> <li>• Plastic bags: <b>Little to Very</b></li> <li>• food and kitchen waste: <b>Little to Very</b></li> <li>• Green Waste: <b>Little to Very</b></li> <li>• Plastic bottles: <b>Little to Very</b></li> </ul>

	of materials – products	<ul style="list-style-type: none"> <li>Packaging: <b>Little to Very</b></li> <li>Clothing &amp; textiles: <b>Little to Quite</b></li> <li>Games: <b>Little to Quite</b></li> <li>Furniture: <b>Little to Very</b></li> <li>WEEE: <b>Little to Very</b></li> <li>Paper: <b>Little to Very</b></li> <li>C&amp;D waste: <b>Little to Very</b></li> <li>Hazardous household waste: <b>Little to Quite</b></li> <li>Various household items: <b>Little to Quite</b></li> </ul>
3	Effectiveness of the administrative Initiative in the Prevention in site categories	<p>Please note how <b>effective</b> can the implementation of some of the above administrative initiatives can be in the success of prevention activities in the following site categories:</p> <ul style="list-style-type: none"> <li>Implementation of administrative initiative in Green Points: <b>Little to Very</b></li> <li>In schools: <b>Very</b></li> <li>In offices and business <b>Very</b></li> <li>In hotels <b>Very</b></li> <li>In dining/feeding facilities <b>Very</b></li> <li>In sites of people gathering (see chapter 1.19): <b>Very</b></li> </ul>
4	Possible advantages of the implementation of some the Administrative initiatives	<ul style="list-style-type: none"> <li>there are prevention activities that can reduce "significantly" or even "a little" waste generation: <b>Yes</b></li> <li>there are prevention activities that can reduce "significantly" or even "a little" the hazardousness of remaining waste: <b>Yes</b></li> <li>there are prevention activities that can reduce "significantly" or even "a little" the management costs of the remaining waste: <b>Yes</b></li> <li>there are prevention activities that create "no" or "a little" organizational problems to the LA: <b>Yes</b></li> <li>there are prevention activities with 'no' or 'small' implementation costs for the LA: <b>Yes</b></li> <li>there are prevention activities that create "a few", "several" or "many" new jobs: <b>Yes</b></li> </ul>
5	Useful documentation	<ul style="list-style-type: none"> <li><a href="http://is4ie.org/resources/Documents/uncovering%20IE.pdf">http://is4ie.org/resources/Documents/uncovering%20IE.pdf</a></li> <li><a href="http://old.ubc-environment.net/">http://old.ubc-environment.net/</a></li> <li>2007_EMAS_Implementation_Guidebook_GR (υπάρχει στο site του LAWPreT)</li> <li><a href="http://ec.europa.eu/environment/resource_efficiency/documents/erep_manifesto_and_policy_recommendations_31-03-2014.pdf">http://ec.europa.eu/environment/resource_efficiency/documents/erep_manifesto_and_policy_recommendations_31-03-2014.pdf</a></li> </ul>
6	Prevention ideas	See a comprehensive description of the Initiatives in point 1.
7	Useful websites	<ul style="list-style-type: none"> <li><a href="http://ems.iema.net/emas">http://ems.iema.net/emas</a></li> <li><a href="http://ems.iema.net/iso14001">http://ems.iema.net/iso14001</a></li> <li><a href="http://www.innovationseeds.eu/Network-Library/Core-Articles/European-Industrial-Symbiosis-Association-EUR-ISA.kl">http://www.innovationseeds.eu/Network-Library/Core-Articles/European-Industrial-Symbiosis-Association-EUR-ISA.kl</a></li> <li><a href="http://www.eventimpacts.com/environmental/">http://www.eventimpacts.com/environmental/</a></li> <li><a href="http://www.unep.org/awards/">http://www.unep.org/awards/</a></li> </ul>
8	Prevention ideas	You can see all the suggested Prevention ideas for the specific product – material at the website o LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality">www.Waste-Prevention.gr/Prevention/Choose_what_prevention_action_fit_in_your_municipality</a>
9	Suggest your Prevention ideas	Suggest your own Prevention ideas for the specific product – material at the website of LAWPreT <a href="http://www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention">www.Waste-Prevention.gr/Prevention/Suggest_your_own_idea_for_waste_prevention</a>

## 1.4 International Waste Prevention Good Practices

Table 1.4.1 presented many examples of Waste Prevention Good Practices, which have been implemented in several countries with very good results. Select the order you want to read them in through the use of: a) keywords; b) a brief reference to the content of the action, c) the presentation language and d) implementing country.

**Πίνακας 1.4.1 Waste Prevention Good Practices**

No	Site	Key Words and short reference of Good Practice	Language	Country																						
1	<a href="#">Accompanied paper waste prevention in schools in Brussels (Pre-waste factsheet 22)</a>	<p><b>Keywords:</b> Schools, paper, food, water bottles, general waste.</p> <p><b>Short Reference:</b> The goal of the project is to change the behaviour of pupils and the school as a whole to produce less waste, more specifically: consume less paper and thus reduce paper waste generation. Teachers/Schools who wish to engage a class or the entire school in actions favouring environmental protection can obtain assistance from Brussels Environment subcontractors on paper consumption reduction. Other topics covered by other school projects include drinking container waste reduction (for primary schools only), and from now on also food wastage reduction and general waste prevention (for primary and secondary schools) energy and noise. To engage in paper waste reduction they can choose the topic and the level of commitment that suits them best:</p> <p><b>Short term assistance</b></p> <ol style="list-style-type: none"> <li>1. access to free teaching materials (electronic or paper) and equipment (reusable glasses, lunch boxes...)</li> <li>2. free training sessions for teachers (on specific topics or general environmental education)</li> </ol> <p><b>Commitment over an entire school year</b></p> <ol style="list-style-type: none"> <li>3. accompanied turn-key projects for classes</li> <li>4. accompanied school challenge</li> </ol>	English	Belgium																						
2	<a href="#">'A la carte menu' menu <a href="http://www.hvidovrehospital.dk/menu/Afdelinger/Kokkenet/">http://www.hvidovrehospital.dk/menu/Afdelinger/Kokkenet/</a></a>	<p><b>Keywords:</b> Hospital, food, logistical improvements.</p> <p><b>Short Reference:</b> Hvidovre Hospital, in Denmark, led by Chef Mogens Pedersen Fonseca, changed how food services are operated, to reduce food waste produced via the previously rigid patient catering system. Following on four years of extensive work to modify the kitchen and hospital facilities and rethink the cooking strategy, Mogens Fonseca Pedersen and his one hundred employees were able to offer anytime 'a la carte' order options to patients, while remaining within budget limitations. The programme has helped the hospital avoid 40 tonnes of food waste per year, and the 'a la carte' style encourages portion management; money saved through the initiative has been reinvested to further reduce food waste and improve quality of hospital food services.</p>	English - Danish	Denmark																						
3	<a href="#">Anti-waste workshops – Cooking Classes</a>	<p><b>Keywords:</b> Food, households, cooking training.</p> <p><b>Short Reference:</b> Bruxelles Environment the environment and energy administration in the Brussels-Capital Region, has put in place a training program geared at helping households to reduce their food waste production via cooking training. The cooking workshops are offered for free to the local community to highlight techniques and benefits of food waste reduction. 1000 people were trained in 2009.</p>	English	Belgium																						
4	<a href="#">Aleykan Re-use Park in Gothenburg (Pre-waste factsheet 30)</a>	<p><b>Key Words:</b> Reuse, wooden and metal goods, electrical appliances, clothing, furniture, plastic products, books etc.</p> <p><b>Short Reference:</b> The Re-use Park was started in 2007. First all visitors pass by the three specialised (building material, second hand and repaired goods) shops within the area, after that they enter the re-use station under roof, with three lanes for cars. There they are asked if they have something to donate to second-hand sales. Products that are in good condition could then be sold for re-use in the thrift shops located at the entrance. The rest is sorted into different waste fractions for materials recycling or energy recovery. The park means that 5,5 % of materials that otherwise should have been recycled are re-used.</p> <table border="1"> <caption>Products donated for second-hand sales in 2010</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr><td>Furniture</td><td>23%</td></tr> <tr><td>Textile</td><td>22%</td></tr> <tr><td>Construction mtrls (wooden)</td><td>10%</td></tr> <tr><td>Construction mtrls (other)</td><td>9%</td></tr> <tr><td>Large electric appliances</td><td>8%</td></tr> <tr><td>Small electric appliances</td><td>6%</td></tr> <tr><td>Plastic products</td><td>3%</td></tr> <tr><td>Sanitary wares</td><td>3%</td></tr> <tr><td>Books</td><td>2%</td></tr> <tr><td>Metal products</td><td>1%</td></tr> </tbody> </table>	Category	Percentage	Furniture	23%	Textile	22%	Construction mtrls (wooden)	10%	Construction mtrls (other)	9%	Large electric appliances	8%	Small electric appliances	6%	Plastic products	3%	Sanitary wares	3%	Books	2%	Metal products	1%	English	Sweden
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5	<a href="#">Appetite for action</a>	<p><b>Keywords:</b> Schools, food, educational website.</p> <p><b>Short Reference:</b> Appetite for Action is a new, free educational website for all Primary Schools in the UK and Ireland that helps schools tackle a range of sustainability issues through the topic of food. Developed in conjunction with teachers, the website offers schools access to free resources, from lesson plans and fact sheets through to activity ideas and films, helping pupils to reduce food waste, grow their own fruit and vegetables, understand composting and reduce waste to landfill. Plus the opportunity to take part in a school challenge to reduce their schools CO<sub>2</sub> impact. Schools can choose to take part in a challenge around food, waste or growing and students get the opportunity to create an online team profile, measure their activities, develop a blog on the actions taken and search out other similar schools. All challenge participants will receive a United Nations Environment Programme Certificates and enter the competition to win £3,000.</p>	English	UK & Ireland
6	<a href="#">Approved food</a>	<p><b>Keywords:</b> Food close to maturity, discounted prices, food redistribution.</p> <p><b>Short Reference:</b> Approved Food and Drink Company, a UK – based food redistribution programme, specialise in selling dry food products that are near or past their "best before" date at a discounted rate through their website. While sales and revenue figures are not available, the company has received a large amount of mass media publicity, indicating an impact of consumer awareness. Company represents an innovative private-sector approach to avoiding food waste via resale.</p>	English	UK
7	<a href="#">Auchan Spa Ban on disposable food and drink containers at events in Munich, Germany (Pre-waste factsheet 99)</a>	<p><b>Keywords:</b> Ban on disposable crockery, large events.</p> <p><b>Short Reference:</b> In Germany, Austria, and Switzerland different regulations have been put into place to ban the use of disposable food and drink containers at large scale events and to establish a framework for the use of reusable crockery. <b>Description of one-way ban in Munich:</b> On public land, since 1991, a by-law of the city of Munich forbids the use and sale of disposable tableware, cups, but also drink packaging on land owned by the city. This obligation applies to all city facilities and events, such as the Munich-based weekly markets in the Olympic Stadium and Munich's Oktoberfest. The forbidden disposable items are replaced by reusable ones for which consumers pay a deposit that they get back when they return the items. This action significantly reduces the waste generated by events like the Christmas market, Auer-Dult Faire, Oktoberfest and Munich City Marathon. Also, for smaller-scale events (200-300 people), the City of Munich cooperates with Mobielspiel e.V offering the possibility to rent a crockery and dishwasher equipment. The City of Munich also promotes returnable bottles for beverages. <b>Results:</b> The positive results of waste prevention measures can be demonstrated with numbers: the volume of waste at these events between 1991 and 2004, fell by more than 50%. Waste generated during the Oktoberfest (beer festival), attracting tens of thousands of people from all over the world, was reduced from 11,000 tonnes in 1990 to 550 tonnes in 1999. Since this event is based on a strong ecological concept, it received the "Eco-Oscar" award by the Federal Government of Germany in 1997. <b>Years:</b> in force since 1991 and since replicated by other cities.</p>	English	Germany Austria Switzerland
8	<a href="#">Bennet</a>	<p><b>Keywords:</b> Retail, unsold food, free meals.</p> <p><b>Short Reference:</b> Bennet – an Italian retail trade company - has been committed, since 2004, in the recovery of the residual stock of consumption goods, in order to donate it to charitable associations recommended by NGO (Banco Alimentare) or Public Institutions. The 69 supermarkets located in the north of Italy, redistribute the over- stock of goods fulfilling the terms of regulation n. 155/25/06/2003. In 2012, about 500 tons of goods were distributed, which could be compared to 1 million meals donated. The final goal is to give a social and environmental value to the residual stock of goods.</p>	English	Italy
9	<a href="#">Bricolage Design Prize (Australia)</a> <a href="http://www.environment.tas.gov.au/Index.aspx?base=4544">www.environment.tas.gov.au/Index.aspx?base=4544</a>	<p><b>Keywords:</b> Ecological Design Awards, industrial waste.</p> <p><b>Short Reference:</b> Tasmania has addressed its landfill problem by launching an ecodesign award programme encouraging innovative, long-term uses for industrial waste streams. Designers creating novel, marketable and durable products using industrial waste benefit from a public exhibition, business plan advice and cash incentives.</p>	English	Australia
10	<a href="#">Brussels waste management plan with reduction targets, Belgium (Pre-waste factsheet 103)</a>	<p><b>Keywords:</b> Quantitative prevention targets, municipality of Brussels.</p> <p><b>Short Reference:</b> Brussels Environment has established Waste Management and Prevention Plans since 1992. In its 4<sup>th</sup> Waste Management plan published in 2010 it includes for the first time quantitative objectives for each waste flow with a rationale on how to achieve them. The figures are based on the amount of waste generated (per waste stream) in 2005, the reduction potential (calculated based on pilot projects) and expected participation of the population. Objectives are set for 2013 and/or 2020. These objectives have for instance been set</p> <ul style="list-style-type: none"> <li>● in kg/inhabitant/year for food wastage by households, paper wastage by households, packaging reduction at household level, reduction of household consumption of certain products and disposable nappies, garden waste;</li> <li>● in % for the collection and return to the market of reusable goods and bulky waste;</li> <li>● in kg/worker/year for the workplace and in kg/pupil/year for schools concerning paper waste, packaging and food wastage in schools.</li> </ul> <p>Example: Reduce food wastage by households by 2 kg/inhabitant by 2013 and by 5kg/inhabitant by 2020 (= 5.000T).</p>	English French Dutch	Belgium
11	<a href="#">Buon Fine</a> <a href="#">'Buon fine'</a> <a href="http://cooponspreca.it/buon-fine-e-brutti-ma-buoni-la-merce-in venduta-coop-solidaria/">http://cooponspreca.it/buon-fine-e-brutti-ma-buoni-la-merce-in venduta-coop-solidaria/</a>	<p><b>Keywords:</b> Retail, unsold food, donations, redistribution, hospitals, NGOs.</p> <p><b>Short Reference:</b> The "Buon fine" ('Good end') project aims to recover still edible, unsold food products and donate them to charities and people in need. This project, carried out on a national level, is managed locally by the co-operatives. In 2011 it involved 471 shops, ten superstores and twenty supermarkets and allowed the donation of 276 tonnes of food products that accounted for an overall economic value of 1,556,864 Euros.</p>	English Italian	Italy
12	<a href="#">'Buon Samaritano' (Good Samaritan)</a>	<p><b>Keywords:</b> Schools, food, redistribution, super markets, donations to organizations, NGOs.</p>	English	Italy

	<a href="http://www.amiat.it/cms/co_municazione/32-educazione_ambientale/progetti/241-iniziative-special">http://www.amiat.it/cms/co_municazione/32-educazione_ambientale/progetti/241-iniziative-special</a>	<b>Short Reference:</b> Comune di Torino and Amiat have implemented the "Good Samaritan" project, which collects uneaten meals from school canteens and products that are still edible from supermarkets and donates them to charity organizations to prevent them from being sent to landfill sites. According to the organisation, every day it is possible to recover 150 kilos of bread and 50 kilos of fruit to prepare approximately a thousand meals. Over the years the amount of food recovered has increased significantly, reaching more than 25,000 kilograms of bread and nearly 13,000 kg of fruit in the school year 2007 to 2008. In total in 2008, the organisation recovered over 81,000 kg of food.	Italian	
13	<a href="#">Calendar with hints for waste prevention, Finland (Pre-waste factsheet 72)</a>	<b>Keywords:</b> Annual wall calendar, ideas and Prevention photos, citizen participation, NGOs. <b>Short Reference:</b> Every year, -TRSWM sends a calendar to each household in its region. The calendar has nice pictures and it can be hung on the kitchen wall. On every page, there's advice on waste prevention. Citizens can participate in the yearly calendar project by sending photos for the competition where the best pictures for next year's calendar are selected.	English	Finland
14	<a href="#">California Waste Prevention World (USA)</a>	<b>Keywords:</b> Information-awareness, Prevention Web, households, trade, Municipalities, NGOs. <b>Short Reference:</b> The Waste Prevention World website is an unmatched centre of resources for systematic improvements in prevention performance, helping California actively pursue and meet targets on waste diversion.	English	ΗΠΑ
15	<a href="#">'Calling Time on Waste'</a>	<b>Keywords:</b> Information - education, entertainment centers, bars, catering, promotion Prevention Guide, NGOs. <b>Short Reference:</b> The widely-disseminated brochure titled 'Calling Time on Waste', prepared and published by the National Waste Prevention Programme run by Ireland's EPA, is a guide on resource efficiency in the bar trade. The document, which spans approximately twenty pages, breaks down various waste streams which occur in bar/restaurant settings, explains their impact, provides practical tips for their reduction and prevention, and offers a succinct waste management checklist. The brochure also frames waste prevention in economic terms, offering examples such as "By re-tendering for waste collection, implementing a source segregation scheme and reducing food waste a pub saved £14000 per annum on waste charges".	English	Ireland
16	<a href="#">Carbon Tax on Packaging (Netherlands)</a>	<b>Keywords:</b> carbon tax, packaging, achieving plastic recycling targets. <b>Short Reference:</b> The Netherlands instituted a Waste Fund in 2007, financed by a carbon tax on packaging. The Waste Fund helps to pay for the separate collection of household packaging waste, while the tax encourages businesses to move towards the national recycling target: 42% of plastic packaging recycled by 2012.	English	Netherlands
17	<a href="#">Carrefour</a>	<b>Keywords:</b> super markets, a separate collection of food, methane production, animal feed. <b>Short Reference:</b> Types of waste (such as plastic, organic waste and scrap metal), which are produced in smaller quantities, are sorted according to the local waste-recovery systems available. In Spain, Carrefour has benefited from the introduction of biomethanisation units. This treatment recycles organic waste that has been sorted by the stores and produces compost and electricity from biogas. It is less costly than conventional waste management systems and reduces greenhouse gas emissions. Carrefour also uses this treatment in Belgium, where all consolidated stores sort waste from their grocery, bakery, fruit and vegetable sections. In France, the biomethanisation of waste was successfully tested at the store in Lomme (Nord) and has since been deployed in nine other hypermarkets in the Nord-Pas de Calais region. In 2010, the efforts made by these 10 stores resulted in the collection of over 1,126 tonnes of organic waste, which were then reused via biomethanisation. With the opening of centres in the west and south of the country, other stores in France also carried out methanisation tests in 2010. The Group's aim regarding biomethanisation is to work with government and local authorities to promote the development of such treatment centres in France. Other solutions, such as composting, are also being studied. In 2010, over 373 tonnes of organic waste were recovered at nine French hypermarkets for use as compost. Carrefour stores in France also donated during year 2010 24,000 tonnes of limited-term storage goods. In Brazil, Carrefour reuses its organic waste as animal feed.	English	France, Belgium Brazil, Spain
18	<a href="#">City Hotel Derry &amp; RiverRidge Recycling</a>	<b>Keywords:</b> Hotels, food, reuse, recycling increase. <b>Short Reference:</b> As leading members of the Hospitality and Food Service Agreement, City Hotel Derry and River Ridge Recycling are acutely aware of the costs to business of food waste, and the need for collaborative partnerships to ensure food waste prevention. Their close business relationship has delivered tangible benefits for the hotel in reduced food waste and cost savings. The four star City Hotel Derry in Northern Ireland has 158 bedrooms. Since 2006 the hotel has been committed to reducing the amount of waste going to landfill, and has seen these tonnages reduce from 140 tonnes to 49 tonnes in 2012. This saving has been whilst occupancy rates have steadily grown. These waste management changes have saved the hotel £10,000 in waste collection charges. With operations in both Derry and Ringsend, RiverRidge Recycling, is one of the leading waste management companies in the North West. The company provides a full range of waste management services and is committed to supporting businesses protect the environment and achieve additional, significant cost savings by diverting waste from landfill. <b>Keys to success</b> - City Hotel were able to realise the majority of these savings in the early years through the diversion of dry recyclables from landfill. This included items such as paper, cardboard, glass and plastics. Preventing food waste, enabling re-use and maximising opportunities for recycling City Hotel also implemented return schemes for wooden pallets and glass bottles. The appointment of a waste champion within the hotel, Clare Campbell, Accommodation Manager, was key. This ensured that there was a dedicated resource responsible for tracking and monitoring waste volumes.	English	UK
19	<a href="#">Clever Akafen Ecolabel (Luxembourg)</a>	<b>Keywords:</b> Environmental Labeling, Hazardous Waste. <b>Short Reference:</b> The "Clever Akafen" – or "clever s-hopping" – ecolabel is a multi - stakeholder initiative to promote products that have a low ecological impact. Initially, the scheme was limited to paints, rechargeable batteries and low-energy lamps, but detergents will also be included in the future.	English	Luxembourg
20	<a href="#">Close Bakery http://fat-</a>	<b>Keywords:</b> yesterday's bread and pastries, bakeries, food redistribution.	English	Germany

	<a href="http://community.faz.net/blogs/supermarkt/archive/2011/09/18/kompost-statt-kompost-so-lassen-sich-lebensmittel-vor-der-tonne-retten.aspx">community.faz.net/blogs/supermarkt/archive/2011/09/18/kompost-statt-kompost-so-lassen-sich-lebensmittel-vor-der-tonne-retten.aspx</a>	<b>Short Reference:</b> Bread and rolls from previous day are being sold in selected bakeries instead of throwing into the trash. It's available in many German cities.	German	
21	<a href="http://www.pre-waste.org/factsheets/36.html">Clothes library in Sweden (Pre-waste factsheet 36)</a>	<b>Keywords:</b> Lending clothing 'library', NGOs. <b>Short Reference:</b> The Clothes library (lånegarderoben) works as a library where you can borrow clothes instead of books. The idea is that you should be able to renew your wardrobe without increased consumption. A membership costs 400 SEK (40 Euro) for 6 months. You can then borrow three items for three weeks at a time. You get washing instructions and ruined items have to be replaced.	English	Sweden
22	<a href="http://www.pre-waste.org/factsheets/35.html">Compass Group UK &amp; Ireland – eliminating kitchen wasteNEW! Welsh businesses show the power of working together to deliver savings</a>	<b>Keywords:</b> Hotels, Cafes, small shops, food, packaging, re-use, cost reduction. <b>Short Reference:</b> WRAP worked with nine small and medium size (SME) businesses in the Swansea and the Gower Area of Outstanding Natural Beauty to identify ways of saving money by improving their environmental performance. The participants, representing a range of tourism and hospitality businesses, benefitted from a review of the waste generated on site and then support in putting in place zero or low cost changes to deliver quick wins. The work highlighted how, by working together, small businesses can deliver substantial savings. Key achievements were: <ul style="list-style-type: none"><li>• menus redesigned across different areas of service (e.g. restaurant vs banqueting) to allow sharing of ingredients leading to perishable food purchasing costs down by ~25% at The Dragon Hotel;</li><li>• recycling rate increased from 28% to 72% by segregating and recycling food waste at the Fairyhill hotel and restaurant;</li><li>• businesses working together:<ul style="list-style-type: none"><li>• Working with local suppliers to use reusable delivery boxes thereby reducing packaging waste, and</li><li>• influence waste management service providers to extend segregated food waste collection services.</li></ul></li><li>• an overall landfill diversion potential of 115 tonnes per year across the businesses.<ul style="list-style-type: none"><li>✓ μειώνοντας έτσι τα απορρίμματα συσκευασίας, και</li><li>✓ Επιρέασαν τους φορείς παροχής υπηρεσιών διαχείρισης αποβλήτων να επεκτείνουν το διαχωρισμό στις υπηρεσίες αποκομιδής απορριμμάτων τροφίμων.</li></ul></li><li>• Το συνολικό δυναμικό εκτροπής από την υγειονομική ταφή έφθασε τους 115 τόνων ανά έτος για όλες τις επιχειρήσεις.</li></ul>	English	UK
23	<a href="#">Coop Denmark</a>	<b>Keywords:</b> banana sales piece. <b>Short Reference:</b> In banana bunches there is often just one or two bananas which are damaged but for this reason the consumer does not buy the whole bunch. This attitude has led, so far, to throw away 6,000 bananas every day. This is why Coop Denmark decided to launch the initiative "Single Bananas", i.e. to sell every banana separately.	English Danish	Denmark
24	<a href="#">Cooperative framework for supply chain improvement</a>	<b>Keywords:</b> Optimizing supply chain, food waste. <b>Short Reference:</b> In 2006, there was a commitment from industry of 20 million euros to work on food waste issues. To fulfil this commitment, Wageningen University and Research Centre works with government actors and businesses to optimise supply chain processes for private sector companies, using a process of monitoring, modelling, fact finding, scenario analysis and business model integration. Wageningen University, among other research organisations, provides expertise to help businesses to understand the primary opportunities for waste reduction in their supply chains and to incorporate long-term processes for waste reduction in their production activities.	English	Netherlands
25	<a href="http://www.brno.cz/bmo-aktualne/co-se-deje-v-brne/a/neprodana-menicka-dostavaj-bezdomovci/">«Daily Menus for Homeless»</a> <a href="http://www.brno.cz/bmo-aktualne/co-se-deje-v-brne/a/neprodana-menicka-dostavaj-bezdomovci/">http://www.brno.cz/bmo-aktualne/co-se-deje-v-brne/a/neprodana-menicka-dostavaj-bezdomovci/</a>	<b>Keywords:</b> Distribution homeless, unsold portions of food. <b>Short Reference:</b> Six restaurants joined a project launched in 2010 by businessman Richard Hošek and the town council. Unsold meals prepared as "menu du jour" are given to homeless people at the Salvation Army at Mlýnská st. In 2011, 6515 daily menus and 7135 daily soups from 17 participating restaurants were gained. Thanks to that, 13,650 servings of quality food for homeless people were issued.	English Czech	Czech Rep
26	<a href="#">Dematerialisation in Brussels offices, Belgium (Pre-waste factsheet 23)</a> <a href="http://www.moinsdepapier.be/fr/la-campagne.html">http://www.moinsdepapier.be/fr/la-campagne.html</a>	<b>Keywords:</b> Offices, paper. <b>Short Reference:</b> In the Brussels Capital Region, 54% of jobs are administrative. Despite new office technologies, large quantities of paper are still used. The dematerialisation project involved: <ul style="list-style-type: none"><li>- coaching of a series of organisations during 3 to 6 months focusing on training &amp; awareness raising, new tools, improved document flow...</li><li>- region-wide communication campaigns including free information sessions and tools.</li></ul> Since 2002, three coaching phases were implemented during each of which 10 to 25 voluntary companies were accompanied, each followed by a region-wide campaign. Quantitative results: 15% to 25% reduction in paper consumption achieved in 25 coached companies (average 18%).	English French	Belgium
27	<a href="#">DiscoSoup / Schinppeldisko</a> <a href="http://www.slowfood.com/international/166/what-we-do">http://www.slowfood.com/international/166/what-we-do</a> <a href="https://vimeo.com/70976541">https://vimeo.com/70976541</a>	<b>Keywords:</b> awareness, utilization of food, which would end up in waste, developing sociability, NGOs. <b>Short Reference:</b> In 2012, Nadja Flohr-Spence from the <a href="#">Slow Food Youth Network</a> in Germany came up with an idea to raise awareness of food waste that has now become a global phenomenon - the <b>DISCO SOUP</b> . The idea is simple: People come together in a public space to communally prepare a soup from vegetables that would otherwise have gone to waste (simply because of their appearance) to the backdrop of live music and a festive atmosphere.	English	Several countries
28	<a href="#">DIVE!</a> <a href="http://www.divethefilm.com/default.aspx">http://www.divethefilm.com/default.aspx</a>	<b>Keywords:</b> Information - Awareness, food, NGOs. <b>Short Reference:</b> Documentary film about food wasting in the US, mainly in the retail sector.	English	HΠΑ
29	<a href="#">Do you have an amusement park in your fridge?</a>	<b>Keywords:</b> Information - Awareness, food, household cost reduction, NGOs.	English	Sweden

	<a href="http://stoppamatsvinnet.nu/">http://stoppamatsvinnet.nu/</a>	<b>Short Reference:</b> A household of four people in Sweden throw away edible food each year to a value of 3000-6000 SEK. (Approximately 300 – 600 EUR) Food that, if well managed, just as easily could have been eaten. So why not do something fun for the money instead? For example, go to the amusement park? The idea of the campaign is to create awareness of the problems of food waste by telling people what they can do instead with the money they save if they stop wasting food. Stoppamatsvinnet.nu is an initiative of the National Food Agency, the Swedish Environmental Protection Agency and the Swedish Board of Agriculture.	Swedish	
30	<a href="#">Eco-Emballages Packaging Advisory (France)</a>	<b>Keywords:</b> Eco-Design, package. <b>Short Reference:</b> These services, provided by Eco-Emballages since 2006, offer engineers, designers and small businesses the opportunity to complete intensive eco-design training, to partner with student packaging engineers and to conduct packaging audits, in order to identify efficient ways to reduce packaging waste.	English	France
31	<a href="#">Eco-Point Initiative (Italy)</a>	<b>Keywords:</b> super markets, non-packaging, reuse, reduce costs for consumers. <b>Short Reference:</b> CRAI supermarkets created the 'Eco-Point' initiative in 2005, offering bulk products with minimal packaging for dry food. Eco-Point combines innovation, environmental sensitivity and cost savings through bulk purchasing.	English	Italy Switzerland
32	<a href="#">Ecomoebel – Redesign of furniture in Germany (Prewaste factsheet 13) EMAS Poland</a>	<b>Keywords:</b> Furniture, reuse, repair - reconstruction. <b>Short Reference:</b> The Ecomoebel GmbH is a network for the reconditioning and marketing of used furniture. Under the brand "ZweitSinn" (meaning second purpose) it has established a recycling design co-operation [business] that brings together waste managers and waste collectors, designers, furniture producers and sellers resulting in a successful co-operation. The aim of the recycling design business ZweitSinn is to organise a platform where suppliers of used materials (old furniture, chipboards etc.), producers with the experience and ability to work with used materials, designers who have specified in so called recycling design and sellers in areas where a demand for unusual but high quality and environmentally friendly furniture design exists can "meet" and design, produce and sell re-design furniture.	English	Germany
33	<a href="#">Eden Caterers aims for zero waste to landfill</a>  <a href="http://www.wrap.org.uk/sites/files/wrap/WRAP%20Case%20Study%20Eden%20Final%20for%20web.pdf">http://www.wrap.org.uk/sites/files/wrap/WRAP%20Case%20Study%20Eden%20Final%20for%20web.pdf</a>	<b>Keywords:</b> Businesses catering, food, reuse, packaging. <b>Short Reference:</b> Eden Caterers aims for zero waste to landfill. Eden Caterers is based in London, employs 25 people and caters for over 20,000 people each month. The company has implemented a number of measures to help it with its ambition to achieve zero waste to landfill. Where possible, Eden prevents waste from being generated by only preparing what is ordered, sourcing ingredients locally and regularly rotating stock. The company also encourages its suppliers and clients to use re-usable packaging. Where this is not possible, Eden promotes packaging optimisation and endeavours to use recyclable materials. The prevention, re-use and recycling measures introduced by Eden have reduced the amount of residual waste it produces by 50%.	English	UK
34	<a href="#">Elior</a>	<b>Keywords:</b> Businesses catering, food, reuse, packaging. <b>Short Reference:</b> Food waste monitoring triggers improved performance. Contract caterer Elior turned to WRAP for advice on becoming more resource efficient. The resulting review highlighted potential savings of over £2,000 on a single site, while monitoring the food waste generated quickly led to a more cost effective, less wasteful method of working.	English	UK
35	<a href="#">Environmental Education for the Unemployed &amp; households in Malta (Pre-waste factsheet 90)</a>	<b>Keywords:</b> Information - Awareness, training of unemployed, reducing unemployment, in general household waste. <b>Short Reference:</b> This project meant to provide training in household waste separation and prevention methods, techniques and practices to a number of job seekers. The training and temporary work opportunity enabled the participants to acquire new skills which improved their prospects for future employment. The task of the participants was to educate households and other interested entities about waste management issues such as waste minimisation, separate waste collection and the proper use of Bring-In and Civic Amenity Sites. The temporary integration of the participants into the labour market gave them the right skills to adapt to and be able to cope with a dynamic economic environment.	English	Malta
36	<a href="#">Eroski</a>  <a href="http://www.eroski.es/conoce-eroski/responsabilidad-social/principales-ejes-de-actuacion/solidaridad">http://www.eroski.es/conoce-eroski/responsabilidad-social/principales-ejes-de-actuacion/solidaridad</a>	<b>Keywords:</b> food, donations, food redistribution before maturity, NGOs. <b>Short Reference:</b> Among other activities related to food donation, Eroski supermarket chain also donates food directly in-store: in 2011 almost 492,000 kilos of damaged goods (products with deformed packaging, for example) and more than 217,000 kilos of fresh food products. Eroski's commitment to freshness means that foods are delivered daily. Yoghurts, desserts, eggs and sliced bread are removed from sale sufficiently in advance of their best before date to provide the time margins necessary for the donated products to reach their final destination in perfect condition. Eroski has strengthened the elements in the refrigeration chain and collaborated with the Spanish Federation of Food Banks (FESBAL) in order to guarantee the products' freshness.	English Spanish	Spain
37	<a href="#">Eurest restaurant and food campaign</a>	<b>Keywords:</b> Information - Awareness, catering, waste measurement <b>Short Reference:</b> 150 units of the Eurest catering organization are participating in efforts to quantify food waste, publicise results to staff and customers, and explain the impacts of food waste and how it can be prevented, including using a spreadsheet to measure waste, with a graph entitled " we produce <u>so much waste</u> every single day" which is available to guests and staff. Through these types of initiatives and by having units measure waste once a month, Eurest has reached 22,055 guests. The initiative, which has been continuing for over half a year, has led to a reduction of 23 % in food waste quantities produced. During the European Week for Waste Reduction, 25 Eurest restaurants and 2 coffee shops in 15 different locations in Sweden weighed and measured the waste resulting from food preparation and made available this information to staff and guests.	English	Sweden
38	<a href="#">European Community of Consumer Cooperatives (EUROCOOP)</a>	<b>Keywords:</b> Information - Awareness, information - training, NGOs. <b>Short Reference:</b> Economic progress in the 20th century has spread access to food and higher quality to	English	EU countries

	<a href="http://eurocoop.coop/en/publications/position-papers/position-papers-food-policy/509-euro-coop-contribution-to-the-debate-on-food-waste">http://eurocoop.coop/en/publications/position-papers/position-papers-food-policy/509-euro-coop-contribution-to-the-debate-on-food-waste</a>	the majority of population in industrialised countries. The average consumer currently devotes less disposable income to the purchase of food, which is available in huge quantities at relatively low prices. This increase in consumption magnifies disposable waste, too. Food waste in industrialised countries accounts for 40% and occurs mainly at retail and consumer level, whereas, in developing countries, it occurs at post-harvest and processing levels.		
39	<b>European Food Processing Implementation Award</b>  <a href="http://www.hightecheurope.eu/award.html">http://www.hightecheurope.eu/award.html</a>	<b>Keywords:</b> Prevention Policies. <b>Short Reference:</b> The HighTech Europe Network of Excellence comprises 21 industrial and research partners from all over Europe as well as one research institute from Australia. The network promotes knowledge transfer and the introduction of high-tech technologies to food markets, in order to strengthen the competitiveness of the European food industry, especially of SMEs. HighTech Europe aims to establish a European Institute for Food Processing to harmonize excellence in food processing research. If you want to learn more about the project or the Associated Membership Platform please visit. European Food Processing Implementation Award honouring successful innovations in food processing and improvement of food quality that have been developed along knowledge transfer chain within the last 3 years. It will serve as an incentive for cooperation between the research and food industry.	English	Germany
40	<a href="#">EUROPEAN – packaging supply chain collaboration in food waste reduction</a>  <a href="http://www.european-packaging.eu/policy/7-food-waste.html">http://www.european-packaging.eu/policy/7-food-waste.html</a>  <a href="#">EUROPEAN best practice examples</a>	<b>Keywords:</b> Supply chain packaging, food prevention. <b>Short Reference:</b> Packaging is part of the solution to tackle food waste. Packaging prevents food spoilage, ensures food quality and safety along the supply chain and at home, informs consumers on how to use and store packaged food products, increases shelf-life and provides portion sizes answering the multiple needs of consumer lifestyles and demographic changes. Packaging innovation and new technologies play a key role in food waste prevention. The packaging supply chain, represented by EUROPEAN, strives to further innovate and develop new technologies that make packaging more active and intelligent in tackling food waste. As part of these efforts and to encourage continuous improvements by the packaging supply chain, EUROPEAN set up a dedicated task force on 'Food Waste' and developed best practice examples of packaging innovations and technologies that help prevent food waste.	English	Many countries
41	<a href="#">European Week for Waste Reduction in Europe (Pre-waste factsheet 77)</a>	<b>Keywords:</b> Information - Awareness, NGOs. <b>Short Reference:</b> The European Week for Waste Reduction (EWWR) is a 3-year project supported by the LIFE+ Program of the European Commission organised from 2009 still ongoing. Each year the Week took place across Europe at the end of November. The idea of the European Week for Waste Reduction is to promote waste reduction during a whole week by coordinating awareness-raising actions organised by a variety of actors (administrations/public authorities, associations/NGOs, businesses/industry, educational establishments, etc.) and targeted at a variety of audiences (the general public, employees, schoolchildren, etc.).	English	Many EU countries
42	<a href="#">European Waste Reduction Awards</a>	<b>Keywords:</b> Information - Awareness, NGOs. <b>Short Reference:</b> The most outstanding actions carried out during each edition of the European Week for Waste Reduction are rewarded every year during a European awards ceremony. Prizes are granted for the most outstanding EWWR actions carried out by Project Developers from each of the following categories: <ul style="list-style-type: none"><li>● Administration/public authority</li><li>● Association/NGO</li><li>● Business/industry</li><li>● Educational establishment</li><li>● Other (for example hospital, retirement home, cultural institution...)</li></ul>	English	Many EU countries
43	<a href="#">Eu Não Faço Lixo (Portugal)</a>	<b>Keywords:</b> Information - Awareness, in general waste, NGOs. <b>Short Reference:</b> Through an interactive informational portal, LIPOR centralises its awareness - raising efforts, offering practical guidance on waste reducing activities and engaging activities for young people.	English	Portugal
44	<a href="#">Every Crumb Counts</a>  <a href="http://everycrumbcounts.eu/">http://everycrumbcounts.eu/</a>	<b>Keywords:</b> Information - Awareness, business, food, NGOs. <b>Short Reference:</b> In Europe, almost half of the food produced never makes it to the table. Food wastage is a missed opportunity to feed more people, a waste of resources and a source of greenhouse gas emissions, with negative economic consequences. FoodDrinkEurope, together with an important number of key stakeholders, formed a Joint Initiative to help reduce edible food wastage and build a sustainable food supply chain. 'Every Crumb Counts' is a joint initiative involving stakeholders across Europe's food supply chain. Launched in June 2013, in the presence of key European policy-makers, NGOs and industry representatives, the Joint Declaration secured pledges from co-signatories to work towards preventing edible food waste, promoting a life-cycle approach and proactively feeding into solutions and initiatives.	English	Many EU countries
45	<a href="#">EUREST services in Sweden (Pre-waste factsheet 106)</a>	<b>Keywords:</b> Food, catering businesses. <b>Short Reference:</b> In Sweden, it is estimated that about a quarter of all food purchased never gets eaten, but is thrown away. This means unnecessary production and often long transportation, leading to a waste of raw material and energy. A fifth of all food consumed in Sweden, e.g. 1.4 bn. portions, is consumed within the so called hospitality sector (hotels, restaurants/canteens and catering). One of the actors - Eurest Services - runs restaurants at private companies, universities and schools all over Sweden. They have 120 restaurants with approximately 60.000 meals served every day.	English	Sweden
46	<a href="#">FareShare</a>  <a href="http://www.faresshare.org.uk/">http://www.faresshare.org.uk/</a>	<b>Keywords:</b> food, redistribution of food, donations, training, NGOs. <b>Short Reference:</b> In place since 2004, the FareShare charity promotes the message that "no good food should be wasted", diverting edible food and drink products from industry organisations to disadvantaged populations. The organisation also provides warehouse training for the unemployed and helps food industry businesses to track and reduce their greenhouse gas emissions. The organisation redistributed food contributing to 8,6 million meals in 2010/11, and helped businesses reduce their CO2 emissions by	English	UK

		1800 tonnes during the same period. FareShare's future goal is to redistribute 20,000 tonnes of food annually and to support 100,000 vulnerable people every day.		
47	<a href="#">Flanders Waste Prevention Plan (Belgium)</a> <a href="http://www.ovam.be">www.ovam.be</a>	<b>Keywords:</b> Waste Prevention Plan in the Flanders region of Belgium <b>Short Reference:</b> Flanders' waste prevention plan has been active since 1981 and codified in legislation since 1994. A series of measures is used to guide businesses, schools, designers and local authorities in waste prevention. This has halved unsorted waste and kept overall waste generation steady.	English Flemish	Belgium
48	<a href="#">Fondazione Banco Alimentare Onlus</a> <a href="http://www.bancoalimentare.it/it">http://www.bancoalimentare.it/it</a>	<b>Keywords:</b> Food, food redistribution, food Bank. <b>Short Reference:</b> Since 1989 the Fondazione Banco Alimentare Onlus has been recovering surplus food from the food supply chain and, through the Rete Banco Alimentare (Food Bank Network) made up of 21 Food Bank organizations, has been redistributing it for free to 8,669 charitable organizations, which provide food aid to 1,909,986 poor and marginalized throughout Italy. Therefore the Food Bank Network recovers and redistributes food, which is still edible and not expired but would be sent to landfill because no longer marketable. Saved from waste, food recovers value and becomes wealth for those in need. The main sources of food are: agriculture, food production, food distribution, catering sector and the European Union. In 2014, thanks to the daily activity of 1,869 volunteers, it was possible to recover and save 40,767 tons of perfectly edible food and 1,043,351 ready meals. We also collected 14,965 tons of food through public collections.	English Italian	Italy
49	<a href="#">Food and Drink Federation's Five – fold Environmental Ambition</a> <a href="http://www.fdf.org.uk/environment_progress_report.aspx">http://www.fdf.org.uk/environment_progress_report.aspx</a>	<b>Keywords:</b> food, food redistribution, food industry, restaurants. <b>Short Reference:</b> The Food and Drink Federation's Five-fold Environmental Ambition started with member commitments to play a role in tackling climate change by reducing CO2 emissions by 20% by 2010 against a 1990 baseline, sending zero food and packaging waste to landfill from 2015, making significant reductions in levels of packaging reaching households in line with WRAP's Courtauld Commitment, embedding environmental standards into food transport practices and reducing overall transportation and reducing waste use. The association has already made progress on the waste portion of the Ambition, to send zero food and packaging waste to landfill from 2015. Members established baselines from their 2006 waste volumes and have since this initial reporting prevented more than half a million tonnes of food waste from being created. The project has also included a joint initiative with WRAP to carry out waste prevention reviews at thirteen member company sites across the UK, working closely with FareShare, to encourage member food redistribution and encouraging members to sign up for the original Courtauld Commitment which seeks to reduce domestic food waste by 155,000 tonnes by 2010 as compared to 2008.	English	UK
50	<a href="#">Food Cycle</a> <a href="http://foodcycle.org.uk/#sub-about">http://foodcycle.org.uk/#sub-about</a>	<b>Keywords:</b> food, food redistribution, local social initiatives, NGOs. <b>Short Reference:</b> Food Cycle empowers local communities to set up groups of volunteers to collect surplus produce locally and prepare nutritious meals in unused professional kitchen spaces. These delicious meals are then served to those in need in the community.	English	UK
51	<a href="#">FoodSave London</a> <a href="http://www.foodsave.org/">http://www.foodsave.org/</a> <a href="https://youtu.be/zplpyvxn8Fk">https://youtu.be/zplpyvxn8Fk</a>	<b>Keywords:</b> food, food redistribution, restaurants. <b>Short Reference:</b> FoodSave is a Mayor of London programme providing free support to small and medium-sized food businesses (SMEs) across London. The programme aims to help these businesses reduce their food waste and put any surplus to good use, by making small and manageable changes such as reducing portion sizes, stock rotation or donating food to charities and farms. FoodSave aims to support over 200 food businesses by March 2015, with goals to reduce over 180 tonnes of food waste, divert over 1,000 tonnes of food waste from landfill and save businesses collectively over £360,000 a year.	English	UK
52	<a href="#">Food Waste – FoodDrinkEurope: Preventing food wastage in the food and drink sector</a> <a href="http://www.fooddrinkeurope.eu/">http://www.fooddrinkeurope.eu/</a>	<b>Keywords:</b> Food - Beverages, food and beverage industry, prevention guides in the industry. <b>Short Reference:</b> FoodDrinkEurope has published a progress report showcasing the concrete actions being taken by Europe's food and drink manufacturers to tackle food wastage both within their own operations and up and down their supply chains. The report, entitled 'Preventing food wastage in the food and drink sector', presents the results of an internal survey amongst FoodDrinkEurope members to identify the progress made in preventing food wastage and their future plans. This survey comes as a follow-up to the launch in 2013 of FoodDrinkEurope's industry toolkit 'Maximising food resources: A toolkit for food manufacturers on avoiding food wastage', published in parallel to a joint declaration on food wastage, entitled 'Every Crumb Counts'. The survey was carried out to assess uptake of the toolkit, raise awareness about food wastage as a major societal issue and propose solutions. The report highlights targeted actions taken to further prevent food wastage across Europe and involving large, medium and small companies alike, covering many different sectors.	English	Many EU countries
53	<a href="#">Food Waste Reduction: Case studies from the contract catering industry</a> <a href="http://www.foodserviceeurope.org/gallery/60/FoodServiceEurope%20database%20Food%20Waste%20-%20FINAL.pdf">http://www.foodserviceeurope.org/gallery/60/FoodServiceEurope%20database%20Food%20Waste%20-%20FINAL.pdf</a>  <a href="http://ec.europa.eu/food/safety/food_waste/good_practices-awareness_information_education/index_en.htm#2-34">http://ec.europa.eu/food/safety/food_waste/good_practices-awareness_information_education/index_en.htm#2-34</a>	<b>Keywords:</b> Information - Awareness, catering/restaurants, food. <b>Short Reference:</b> Food waste is a very important challenge and opportunity for the food supply chain, including the contract catering sector. Food Service Europe members are very active across Europe in reducing food waste and sharing good practices, at local, national and EU level. This is a consolidation of good practices to reduce food waste in the contract catering sector.	English	Many EU countries
54	<a href="#">FoodwasteTV</a> <a href="https://www.youtube.com/user/foodwastetv">https://www.youtube.com/user/foodwastetv</a>	<b>Keywords:</b> Information - Awareness, training, food, NGOs. <b>Short Reference:</b> YouTube channel with food waste related videos (tips how to prevent and reduce losses).	English	Germany
55	<a href="#">Food Waste – "Voedselverspilling"</a> <a href="http://www.voedselverspillingu.com/StartPage.aspx">http://www.voedselverspillingu.com/StartPage.aspx</a>	<b>Keywords:</b> Information - Awareness, training, food, meat. <b>Short Reference:</b> Pilot project on minimizing food waste in the production process optimization. Main focus is on the meat production due to its huge environmental impact.	English Dutch	Netherlands
56	<a href="#">Foodwise</a> <a href="http://www.foodwise.com.au/foodwaste/food-waste-fast-">http://www.foodwise.com.au/foodwaste/food-waste-fast-</a>	<b>Keywords:</b> Information - Awareness, training, food, NGOs. <b>Short Reference:</b> FoodWise is a national campaign that's organised by the action group Do Something!. The	English	Australia

	<p><a href="#">facts/</a>  <a href="http://www.foodwise.com.au/foodwaste/household-food-waste-landing-page/">http://www.foodwise.com.au/foodwaste/household-food-waste-landing-page/</a></p> <p><a href="http://www.foodwise.com.au/foodwaste/businessfoodwaste/">http://www.foodwise.com.au/foodwaste/businessfoodwaste/</a></p> <p><a href="http://www.foodwise.com.au/foodwaste/portion-planning/">http://www.foodwise.com.au/foodwaste/portion-planning/</a></p> <p><a href="http://www.foodwise.com.au/foodwaste/ingredient-guide/">http://www.foodwise.com.au/foodwaste/ingredient-guide/</a></p>	aim of campaign is to get Australians to reduce the environmental impact of their food consumption. In short, we want people to become FoodWise. Initially, the FoodWise campaign focused on getting people to reduce their food waste. However, recent research shows that many people are unaware of the 'paddock to plate' environmental impact of food. In order to change that situation, they've expanded their campaign to help people reduce this impact. Campaign partners and content contributors include The Australia Institute, The Food Safety Information Council, Greenpeace, Growcom, Biological Farmers of Australia and the major food charities OzHarvest, Fareshare, Second Bite and Foodbank.		
57	<p><a href="#">FORWARD – Food Recovery and Waste Reduction</a>  <a href="http://foodrecoveryprouject.eu/">http://foodrecoveryprouject.eu/</a></p> <p><a href="http://www.foodwastereduction.com/kms">http://www.foodwastereduction.com/kms</a></p>	<p><b>Keywords:</b> Food, food redistribution, training, donations.</p> <p><b>Short Reference:</b> FORWARD – Food Recovery and Waste Reduction - is a two-year transnational project co-funded by the European Commission under the Lifelong Learning Programme. Its main aim is the reduction of food waste and the promotion of unsold food recollection in favour of charities, thanks to training and use of ICT resources.</p> <p>The main outcome is an innovative platform hosting the three main results of the project:</p> <ul style="list-style-type: none"> <li>● A free online training course for food supplier and charities focused on the reduction of food waste and methods to recovery and redistribute it.</li> <li>● An educational game simulating the process of recollection of food waste and the relationship between food suppliers and charities</li> <li>● A user-friendly brokering platform to allow the natural matching of demand and supply of food waste. Any user, all over the world, can search or publish a donation announcement and find a counterpart, so to favour the creation of contacts and network between food producers/sellers and organisation able to organise the recovery.</li> </ul>	English	Italy, Czech Republic, Hungary, Greece, Germany, Lithuania, Netherlands, Poland
58	<p><a href="#">Generation awake</a>  <a href="http://ec.europa.eu/environment/generationawake/">http://ec.europa.eu/environment/generationawake/</a></p> <p><a href="https://www.youtube.com/user/GenerationAwake/videos">https://www.youtube.com/user/GenerationAwake/videos</a></p>	<p><b>Keywords:</b> Information - Awareness, training - information, smart consumption, sustainability, NGOs.</p> <p><b>Short Reference:</b> A campaign called Generation Awake is educating Europeans about making more sustainable and eco-friendly choices in their everyday lives in order to be 'smarter' consumers. The website and virtual guide centres around the idea, that we are all consumers and our shopping choices and daily habits have an effect on the planet and our own future as a human race.</p> <p>Generation Awake is providing plenty of facts related to our: water supply, quality of air, waste streams, energy usage, food habits etc. and educates readers on alternatives in order to promote more sustainable choices.</p>	English	Many EU countries
59	<p><a href="#">Good waste prevention communication practices in Sofia municipality, Bulgaria (Pre-waste factsheet 65)</a>  <a href="#">Pre_waste_65_BG_Public_awareness</a></p>	<p><b>Keywords:</b> Information - Awareness, general waste, NGOs.</p> <p><b>Short Reference:</b> In 2010, the municipality of Sofia carried out a public awareness campaign providing both information about possible waste prevention practices and ecologically sound treatment of household waste. Information on waste prevention was provided to the inhabitants to involve the main target groups, after assessment of their information needs. Different information materials were prepared to reach each defined target group. Assessment of the results of the information campaign was carried out after its implementation and on the basis of distributed information materials. The effectiveness of the implemented public awareness campaign could not be assessed through quantitative measure of the collected waste, but through other methods such as an inquiry about the achieved results. The aim was to create an ecologically way of thinking among the inhabitants in order to prevent waste and to reduce the generated quantities.</p>	English	Bulgaria
60	<a href="#">'Great Taste, Less Waste'</a>	<p><b>Keywords:</b> Information - Awareness, training, general waste, NGOs.</p> <p><b>Short Reference:</b> Following on a survey conducted of their customers, Morrisons Supermarkets found that two thirds of UK households are allowing fruit to go to waste by keeping it in the fruit bowl instead of the refrigerator, where it can last up to fourteen days longer. The same survey found that customers wanted to help more to reduce food waste, with 67% of customers stating that supermarkets have a duty to ensure the right packaging so that food stays fresh, but only 12% believing that supermarkets "get packaging right". The survey led Morrisons Supermarkets, in 2009, to instate a campaign to help customers reduce food-related waste. The initiative has included providing storage advice, offering 'market street' portion choice, providing information on labelling, distributing tips for leftover cooking and 'packaging laboratory: keep it fresh' tests to identify what type of packaging can extend the life of specific fruit and vegetables. Activities are coordinated in-store and information is disseminated in the store as well as through the supermarkets' website and magazine. The campaign has the stated goal of helping customers reduce the on average £600 of food thrown out per household annually.</p>	English	UK
61	<a href="#">Green Business programme</a>	<p><b>Keywords:</b> information, training, resource efficiency in enterprises.</p> <p><b>Short Reference:</b> Greenbusiness.ie offers Irish business assistance in improving resource efficiency and is designed to complement other existing business support services from the likes of Enterprise Ireland. Assistance is delivered through the provision of online site assessment and benchmarking tools, a telephone helpline and on-site support. Greenbusiness.ie is publicly funded through the National Waste Prevention Programme (NWPP) and acts semi-independently from this programme. All information provided to greenbusiness.ie is held confidentially and is only used to effectively assist businesses. No information or data submitted is used for the purposes of enforcement. The National Waste Prevention Programme was launched by the Minister of the Environment, Heritage and Local Government in April 2004. The National Waste Prevention Committee (NWPC) includes a stakeholder group that meets periodically to provide strategic direction for the Environmental Protection Agency in implementing the NWPP. The aim is to deliver results on waste prevention and minimisation and launch a range of programmes that help raise awareness, encourage technical and financial assistance, deliver training and encourage resource efficiency.</p>	English	Ireland
62	<a href="#">Green Cook</a>	<p><b>Keywords:</b> Information - Awareness, training, general waste, NGOs.</p>	English	EU Countries

		<p><b>Short Reference:</b> GreenCook is aimed at reducing food wastage and to make the North-West Europe a model of sustainable food management, by in-depth work on the consumer / food relationship thanks to a multisectoral partnership. Tools and methods are under experimentation to help consumers to improve their food management while controlling their purchasing power. They aim at changing behaviour or altering the offer (at the supermarket, in the restaurant or in the canteen). It is alas hard for them to be generalised, because of the complexity of the levers that have to be activated. GreenCook's ambition is to create this lever effect, by generating a dynamic that motivates all of the food players and by throwing path breaking bridges with the fields of health, welfare and economic development. Its diversified partnership intends to show the added value of united, transversal action, and to influence EU policies, in order to get a new European sustainable food model to emerge.</p>		
63	<a href="http://www.ghaward.ie/">Green Hospitality Award Scheme</a> <a href="http://www.ghaward.ie/">http://www.ghaward.ie/</a>	<p><b>Keywords:</b> hotels, catering/restaurants, food.</p> <p><b>Short Reference:</b> This is a voluntary programme that aims to develop environmental best practice within the wider hospitality sector. The Green Hospitality Award (GHA) Scheme, for the hotel and catering sector, is organised by the National Waste Prevention Programme, a part of the Irish EPA, involves waste measurement and waste reduction targets, with a specific focus on food waste, with an award for top-performers GHA now has a membership of 150 hotels and 10 major catering businesses all working to reduce waste/energy/water use including food waste. GHA requires certified members to implement specific criteria and they are independently inspected to ensure compliance. 100 of these will achieve award status in 2010. 120 properties were surveyed in 2009 and showed a 6,000 tonne reduction in waste; while no breakdown of this figure is available in relation to food waste, food waste does compose a large percentage of waste produced in this sector.</p>	English	Ireland
64	<a href="#">Greene King – menu options and portion sizes</a>	<p><b>Keywords:</b> Catering/restaurants, portion size, food.</p> <p><b>Short Reference:</b> Greene King: menu options and portion sizes. Greene King has almost 2,500 pubs, restaurants and hotels and brews popular ale brands including IPA and Old Speckled Hen. As a major pub retailer and brewer in the UK, the company is committed to conducting business in an ethical and responsible manner. One way in which Greene King is doing this is by becoming a signatory to the Hospitality and Food Service Voluntary Agreement. Portion size is one of the issues people talk about when asked about the food they waste when eating out. Offering different meal sizes can make a real difference to the amount of food left on plates and Greene King has taken this on board by providing menu options for more mature guests and two meal-size options for children in its Old English Inns. Golden Years Menu – or more mature guests, specifically tailored to satisfy lighter appetites. Juniors' Menu – suitable for children under 7 years. Children's Menu – suitable for children between 7 and 10 years.</p>	English	UK
65	<a href="#">Green Seal Standards</a>	<p><b>Keywords:</b> eco-label for Catering/restaurants, food.</p> <p><b>Short Reference:</b> The Green Seal Standard for Restaurants and Food Services, GS-46, establishes requirements for restaurants and food service operations that have been operating for at least three months whose primary business is preparing and serving food to the general public or private consumers. This includes full-service, limited-service, non-commercial, and catering operations. The standard is based on life cycle research and focuses on leadership environmental improvement in the key impact areas — food, waste, and energy. Metrics, performance, and practices are combined in this standard to help operations make meaningful environmental improvement. In addition, organizational commitment is included to ensure the environmental efforts are long lasting. The standard can serve as a tool to help operations begin to take action to improve their operation and is available for Green Seal certification.</p>	English	USA
66	<a href="https://dinegreen.com/restaurants/default.asp">Green Your Restaurant</a> <a href="https://dinegreen.com/restaurants/default.asp">https://dinegreen.com/restaurants/default.asp</a>	<p><b>Keywords:</b> Green certification, Catering/restaurants, food.</p> <p><b>Short Reference:</b> The GRA was founded with the mission of creating an ecologically sustainable restaurant industry, and from day one, their goal have been to make the process as simple and effective as possible. Because they realize that restaurateurs have enough on their plates without worrying what kind of paper towel to order, or where they'll get next months supply of eco-friendly dish soap. With the world's largest database of environmental solutions for the restaurant industry, and almost twenty years of experience, the Green Restaurant Association is the expert in helping restaurants become more environmentally sustainable.</p>	English	USA
67	<a href="#">Halmstad schools competing to reduce food waste in canteens, Sweden (Pre-waste factsheet 29)</a> <a href="#">Pre_waste_29_SE_SchoolCanteens</a>	<p><b>Keywords:</b> Schools, food waste reduction competition.</p> <p><b>Short Reference:</b> The project was a long term information campaign targeted at the middle and high schools at Halmstad municipality, Sweden. Within the campaign the food was weighed four times (January 2009, May 2009, October 2009 and a control in November 2010). The campaign was designed as a contest between the schools where the one throwing away the least at each weighing won. On average the schools reduced their waste with 13 %. Controls also show that the reduction seems to be permanent.</p>	English	Sweden
68	<a href="#">Halving Waste to Landfill (UK)</a> <a href="http://ec.europa.eu/environment/waste/prevention/pdf/HalvingWasteToLandfill_Factsheet.pdf">http://ec.europa.eu/environment/waste/prevention/pdf/HalvingWasteToLandfill_Factsheet.pdf</a>	<p><b>Keywords:</b> debris, voluntary agreements, C&amp;D .</p> <p><b>Short Reference:</b> 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.</p>	English	UK
69	<a href="#">"Happy Hour in bakery"</a> <a href="http://www.hofpfisterei.de/pf_info_happyhour.php">http://www.hofpfisterei.de/pf_info_happyhour.php</a>	<p><b>Keywords:</b> Bread, pastries, discount in the last working hour of the bakeries.</p> <p><b>Short Reference:</b> Fresh bread and rolls from the actual day are being sold with discount in the last working hour in Hofpfisterei Bakeries across Germany. First half of the last "Happy Hour" with 25% discount, second half of the last "Happy Hour" with 40% discount.</p>	English German	Germany
70	<a href="#">Household composting in Bulgaria (Pre-waste Factsheet 67)</a> <a href="#">Pre_waste_67_BG_Promotion_of_hous</a>	<p><b>Keywords:</b> Food, home composting, Separation at Source of the biowaste, municipal composting.</p> <p><b>Short Reference:</b> Home composting is implemented in 18 of 24 districts of Sofia Municipality, mostly in suburban districts because it is not applicable in all districts in the municipality. Districts which are not covered by home composting could be involved in a separate collection of biodegradable household waste. As the whole districts are covered by service for collection of waste, this separate collection could give the</p>	English	Bulgaria

		possibility to divide the different waste streams in order to be treated at the centralized composting unit and to be produced compost. It is expected as an overall assessment that more than 120 000 tonnes/year to be composted in a centralised composting unit.		
71	<a href="#">Italian Ecolabel Legambiente Tourism in Marche Region (Pre-waste factsheet 43)</a>  <a href="#">Pre_waste_43_IT_legambiente_touris</a>	<b>Keywords:</b> Hotels, Ecolabel, biodegradable food packaging, food, packaging, soaps. <b>Short Reference:</b> In Marche Region there are 916 facilities and accommodation for 65.331 people. The aim of Ecolabel LEGAMBIENTE Tourism is to disseminate the culture and the good practices of waste prevention in tourism sector. The information, education and awareness activities aims to change some organizational and management issues: replacing food and hygienic single doses with dispenser and loose products, using tap water instead mineral one, using returnable bottles and concentrated products, and local products of short distribution chain.	English	Italy
72	<a href="#">'It's Smart with Less Waste' Helsinki (Finland)</a>	<b>Keywords:</b> Information - Awareness, evaluation business, general waste, NGOs. <b>Short Reference:</b> Helsinki Metropolitan Area Council uses a range of measures to reduce waste from businesses, local authorities and households. Measures focus on waste prevention education and awareness-raising, as well as low-cost incentives.	English	Finland
73	<a href="#">Kringloop Reuse Centres (Flanders)</a>  <a href="#">http://kringloop.net</a>  <a href="#">http://www.dekringwinkel.be/kw/home_1.aspx</a>	<b>Keywords:</b> Reuse, Repair, Reuse Centers. <b>Short Reference:</b> Flanders has implemented a Reuse Centre system to prevent waste by facilitating the resale of discarded products. Apart from its environmental objective, Kringloop Reuse Centres also assume an important social function.	English Flemish	Belgium
74	<a href="#">Let's do it with Ferda in Estonian schools (Pre-waste factsheet 9)</a>  <a href="#">Pre_waste_09_ET_Ferda_schools-23-11-2011.pdf</a>	<b>Keywords:</b> Schools, educational program, NGOs. <b>Short Reference:</b> The action "Let's do it with Ferda" is a pilot project inside the Estonian environment education programme of waste reduction for pupils in basic level. For that the educational book "Ferda Reduces Waste" has been created for pupils and teachers. The first action took place the 24th of November 2009 in Pärnu Kuninga Basic school where 2h lecture have been held with some practical games about how to avoid and reduce waste at home and at school. All the Estonian schools and the kinder gardens can book the course and ask for a specialist contribution at the school (free of charge). The course is 1h or 2 h 45 minutes long. For the young student, the mascot Ferda or a glove puppet is used. During the lesson material and tool kit is distributed to teachers and kids for further use. In some regions partners such as youth centres contribute with additional games or competitions.	English	Esthonia
75	<a href="#">Light Kids, Washable Diapers in the Municipality Crèches, and Incentives for Families in Italy (Pre-waste Factsheet 47)</a> <a href="#">Love Food Hate Waste (UK)</a>  <a href="#">Pre_waste_47_IT_WASHABLE_DIAP</a>	<b>Keywords:</b> Reuse, diapers, biodegradable diapers. <b>Short Reference:</b> The disposable diapers represent about 4-5% of total waste produced in Italy in recent years. In the Municipality of Colorno, disposable diapers represent about 23% of the household solid waste. The project "Light Kids" is targeting families with children and municipal crèches (baby day cares). The goal, in the medium term, was to achieve a drastic reduction in the number of disposable diapers purchased, encouraging the use of durable diapers. The project required the use washable diapers or biodegradable diapers by the company that deals with the management of municipal crèches or even the exclusive use of durable diapers. A three-year contribution for each child of the families involved was provided in order to cover, partially, the procurement costs for the families during the first three years of the child's life.	English	Italy
76	<a href="#">Local Authority Prevention Demonstration Programme (Ireland)</a>	<b>Keywords:</b> Information - Awareness, general waste, NGOs. <b>Short Reference:</b> The Local Authority Prevention Demonstration Project (LAPD) provides funding, publicity and technical support to local authority and community waste prevention programmes, facilitating best practice sharing between participants.	English	Ireland
77	<a href="#">Love Food Hate Waste (UK)</a>	<b>Keywords:</b> Information - Awareness, food, NGOs. <b>Short Reference:</b> According to a report published by WRAP in 2008, one third of the food we buy is wasted. In order to help consumer reduce this amount, WRAP has launched the "More Food, Less Waste" website, featuring practical advice and tips to help people make the most of the food they are buying, and waste less of it. Love Food Hate Waste, an awareness campaign, sponsored by WRAP in the UK, aims at raising awareness on the need to reduce food waste, via the dissemination of information on reducing consumer and household food waste to achieve environmental and economic benefits. The focus of the campaign is on easy practical everyday activities which can lead to waste reduction. Since the campaign launched in 2008, WRAP estimates that 137,000 tons of food waste have been prevented.	English	UK
78	<a href="#">Love Food Hate Waste Australia</a>  <a href="#">http://www.lovefoodhatewaste.nsw.gov.au/</a>	<b>Keywords:</b> Information - Awareness, food, NGOs. <b>Short Reference:</b> Love Food Hate Waste aims to raise awareness about the impact of food waste in NSW and reduce how much 'good' food we waste. Love Food Hate Waste is managed by the Environment Protection Authority (EPA) partnering with corporate, government and not-for-profit organisations committed to reducing food waste in NSW.	English	Australia
79	<a href="#">Love Green</a>  <a href="#">http://www.love-green.de/</a>	<b>Keywords:</b> Information - Awareness, media, general waste. <b>Short Reference:</b> Love Green wants to encourage broadcast and other media to contact them and to create their own Love Green in their respective markets. Since summer 2011 in television shows on Sat.1 and ProSieben, there are regularly contributions about sustainability and environmental protection. Those contributions are also later available on the LoveGreen website. In addition to various sustainability issues many other articles and information are available on the website.	English German	Germany
80	<a href="#">Love your leftovers</a>	<b>Keywords:</b> Information - Awareness, training, recipe contest from leftovers. <b>Short Reference:</b> After receiving thousands of entries, 10 of them have been chosen; each receives a £100 Sainsbury's voucher. Winning leftover tips could be found on the web page along with judges comments.	English	UK
81	<a href="#">Marche Food Bank ONLUS, Italy (Pre-waste factsheet 44)</a>  <a href="#">Pre_waste_44_IT_food_desk_march</a>	<b>Keywords:</b> Dood, redistribution of food, donations, NGOs. <b>Short Reference:</b> Marche Food Desk operates in Marche Region to recover food surpluses in order to support needy people. The project is active in the Marche Region and includes the redistribution of food all over the Region, and the implementation of three pilot experiences in the three territorial areas of the region (Pesaro, Ascoli Piceno and San Benedetto del Tronto) for the recovery fresh food. These experiences are progressively extended to the whole region. The main objectives are: reduction of waste -reduction of	English	Italy

		costs and environmental impacts due the management of waste; help social organizations that develop an activity of food support for the needy; dissemination and a awareness raising of citizens and enterprises for environmental sustainability, recovery and prevention.		
82	<a href="http://www.voddingencentrum.nl/nl/1404.aspx?requestedpath=/nl/mijn-boodschappen/minder-verspillen.aspx">Mass media campaign on food waste 'Eten is om op te eten', 'Hollandse Tapas'</a>	<b>Keywords:</b> Information- Awareness, training, food. <b>Short Reference:</b> Famous people act in public as the "food ambassadors" to help improve awareness about the food issue among the people. Furthermore, the Ministry of Environment put a related humorous infomercial into the nation's largest radio station for three weeks. In addition, twelve minute long educational film intended to create awareness was shot. As part of the "Eten om op te eten" campaign are shopping and cooking advices and so tips for food storage.	English Dutch	Netherlands
83	<a href="#">Menu Dose Certa</a> <a href="#">Menu Dose Certa (Portugal)</a> <a href="#">Pre_waste_86_PT_Menu_Dose_Certa</a>	<b>Keywords:</b> Food, catering/restaurants. <b>Short Reference:</b> The Menu Dose Certa project aims to reduce food waste by 48.5 kilos per year per restaurant client by 2011 and attempts to change attitudes and behaviours by raising awareness on the problem of food waste. The goal is to support restaurants in creating menus that generate notably less food waste. The project is a partnership between LIPOR, the Association of Portuguese Nutritionists, the local authorities of Espinho and local restaurants. The initiative combats food waste in restaurants, increases public awareness of the issue, and promotes a balanced diet. The initiative kicked off at the Cristal restaurant in Espinho, generating significant media attention at regional and national level. The project will continue to be expanded with a competition among participating restaurants to produce the best recipe for a Right Serving Menu, in terms of serving size and nutritional value. Winning menus will be collected in a recipe book promoted in local media.	English	Portugal
84	<a href="http://www.salonedegusto.com/en/slow-pack-price-2014/">Narrative Label'</a> <a href="http://www.salonedegusto.com/en/slow-pack-price-2014/">http://www.salonedegusto.com/en/slow-pack-price-2014/</a>	<b>Keywords:</b> Food packaging, competition environmental friendly packaging, food industries, NGOs. <b>Short Reference:</b> In 2012, Slow Food launched the first edition of the <a href="#">SlowPack prize 2012</a> , held as part of Salone del Gusto 2012, open exclusively to the food producers both from Italy and the rest of the world who exhibit their products at the event. This contest aims to encourage producers to reflect on the impact that non-eco-friendly packaging has on the environment and on the flavor, aroma, and safety of their products, while awarding those who use environmentally friendly packaging.	English	Italy
85	<a href="#">National Industry Symbiosis Programme (UK)</a>	<b>Keywords:</b> Industrial waste, voluntary agreements <b>Short Reference:</b> This unique voluntary programme applies and facilitates industrial symbiosis at national level for the first time. Seeking substantial resource efficiency improvements, NISP impacts the UK's economy and environmental performance.	English	UK
86	<a href="#">Nemsit.hu Construction Material Exchange (Hungary)</a>	<b>Keywords:</b> Debris, reuse, repair. <b>Short Reference:</b> Approximately 40-50% of raw materials extracted annually are used in manufacturing building products, according to the United Nations Environmental Program (UNEP). In Hungary only 1-2% of construction materials are reused. To improve the situation the Independent Ecological Centre developed an online forum to facilitate the exchange and resale of construction materials.	English	Hungary
87	<a href="#">New Irish legislation on separate food waste collection (SI 508 of 2009)</a>	<b>Keywords:</b> bio-waste, separate collection, policies. <b>Short Reference:</b> Designed to promote the segregation and recovery of food waste arising in the commercial sector, this regulation sets up the source separation of food waste from major commercial premises. The regulation facilitates the achievement of the targets set out in Directive 99/31/EC on the landfilling of waste notably as regards the diversion of biodegradable municipal waste (BMW) from landfill sites to composting and anaerobic digestion plants and to other forms of biological treatment.	English	Ireland
88	<a href="#">Next Door Help</a>	<b>Keywords:</b> food, food redistribution online platform. <b>Short Reference:</b> Next Door Help is the first Italian platform of item-sharing against food waste: through the online platform ( <a href="http://nextdoorhelp.it">http://nextdoorhelp.it</a> ), users can publish or look for a geolocated announcement on food leftovers, thus having the chance of exchanging food surpluses and avoiding they go to waste.	English	Italy
89	<a href="#">No Disposables Campaign (Korea)</a>	<b>Keywords:</b> Restaurants/catering, voluntary agreements, NGOs. <b>Short Reference:</b> The Korea Zero Waste Movement Network brings together 270 grassroots non - profit organisations to solve the major waste issues created by rapid growth and urban development in South Korea. Spearheading several voluntary agreements, KZWMN has greatly reduced the use of disposable tableware in fast food chains.	English	S. Korea
90	<a href="https://vimeo.com/20733995">No-advertisement sticker with legal backing in Brussels (Prewaste factsheet 18)</a> <a href="http://www.wrap.org.uk/sites/files/wrap/Pre-waste_18_BE_No-Advertisement_sticker_legal-18012012.pdf">Pre-waste_18_BE_No-Advertisement_sticker_legal-18012012.pdf</a> <a href="https://vimeo.com/20733995">https://vimeo.com/20733995 (French)</a>	<b>Keywords:</b> Paper, marking not to accept advertising and free brochures. <b>Short Reference:</b> 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. 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. 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.	English	Belgium
91	<a href="#">NEW! Greene King drives down food costs in pub chain</a> <a href="http://www.wrap.org.uk/sites/files/wrap/Greene%20King%20case%20study.pdf">http://www.wrap.org.uk/sites/files/wrap/Greene%20King%20case%20study.pdf</a>	<b>Keywords:</b> Restaurants/catering, food. <b>Short Reference:</b> Branocs Tree Hungry Horse pub, part of Greene King, took part in an eight week trial to actively monitor and reduce food waste. By using a smart meter to measure food waste the pub was able to identify savings and reduce the amount of food being thrown away. The trial successfully reduced food waste per cover by around 15% and achieved substantial financial savings. This equates to a reduction across the site of around 4 tonnes per year. Greene King drives down food costs in pub chain.	English	UK
92	<a href="#">NEW! Large buffet savings at Crieff Hydro</a> <a href="http://www.wrap.org.uk/sites/files/wrap/Crieff%20Hydro%20case%20study.pdf">http://www.wrap.org.uk/sites/files/wrap/Crieff%20Hydro%20case%20study.pdf</a>	<b>Keywords:</b> Restaurants/catering, food. <b>Short Reference:</b> Crieff Hydro - Crieff Hydro took part in a food waste monitoring trial to actively measure and reduce food waste in its main Meikle restaurant. By using a smart meter to measure food waste, the hotel identified the areas to focus on were the breakfast and lunch buffet. Subsequently the hotel reduced food waste through various measures.	English	UK

93	<a href="http://www.wrap.org.uk/sites/files/wrap/Swansea%20University%20study.pdf">NEW! Reducing food waste at Swansea University</a>  <a href="http://www.wrap.org.uk/sites/files/wrap/Swansea%20University%20study.pdf">http://www.wrap.org.uk/sites/files/wrap/Swansea%20University%20study.pdf</a>	<p><b>Keywords:</b> Restaurants/catering, university, food.</p> <p><b>Short Reference:</b> Swansea University was founded in 1920 and has 16,000 students and 2,500 staff. Campus catering operate a variety of restaurants and coffee shops on the university campus in addition to providing event and hospitality catering. As part of its commitment to continuous improvement a wide range of waste reduction activities have been undertaken realising cost savings of over £9,500 per year in food procurement costs alone.</p>	English	UK
94	<a href="http://www.wrap.org.uk/sites/files/wrap/Strathmore%20Hotels%20case%20study.pdf">NEW! Strathmore Hotels saves 18% of food costs</a>  <a href="http://www.wrap.org.uk/sites/files/wrap/Strathmore%20Hotels%20case%20study.pdf">http://www.wrap.org.uk/sites/files/wrap/Strathmore%20Hotels%20case%20study.pdf</a>	<p><b>Keywords:</b> Restaurants/catering, hotels, food.</p> <p><b>Short Reference:</b> The Salutation Hotel, part of the Strathmore Hotel Group, took part in an eight week trial to actively monitor and reduce food waste. The trial successfully reduced the weight of food waste per cover by 36% and achieved financial savings worth approximately £10,900 per annum. Replicating these savings across all seven hotels in the group could lead to reductions of 29 tonnes of food waste and £76,000 of savings due to reduced food purchasing costs each year.</p>	English	UK
95	<a href="http://www.wrap.org.uk/sites/files/wrap/Dragon%20Hotel%20case%20study.pdf">NEW! The Dragon Hotel – making food and packaging waste reduction work</a>  <a href="http://www.wrap.org.uk/sites/files/wrap/Dragon%20Hotel%20case%20study.pdf">http://www.wrap.org.uk/sites/files/wrap/Dragon%20Hotel%20case%20study.pdf</a>	<p><b>Keywords:</b> Restaurants/catering, hotels, food.</p> <p><b>Short Reference:</b> The Dragon Hotel, part of Macdonald Hotels &amp; Resorts, took part in a WRAP pilot project helping a cluster of hospitality and food service businesses to reduce food and packaging waste. By the end of the 6 month pilot, the hotel had reduced costs by £3,000 and increased recycling rates through simple no or low cost measures. The hotel is now saving around £15,000 per year.</p>	English	UK
96	<a href="http://www.ecologie.gouv.fr/stop-pub.htm">Stop Pub (France)</a>  <a href="http://www.ecologie.gouv.fr/stop-pub.htm">www.ecologie.gouv.fr/stop-pub.htm</a>	<p><b>Keywords:</b> Paper, information - Awareness, marking rejecting anonymous correspondence.</p> <p><b>Short Reference:</b> French households receive an average of 15kg of unaddressed mail each year, accounting for 5% of household waste. The French Ministry of Ecology and Sustainable Development responded to this problem with 'No Junk Mail' post box stickers and a widely recognized awareness campaign.</p>	English	France
97	<a href="http://www.wrap.org.uk/sites/files/wrap/Pay-as-you-throw%20(PAYT)%20scheme%20in%20Schweinfurt%20Germany%20(Pre-waste%20factsheet%20108).pdf">Pay-as-you-throw (PAYT) scheme in Schweinfurt, Germany (Pre-waste factsheet 108)</a>  <a href="http://www.wrap.org.uk/sites/files/wrap/Pay-as-you-throw%20(PAYT)%20scheme%20in%20Schweinfurt%20Germany%20(Pre-waste%20factsheet%20108).pdf">Prewaste_108_DE_PAYT_20-06-2012.pdf</a>	<p><b>Keywords:</b> Pay As You Through (PAYT).</p> <p><b>Short Reference:</b> The German county Schweinfurt adopted Pay-As-You-Throw System that takes into account 3 aspects: <b>bin volume, collection frequency and weight</b>. In this way, there is an up-front choice to be made to reduce bin volume, an incentive to reduce set-out rates (so as to improve collection logistics) and a weight-based element to reflect the marginal benefits of avoided disposal. In Schweinfurt, the system's performance has been outstanding. An already high-performing system was made more so by the application of an intelligently designed PAYT charging scheme. The rigour with which the system was contemplated, prepared, implemented, and then monitored demonstrated a high level of commitment to the cause of pursuing a sustainable waste management strategy through appropriately incentivising households. The use of the hybrid approach to charging is especially interesting. Weight-based systems, if not designed in this manner, might lead to high set out rates of bins with small quantities of waste. Here, the inclusion of both weight- and frequency-based charges acts to incentivise low set out rates of refuse bins, reducing the costs of the collection service. Citizens have clearly responded to this incentive, so that savings in the quantity of residual waste set out for collection translate into genuine savings in the collection system.</p>	English	Germany
98	<a href="http://www.reduisonsnosdechets.fr/">Réduisons nos déchets</a>  <a href="http://www.reduisonsnosdechets.fr/">http://www.reduisonsnosdechets.fr/</a>	<p><b>Keywords:</b> Information - Awareness, consumer behavior, food.</p> <p><b>Short Reference:</b> ADEME's national awareness campaign aimed to informing households about waste production and its prevention, for this purpose uses multiple communication channels: online resources, radio broadcasts, etc. The website offers specific practical tips related to food waste reduction at home and while shopping. Target of the program is to reduce annually 390 kg of the waste produced in France.</p>	English French	France
99	<a href="http://www.carbontrust.com/media/68490/personal_carbon_allowances_white_paper.pdf">Personal Carbon Allowances White Paper</a>  <a href="http://www.carbontrust.com/media/68490/personal_carbon_allowances_white_paper.pdf">http://www.carbontrust.com/media/68490/personal_carbon_allowances_white_paper.pdf</a>  <a href="http://www.carbontrust.com/resources/reports/footprinting/personal-carbon-allowances-white-paper">http://www.carbontrust.com/resources/reports/footprinting/personal-carbon-allowances-white-paper</a>	<p><b>Keywords:</b> Information - Awareness, consumer and environmental behavior in general waste, CO2 emissions.</p> <p><b>Short Reference:</b> The Carbon Trust is a world-leading organisation helping businesses, governments and the public sector to accelerate the move to a low carbon economy through carbon reduction, energy-saving strategies and commercialising low carbon technologies. The White Paper explores the concept of Personal Carbon Allowances - investigating how it could work in practice, reviewing what a personal carbon allowance would include, and looking at how big a personal carbon allowance should be. It includes learning's and feedback from a four-week consumer trial in Great Britain which set a personal carbon allowance of 20Kg CO2 per day. The White Paper also explores the increasingly important role that business and brands have to play in driving awareness of sustainability and investigates whether personal carbon allowances could help consumers to understand how the carbon footprint of specific products and services relate to a total daily allowance. Providing easy-to-understand environmental information in a credible and relevant way is a significant challenge, but also an exciting opportunity.</p>	English	UK
100	<a href="#">Phasing out of EU Commission Regulation</a>	<p><b>Keywords:</b> Public Policies, food.</p> <p><b>Short Reference:</b> With Commission Regulation (EC) No 1221/2008 of 5 December 2008, the European Commission approved the phasing out of regulations on the size and shapes of fruit and vegetables. This legislative change reduces the aesthetic requirements for many fruits and vegetables thereby preventing the unnecessary discard of various types of produce, which are aesthetically imperfect but perfectly edible. This change should lessen the burden of legislation as well as allowing shoppers more choice by ensuring that fruits and vegetables with slight abnormalities will not be thrown away. The current list of fruit and vegetables impacted are: apricots, artichokes, asparagus, aubergines, avocados, beans, Brussels sprouts, carrots, cauliflowers, cherries, courgettes, cucumbers, cultivated mushrooms, garlic, hazelnuts in shell, headed cabbage, leeks, melons, onions, peas, plums, ribbed celery, spinach, walnuts in shell, water melons, and witloof/chicory. The exception from marketing standards could be extended to another ten products such as apples, citrus fruit, kiwifruit, lettuces, peaches and nectarines, pears, strawberries, sweet peppers, table grapes and tomatoes to further reduce the production of food waste due to aesthetical concerns.</p>	English	EU Countries
101	<a href="#">Piedmont Home Composting Campaign (Italy)</a>	<p><b>Keywords:</b> Information - Awareness, training, support, home composting.</p> <p><b>Short Reference:</b> This regional initiative in Piedmont provides training and extensive informational support to encourage community residents to manage their own biodegradable waste through effective home</p>	English	Italy

		composting measures.		
102	<a href="#">Promotion of decentralised composting in Brussels Pre-waste factsheet 21)</a>  <a href="#">Example of information tool in French: "Composter pour réduire ses déchets Guide pratique" (Apr 2009)</a>	<p><b>Keywords:</b> Information - Awareness, training, support, home composting, municipal composting.</p> <p><b>Short Reference:</b> Promotion of decentralised composting in Brussels Capital Region, including</p> <ul style="list-style-type: none"> <li>• Individual garden composting of garden and kitchen waste</li> <li>• Individual vermicomposting (indoor composting of kitchen waste with worms)</li> <li>• Community composting</li> </ul> <p>Target of the 2010 Waste plan is to reduce garden waste by 5 kg/inhab/year by 2013 and by 12kg/inhab/year (12,000 T) by 2020 compared to 2005.</p> <p>This involves maintain a compost master network, providing information tools and supporting community composting projects.</p>	English French	Belgium
103	<a href="#">"Restaurant fines"</a> <a href="http://www.digitaljournal.com/article/329981">http://www.digitaljournal.com/article/329981</a>  <a href="http://www.love-green.de/themen/Ernährung/_wer-nicht-aufisst-zahlt-id1796.html">http://www.love-green.de/themen/Ernährung/_wer-nicht-aufisst-zahlt-id1796.html</a>	<p><b>Keywords:</b> Information - Awareness, restaurants, customer charge if left residues on dishes.</p> <p><b>Short Reference:</b> Kylin Buffet in UK has begun charging customers £20 if they do not finish the food on their plate from the all-you-can-eat Chinese food buffet. The restaurant in Saudi Arabia is charging customers who fail to eat everything on their plates, claiming that wasting food is contrary to the principles of Islam. Malaysian restaurant owner from Danish city Hjørring charging customers 4EUR as an ecological fee for their food leftovers.</p>	English Danish	UK, Saudi Arabia, Denmark
104	<a href="#">Reducing the environmental impacts of food</a>  <a href="http://www.rvo.nl/content/redictie-milieudruk-voedsel-eindrapportage-1e-fase-voedselverspilling">http://www.rvo.nl/content/redictie-milieudruk-voedsel-eindrapportage-1e-fase-voedselverspilling</a>	<p><b>Keywords:</b> Information - Awareness, environmental impact of food.</p> <p><b>Short Reference:</b> Reducing the environmental impacts of food.</p>	English Dutch	Netherlands
105	<a href="#">Reusable Shopping Bag "Eco-Sac" (LUX)</a> <a href="http://www.emwelt.lu">www.emwelt.lu</a> <a href="http://www.valorlux.lu">www.valorlux.lu</a> <a href="http://www.clc.lu">www.clc.lu</a>	<p><b>Keywords:</b> packaging, plastic bags.</p> <p><b>Short Reference:</b> Sustainable replacement of disposable shopping bags - In cooperation with 85 retailing companies, including the 5 major supermarket chains in Luxembourg, the "Eco-Sac project" has been nationwide experiencing a resounding success. As permanent and periodical performance review, initiated and monitored by the tripartite partners, is of paramount importance to the project, it can be stated that the project's objective could be achieved to the greatest possible extent. Some data:</p> <ul style="list-style-type: none"> <li>• Since the project's start, some 300 million disposable shopping bags could get prevented;</li> <li>• Due to the Eco-Sac, the emissions of CO2-eq, linked to the production of disposable shopping bags, are annually reduced by 1,000 tons;</li> <li>• High degree of popularity: As a result of goal-oriented public relation campaigns and according to the conducted consumer survey's, the Eco-Sac has been successfully established as kind of "national brand" (with a degree of brand awareness beyond 90%).</li> </ul>	English French	Luxembourg
106	<a href="#">Love Food Hate Waste Campaign in North London. (Pre-waste factsheet 4)</a>  <a href="#">Pre_waste_04_NLWA_Love_food_h</a>	<p><b>Keywords:</b> Information - Awareness, food.</p> <p><b>Short Reference:</b> The local campaign in North London was based upon UK-wide research and a campaign by WRAP. The research showed that households could save up to £50 per month by reducing their food waste and that nationally around a third of all the food we buy ends up being thrown away, most of which could still have been eaten. The campaign involved a variety of activities (which have been based upon effective campaigns delivered in other areas) including: food waste roadshows, a recipe competition for residents, community kitchen workshops, events with local businesses, a media campaign and a new website.</p>	English	UK
107	<a href="#">R.U.S.Z – Repair and Service Center in Austria (Prewaste factsheet 10)</a>  <a href="#">Pre_waste_10_AT_RUSZ_reuse_10</a>  <a href="#">Energy_efficiency_increase_of_used</a>	<p><b>Keywords:</b> Reuse, repair, training, repair centers, NGOs.</p> <p><b>Short Reference:</b> R.U.S.Z. (Reparatur und Service Zentrum – Repair and Service Center) is a special initiative in Vienna, where jobless people are trained to repair goods at affordable prices and disassemble electronic equipment so that hazardous and non-hazardous waste is separated. Items most commonly repaired are electronic and electrical household devices. It created an enormous demand for repair services which sowed the seeds of the Repair Network Vienna, a network of some 60 private, profit-oriented repair companies and was followed by the creation of three other repair networks in Austria (<a href="http://www.repanet.at">www.repanet.at</a>). 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%. Energy efficiency class C-devices can therefore be upgraded to energy efficiency class A.</p>	English German	Austria
108	<a href="#">Save Food from the Fridge</a>  <a href="http://www.savefoodfromthefridge.com/">http://www.savefoodfromthefridge.com/</a>	<p><b>Keywords:</b> Information - Awareness, training and food</p> <p><b>Short Reference:</b> This project is about traditional oral knowledge which has been accumulated from experience and transmitted by mouth to mouth. Particularly focusing on the food preservation, it looks at a feasible way of bringing that knowledge into everyday life. Presented design looks at re-introducing and re-evaluating traditional oral knowledge of food, which is closer to nature. Through the objects of everyday life, design can introduce traditional oral knowledge into people's lives through their experience of using it. These Dutch "ancient wisdoms" is now coming within a book and in the self-designed food storage containers for consumers.</p>	English	Netherlands
109	<a href="#">School waste heroes</a>	<p><b>Keywords:</b> Schools, information - Awareness, education, food.</p> <p><b>Short Reference:</b> School Food Waste Heroes Activity Pack has been developed from research by WRAP (Waste &amp; Resources Action Programme) <a href="http://www.wrap.org.uk">www.wrap.org.uk</a> into the extent of food waste in schools. The pack challenges students to become heroes by getting them to lead a group of stakeholders across the school, including caterers and lunch time supervisors, to reduce food waste in their school. The pack suggests a step-by-step approach, with a set of actions and all the supporting resources needed to help them in their task.</p>	English	UK
110	<a href="#">Self-service Detergents in Large Retail in Piemonte, Italy. (Pre-waste factsheet 42)</a>  <a href="#">Pre_waste_42_IT_self_service_deterg</a>	<p><b>Keywords:</b> Packaging, bulk detergent.</p> <p><b>Short Reference:</b> The main objectives of the Self Service Detergents Project is to reduce packaging waste production coming from the purchase and use of detergents through the diffusion of the sale of on-tap detergents in retail chains in Piemonte making use of reusable bottles. The project addressed the bulk sale</p>	English	Italy

		<p>of detergents such as dish-washing liquids, fabric conditioners, laundry liquids, and all-purpose cleaners. The project was a collaboration between the Piemonte region, the retail sector (GDO), and detergent producers. Detergent dispensers were placed in over 40 points of sale. 74% of detergent purchases at the dispensers involved re-using the bottle. As a result over 780.000 bottles were reused avoiding the use of about 47 tonnes HDPE and 26 paperboard tonnes. This represents emission avoidance of 130,5 tonnes of CO<sub>2</sub> and saving of 2.011 MWH of Energy and 196x10<sup>6</sup> liters of water. Four years after the beginning of the experimental phase of the project, no shop had returned the dispenser (see picture).</p> 		
111	<a href="http://www.bancoalimentare.it/it/siticibo2012">Siticibo</a> <a href="http://www.bancoalimentare.it/it/siticibo2012">http://www.bancoalimentare.it/it/siticibo2012</a>	<p><b>Keywords:</b> food, food redistribution, NGOs.</p> <p><b>Short Reference:</b> Siticibo is a programme managed by the Fondazione Banco Alimentare Onlus (FBAO), which was established in Milan in 2003. Siticibo is the first implementation of the Italian Law No. 155/2003, the so-called Law of the Good Samaritan, and aims to recover the cooked meals and fresh surplus food from the catering and events (hotels, hospitals and company canteens, school canteens, retailers, etc.). In 2009 Siticibo started to recover fresh surplus food (e.g. fruit, vegetables, yogurt, pasta, delicatessen) also from the distribution sector. In 2014 Siticibo recovered 319 tons of bread and fruit and 1,043,351 ready meals from the collective catering sector and 4,307 tons of food from the distribution sector.</p>	English Italian	Italy
112	<a href="http://www.fondazionelawood.com/en/what-we-do/slow-food-chefs-alliance/alliance-menus/">Slow Food Chefs' Alliance</a> <a href="http://www.fondazionelawood.com/en/what-we-do/slow-food-chefs-alliance/alliance-menus/">http://www.fondazionelawood.com/en/what-we-do/slow-food-chefs-alliance/alliance-menus/</a>	<p><b>Keywords:</b> Food, food producers, Slow Food philosophy, NGOs.</p> <p><b>Short Reference:</b> The chefs involved in the Alliance initiative embrace the Slow Food philosophy, choosing local ingredients, respecting seasonality and working directly with small-scale producers, getting to know them and promoting their products. The close link between farmers and chefs ensures timely delivery of products and thereby avoid post-production losses.</p>	English	Italy, Netherlands
113	<a href="#">Slow Food Earth Markets</a>	<p><b>Keywords:</b> food, producers of local food products, Slow Food philosophy, NGOs.</p> <p><b>Short Reference:</b> Earth Markets are community-run markets where local producers offer healthy, quality food directly to consumers at fair prices and guarantee environmentally sustainable methods. Earth Markets are run so as to minimise environmental impact, for instance with waste reduction, biodegradable consumables, recycling, and energy-saving measures. Workshops are also organised at the markets to raise consumer awareness on the importance of eating local seasonal products and reduce food waste.</p>	English	Austria, Bulgaria, Italy,
114	<a href="#">Slow Food Presidia</a>	<p><b>Keywords:</b> Food, local food production, biodiversity, Slow Food philosophy, NGOs.</p> <p><b>Short Reference:</b> Presidia are groups of small scale producers who safeguard local breeds and local plant varieties, engage in quality production at risk of extinction, protect unique regions and ecosystems, recover traditional processing methods. There are more than 250 Slow Food Presidia in Europe involving more than 1600 small-scale producers: fishers, butchers, shepherds, cheesemakers, bakers and pastry chefs. Slow Food technical support to Presidia aims to address issues relating to food processing, also to minimise production and post-production losses.</p>	English	EU Countries
115	<a href="http://www.multivu.com/players/English/45656-Sodexo-Food-Waste-Reduction/">Sodexo Campus Food Waste</a> <a href="http://www.multivu.com/players/English/45656-Sodexo-Food-Waste-Reduction/">http://www.multivu.com/players/English/45656-Sodexo-Food-Waste-Reduction/</a>	<p><b>Keywords:</b> Food, universities, information - awareness, training.</p> <p><b>Short Reference:</b> Sodexo employees at eight college campuses cut kitchen waste by about one third, simply by tracking and monitoring food waste, according to the preliminary findings from the first eight weeks of a pilot study that is part of the company's commitment to stop wasting food to curb climate change and improve business practices. Sodexo is partnering with LeanPath, a technology company providing food waste tracking systems, to conduct the review. The pilot study focuses on kitchen - or pre-consumer - waste, not what customers throw out. The pilot study system features a tracking station where Sodexo employees enter data about what they are throwing out and why. By tracking the reason for throwing away items, Sodexo is able to correct the problem to prevent future food waste. Sodexo employees at those eight sites have dramatically reduced overproduction, spoilage, expiration and trimmings by participating in the pilot study. In September Sodexo launched "Stop Wasting Food," a campaign to engage its customers and employees in reducing food waste to curb climate change. trimmings.</p>	English	USA
116	<a href="#">Spar</a>	<p><b>Keywords:</b> food, schools, businesses, public awareness, NGOs.</p> <p><b>Short Reference:</b> The initiative aims to reduce food wastage by 10% until 2014 through awareness raising, partnership with schools, cooperation with business partners and other institutions. Spar is already a business partner and has setup a project to further reduce wastage and analyse the reason together with the BOKU University in Vienna.</p>	English	Austria
117	<a href="http://www.wrap.org.uk/sites/files/wrap/Stansed.pdf">Stansted Airport</a> <a href="http://www.wrap.org.uk/sites/files/wrap/Stansed.pdf">http://www.wrap.org.uk/sites/files/wrap/Stansed.pdf</a>	<p><b>Keywords:</b> Airport, general waste, food packaging.</p> <p><b>Short Reference:</b> Airport recycling rates soar with terminal food waste collection. Stansted Airport Limited worked with catering outlets to fit food waste recycling collections into their busy schedule, helping to cut costs and meet landfill diversion targets. Key facts:</p> <ul style="list-style-type: none"> <li>• 18 million passengers</li> <li>• Target of 60% recycling by 2015</li> <li>• 203 tonnes of food waste generated annually</li> <li>• Food waste collection scheme needed to work around frenetic schedules of catering retailers</li> </ul>	English	UK
118	<a href="http://www.stilltasty.com/">Still Tasty</a> <a href="http://www.stilltasty.com/">http://www.stilltasty.com/</a>	<p><b>Keywords:</b> food, information – awareness, training storage ways, NGOs.</p> <p><b>Short Reference:</b> StillTasty's food storage information is drawn from multiple sources. A primary source is</p>	English	USA

		the food safety research conducted by U.S. government agencies, including the United States Department of Agriculture, the U.S. Food & Drug Administration, and the U.S. Centres for Disease Control and Prevention. StillTasty's content also incorporates research from state government agencies as well as several non-profit organizations and associations that conduct studies on food storage and safety. In addition, StillTasty has directly contacted food and beverage manufacturers to obtain information on optimal storage methods for specific foods and details on storage times as they pertain to both food safety and food quality.		
119	<a href="http://www.stopfoodwaste.ie/">Stop Food Waste</a> <a href="http://www.stopfoodwaste.ie/">http://www.stopfoodwaste.ie/ L</a>	<b>Keywords:</b> Information – awareness, training, web-based, information tool. <b>Short Reference:</b> Web page managed by EPA, contains plenty of information for municipalities and households about the food waste prevention (cooking recipes, food storage tips, how to compost, etc.).	English	Ireland
120	<a href="http://www.stopspildafmad.dk/inenglish.html">Stop Wasting Food</a> <a href="http://www.stopspildafmad.dk/inenglish.html">http://www.stopspildafmad.dk/inenglish.html</a>	<b>Keywords:</b> Information – awareness, food, movement against food waste, NGOs. <b>Short Reference:</b> Stop Wasting Food is Denmark's largest movement of private consumers against food waste - a nonprofit NGO, created by the consumers for the consumers. The movement is founded to raise public awareness about food waste through campaigns, publicity, press, discussions, debate, events and other information channels - and to equip consumers to minimize food waste. Stop Wasting Food also inspires consumers to act locally, for example by donating edible surplus food to shelters for homeless people.	English	Denmark
121	<a href="#">SuperDrecksKesch (LUX)</a>	<b>Keywords:</b> Packaging, general waste, counseling. <b>Short Reference:</b> Context: In 1985 the Luxembourg Ministry for the Environment launched the SDK or SuperDrecksKesch® and they have been working in cooperation with the Chamber of Crafts since 1991. The SDK is a holistic system aimed at citizens, companies, commerce and administrative bodies with close consumer involvement. Aim: The SDK provides advice to citizens and businesses. It stresses that waste prevention is of top priority to us and to subsequent generations. It also promotes the environmentally sound recycling of waste and reuse by second-hand shops. Themes consciously chosen in relation to consumption are waste prevention and product life cycle. Reconsumption is at the end: collecting residual waste and recycling as much of it as possible.	English	Luxembourg
122	<a href="#">'Sustainable Concordia'_ Campus Waste Prevention Strategy (Canada)</a>	<b>Keywords:</b> University, paper, general waste. <b>Short Reference:</b> The model sustainability programme at Concordia University, launched and run by students since 2002, regularly assesses campus waste loads and uses results to accurately target its initiatives at challenging waste streams identified. R4 Concordia saved over \$72,000 through campus waste management innovations in 2005, by reducing landfill costs and purchasing expenses for paper and other materials. Waste generated per capita was reduced by nearly 7% between 2005 and 2006.	English	Canada
123	<a href="#">Sustainable Restaurant Association</a> <a href="http://www.hightecheurope.eu/award.html">http://www.hightecheurope.eu/award.html</a>	<b>Keywords:</b> Sustainability criteria of restaurants/caterings, evaluation of restaurants/ caterings, sustainability awards restaurants, NGOs. <b>Short Reference:</b> The Sustainable Restaurant Association is a not for profit membership organisation helping restaurants become more sustainable and diners make more sustainable choices when dining out. They help their member restaurants source food more sustainably, manage resources more efficiently and work more closely with their community. Their independently verified Sustainability Rating system means diners can choose a restaurant that matches their sustainability priorities. They recognise restaurants as one, two or three star sustainability champions depending on how they rate against a wide range of criteria covering 14 areas of sustainability.	English	UK
124	<a href="#">Swap-O-rama-rama (USA)</a> <a href="http://www.swaporamarama.org">www.swaporamarama.org</a> <a href="https://youtu.be/w3LJICqN9dE">https://youtu.be/w3LJICqN9dE</a>	<b>Keywords:</b> Reuse, clothing, clothes redesign, repair. <b>Short Reference:</b> Swap-O-Rama-Rama, an original approach to textile waste prevention, was created in 2005 to help communities use their creativity to redesign unwanted clothes, providing inspiration and technical skills.	English	USA
125	<a href="#">Taste the Waste</a> <a href="http://tastethewaste.com/info/film">http://tastethewaste.com/info/film</a>	<b>Keywords:</b> Information – public awareness. <b>Short Reference:</b> Documentary film about food wasting in the EU (3.01 min).	English French German Spanish Portuguese	Germany
126	<a href="#">Team Austria</a> <a href="http://oe3.orf.at/teamoesterreich/stories/511376/">http://oe3.orf.at/teamoesterreich/stories/511376/</a>	<b>Keywords:</b> Food, food redistribution, NGOs. <b>Short Reference:</b> Team Austria is a volunteer organization which collects "unsellable food" from retailers, which is then redistributed to social markets or people in need. 390 volunteers every week redistribute about 20 tons of food and thus helps enhance nutrition for about 10,000 adults and children.	English German	Austria
127	<a href="#">Teller statt Tonne</a> <a href="http://www.slowfood.de/slow_themen/lebensmittel_verehnung/hintergruende/">http://www.slowfood.de/slow_themen/lebensmittel_verehnung/hintergruende/</a>	<b>Keywords:</b> Food, non-commercial use of food, food redistribution, NGOs. <b>Short Reference:</b> Good quality, but curved and knobbly vegetables have no chance in the food trade. Supposedly they are despised by the customer due to their shape or texture - or they just do not fit into the packaging standards of middlemen. As a result, producers have to throw quality goods often. To counteract food waste, Slow Food Germany launched the action Teller statt Tonne ("plate instead of the bin"). Volunteers gather discarded vegetables and other foods from local producers, prepare a dish distributed freely to the passersby. When sharing a meal together at long tables, visitors can then inform and learn what they can do personally against food waste.	English German	Germany
128	<a href="#">Tesco 'Buy One Get One Free Later'</a> <a href="http://www.tescopl.com/index.asp?pageid=81">http://www.tescopl.com/index.asp?pageid=81</a>	<b>Keywords:</b> Perishable foods, incentives to consumers to purchase perishable products close to expiry. <b>Short Reference:</b> As part of their pledge to not send any waste to landfill this year and specifically to target food waste reduction, grocery retailer Tesco launched a 'Buy One Get One Free Later' initiative to allow customers buying perishable goods to collect their free item the following week. Under the offers, consumers will be able to postpone getting their free second promotional product until a later shopping trip. The programme works through a voucher system; products included in the initiative are those which	English	UK

		are considered "short-code life-perishable products" with short sell dates such as yoghurts, salads, vegetables and cheese. The initiative does not include products with longer sell dates such as cans of beans and pasta sauce.		
129	<a href="http://www.co-operative.coop/Corporate/sustainability-report-2012/downloads/Ecological_sustainability/Ecological_sustainability_full_section_LINKED.pdf">The Co-operative Group</a> <a href="http://www.co-operative.coop/Corporate/sustainability-report-2012/downloads/Ecological_sustainability/Ecological_sustainability_full_section_LINKED.pdf">http://www.co-operative.coop/Corporate/sustainability-report-2012/downloads/Ecological_sustainability/Ecological_sustainability_full_section_LINKED.pdf</a>	<b>Keywords:</b> Packaging, packaging design optimization, quality increase and product conditions, food industry. <b>Short Reference:</b> Perforations in plastic packaging are used to manage the levels of moisture in products, and their size and distribution can have a significant impact on product quality and shelf life. During 2012, the Co-operative Group moved from forming packaging perforations with mechanical punches to using computer-guided lasers which have greater control on hole size and placement, allowing greater perforation flexibility. Trials of various perforations, under a variety of different commercial storage conditions for tomatoes, indicated a perforation specification which led to a 33–50% reduction in moisture, but no greater incidence of mould growth, and noticeably less dehydration, especially of the vine. The result is higher quality, fresher produce, a day's extension to shelf life and a reduction in product wastage.	English	UK
130	<a href="http://www.courtauld.com/commitment/uk">The Courtauld Commitment (UK)</a> <a href="http://www.courtauld.com/commitment/uk">http://www.courtauld.com/commitment/uk</a>	<b>Keywords:</b> Packaging, voluntary agreement, packaging reduction. <b>Short Reference:</b> This voluntary agreement between major UK supermarkets and the Waste & Resources Action Programme (WRAP) aims to reduce household waste by working with companies to design out packaging waste growth and begin delivering absolute reductions in packaging waste.	English	UK
131	<a href="https://www.s-kanava.fi/documents/15238/207103/vastuullisuuskatsaus_2012_eng/7046cf13-ab59-4fa0-81fb-b814e7264983">The S Group</a> <a href="https://www.s-kanava.fi/documents/15238/207103/vastuullisuuskatsaus_2012_eng/7046cf13-ab59-4fa0-81fb-b814e7264983">https://www.s-kanava.fi/documents/15238/207103/vastuullisuuskatsaus_2012_eng/7046cf13-ab59-4fa0-81fb-b814e7264983</a>	<b>Keywords:</b> Food, corporate policy, reduced prices on perishable products near the expiration date, donations. <b>Short Reference:</b> In grocery stores, products approaching their "Best before" date are sold at a discounted price in order to minimise the amount of food waste. Food loss in S Group's grocery trade was approximately 33,000 tonnes in 2012. The loss proportionate to the sales volume, or loss by weight, was 1.96 per cent. Throw-away loss proportionate to S Group's grocery retail decreased by 5.3 per cent from the previous year. Some of the regional co-operatives have been working together with charities to donate bread, canned foods and other non-perishable food products in particular. The new guideline from the Finnish Food Safety Agency Evira clarifies the policies of donating foodstuffs and associated responsibilities and also makes it easier to donate products with "Use by" dates. The bio-waste which is still left after the donations is either composted or treated in a biogas plant or bio ethanol plant.	English	Finland
132	<a href="http://www.greenbusiness.ie">The Green Business Initiative (Ireland)</a> <a href="http://www.greenbusiness.ie">www.greenbusiness.ie</a>	<b>Keywords:</b> Policies, counseling, businesses, hotels. <b>Short Reference:</b> The Green Business Initiative promotes resource efficiency and waste prevention in Irish businesses and organisations, offering evaluative tools and advisory services.	English	Ireland
133	<a href="http://www.realnappy.org.uk">The Real Nappy Campaign (UK)</a> <a href="http://www.realnappy.org.uk">http://www.realnappy.org.uk</a>	<b>Keywords:</b> Information – awareness, plastic, reusable diapers. <b>Short Reference:</b> 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.	English	UK
134	<a href="http://www.hispacoop.es/home/index.php?option=com_content&amp;task=view&amp;id=649&amp;Itemid=94">The Spanish Confederation of Consumer and User Cooperatives (HISPACOOP)</a> <a href="http://www.hispacoop.es/home/index.php?option=com_content&amp;task=view&amp;id=649&amp;Itemid=94">http://www.hispacoop.es/home/index.php?option=com_content&amp;task=view&amp;id=649&amp;Itemid=94</a>	<b>Keywords:</b> Information – awareness, food, consumer behavior, NGOs. <b>Short Reference:</b> HISPACOOP, a consumer organization, carried out a project, which was funded by the National Consumer Institute, with the aim of raising awareness and educating consumers about good habits and responsible behaviours in order to reduce food waste. There were a number of different activities consumer awareness. Included in these activities was a conference to debate this problem, and a leaflet with practical recommendations about how to plan, prepare and preserve food and how to reuse leftovers. It provides information about "best before" and "use by" date labels. Moreover, a study was done on food waste in Spanish households. It revealed information about the food waste produced by more than 400 Spanish households, what kind of products is frequently thrown away and the reasons why households waste food. The conclusion of the analysis was the behavior and habits of consumers related to food management, through almost 3.500 online and onsite surveys. The study was completed by a list of recommendations to reduce food waste in the household.	English Spanish	Spain
135	<a href="http://www.wrap.org.uk/sites/files/wrap/WRAP%20-%20Unilever%20Case%20Study%20-%20March%202014_0.pdf">Travelling books, France (Pre-waste Factsheet 56)</a> <a href="http://www.wrap.org.uk/sites/files/wrap/WRAP%20-%20Unilever%20Case%20Study%20-%20March%202014_0.pdf">Pre_waste_56_FR_Travelling_books</a> <a href="http://gdeam.com/articles.php?ing=fr&amp;pg=1162">http://gdeam.com/articles.php?ing=fr&amp;pg=1162</a>	<b>Keywords:</b> Paper, books, information - public awareness, reuse, NGOs. <b>Short Reference:</b> "Travelling books" ("Passe-livres") is an annual campaign initiated and led by an local environmental association in Montreuil-sur-Mer, North of France. The main objective of this operation is to increase public awareness on waste generation by showing that cultural products can also generate waste. The idea of Travelling books is to give them a second life by exchanging them in several places in the city during the European week for waste reduction. The first operation was held in 2008 and is expected to be renewed next year.	English French	France
136	<a href="http://www.wrap.org.uk/sites/files/wrap/WRAP%20-%20Unilever%20Case%20Study%20-%20March%202014_0.pdf">Unilever Food Service – United Against Waste toolkit</a> <a href="http://www.wrap.org.uk/sites/files/wrap/WRAP%20-%20Unilever%20Case%20Study%20-%20March%202014_0.pdf">http://www.wrap.org.uk/sites/files/wrap/WRAP%20-%20Unilever%20Case%20Study%20-%20March%202014_0.pdf</a>	<b>Keywords:</b> food, support tool, food industry, restaurants/catering. <b>Short Reference:</b> In September 2011, Unilever Food Solutions, in partnership with the Sustainable Restaurant Association, launched the 'United Against Waste Toolkit' to help the food service industry reduce its food waste. It is estimated by WRAP that it costs a business £1,800/year for every tonne of food waste it produces. Therefore, good waste management can save businesses money.	English	UK
137	<a href="http://www.vienna-waste.at">Vienna Waste Prevention Programme (Austria)</a> <a href="http://www.vienna-waste.at">http://www.vienna-waste.at</a>	<b>Keywords:</b> Politics, municipality, information - public awareness, sustainable public procurement, information platform, reuse and repair center. <b>Short Reference:</b> The City of Vienna employs a number of targeted measures to minimise the generation of waste. Main areas of focus include green public procurement, eco-efficiency consulting for SMEs, the promotion of reuse and repair of goods, awareness-raising and support for cultural services.	English	Austria
138	<a href="https://youtu.be/cWC_zDdf74s?t=2">Waste</a> <a href="https://youtu.be/cWC_zDdf74s?t=2">https://youtu.be/cWC_zDdf74s?t=2</a> <a href="http://www.tristramstuart.co.uk/#tristram">http://www.tristramstuart.co.uk/#tristram</a>	<b>Keywords:</b> Information awareness, food, environmental activists Award. <b>Short Reference:</b> Tristram Stuart is the winner of the international environmental award, The Sophie Prize 2011, for his fight against food waste. Following the critical success of Tristram's first book, The Bloodless Revolution (2006), 'a genuinely revelatory contribution to the history of human ideas', Tristram has become a renowned campaigner, working in several countries to help improve the environmental and social impact of food production. His latest international prize-winning book, Waste: Uncovering the Global Food Scandal	English	UK

		(Penguin, 2009), revealed that Western countries waste up to half of their food, and that tackling this problem is one of the simplest ways of reducing pressure on the environment and on global food supplies.		
139	<a href="#">Waste Cap (USA)</a>	<b>Keywords:</b> Construction & Demolition Waste (C&D), businesses. <b>Short Reference:</b> The WasteCap programme provides a range of personalised services to member companies to trigger real reductions in waste generation at all stages of production.	English	USA
140	<a href="#">Waste prevention campaign toward shopkeepers and artisans, France (Pre-waste Factsheet 53)</a>  <a href="#">Pre_waste_53_FR_Waste_prevention</a>  <a href="http://www.dailymotion.com/video/xeo5as_lyexample-de-la-c-c-de-cogles-en-bre_lifestyle">http://www.dailymotion.com/video/xeo5as_lyexample-de-la-c-c-de-cogles-en-bre_lifestyle</a>	<b>Keywords:</b> Information – awareness, training shopkeepers, artisans. <b>Short Reference:</b> This action aims at increasing shopkeepers and artisans' awareness on their waste generation. Initiated and led by both the local authority of Coglais Communauté and an NGO called la Passiflore, the action has been done in 4 steps: recruitment of artisans and shopkeepers, personal diagnosis of their waste production, proposition of a list of preventive actions for each category of shop and agreement from the shopkeeper to do some of the proposed actions. In total, 40 shops were involved and around 55 actions were identified.	English French	France
141	<a href="#">WasteWise (USA)</a>	<b>Keywords:</b> Industrial waste, publicity, annual awards. <b>Short Reference:</b> The WasteWise Programme was created in 1994 to encourage companies to set targets and measure results on waste prevention and recycling. Actions are given visibility through publication on the programme website and through the annual award.	English	USA
142	<a href="#">We Love Food</a>  <a href="http://www.love-green.de/blog/tag/edeka/">http://www.love-green.de/blog/tag/edeka/</a>	<b>Keywords:</b> Food, food redistribution. <b>Short Reference:</b> Slightly damaged products, fruits and vegetables from the day before or just "best before" food are cooked by EDEKA staff. Delicious jams and jellies are then prepared. Portions of different kinds of vegetables and outer salad leaves are offered to the rabbit breeders, pieces of sausages are offered to the pet owners. Fresh and every day different dishes are selling very well (30 servings a day).	English German	Germany
143	<a href="#">Zero Waste Manual (Croatia)</a>  <a href="http://www.ecorec.gr">www.ecorec.gr</a>	<b>Keywords:</b> Information – public awareness, Guide for Zero Waste, NGOs. <b>Short Reference:</b> 'Zero Waste' in Croatia is a vision and a concept, utilising a series of measures to reduce the national tonnage of waste. The Croatian NGO Zelena Akcija launched the 'Zero Waste Manual' in December 2007, providing practical advice and tips to maximize prevention, reuse and recycling efforts in Croatia. A new upgraded edition of the manual will be published in 2010.	English	Croatia
144	<a href="http://www.nafemporiki.gr/stories/889911/souper-market-xoris-suskeusies-trofimon-sto-berolino">http://www.nafemporiki.gr/stories/889911/souper-market-xoris-suskeusies-trofimon-sto-berolino</a>  <a href="http://www.nafemporiki.gr/stories/810008/broxi-apodorees-gia-to-proto-souper-market-xoris-suskeusies-tis-germanias">http://www.nafemporiki.gr/stories/810008/broxi-apodorees-gia-to-proto-souper-market-xoris-suskeusies-tis-germanias</a>  <a href="http://tvxs.gr/news/periballo-n/proto-souper-market-xoris-suskeusies-trofimon">http://tvxs.gr/news/periballo-n/proto-souper-market-xoris-suskeusies-trofimon</a>  <a href="http://www.kathimerini.gr/79575/article/epikairothta/peri-vallon/me-proionta-apaketarista-ta-mellontika-souper-market">http://www.kathimerini.gr/79575/article/epikairothta/peri-vallon/me-proionta-apaketarista-ta-mellontika-souper-market</a>  <a href="https://youtu.be/dMnwG2iR754?t=18">https://youtu.be/dMnwG2iR754?t=18</a>	<b>Keywords:</b> Packaging, super markets, bulk goods. <b>Short Reference:</b> The first integrated super market without packages launched in Berlin, Germany with great success and response from consumers. The aim of the creators is placing about 600 products - organic or not - which would be primarily local, so as to achieve reducing the environmental footprint of the store and transport.	Greek English	Germany



Other websites with Best Practices and Case Studies on waste prevention are available in the table below. Some of these Best Practices could be implemented by municipalities / communities, while most could contribute in promoting for implementation by the relevant stakeholders.

**Table 1.4.2 Web pages with case studies on waste prevention in different business segment**

	<b>Business Segment</b>	<b>Information provider</b>	<b>Description</b>	
1	Supplier	Action Sustainability	Case study: Vacherin	<a href="#">Read More</a>
2	Hotels	British Hospitality Association (BHA)	Case study: Sustainability - The Cavendish Hotel, London	<a href="#">Read More</a>
3	Other Business	British Hospitality Association (BHA)	Case Study: Bartlett Mitchell	<a href="#">Read More</a>
4	Leisure	Cumbria Business Environment Network	Case study: Carlisle Leisure	<a href="#">Read More</a>
5	Services	Department for Environment, Food and Rural Affairs (Defra)	Case studies: Public Sector Food Procurement Initiative (PSFPI)	<a href="#">Read More</a>
6	Restaurants	Groundwork East of England	Case study: White Hart Inn	<a href="#">Read More</a>
7	Leisure	Museums Association	Case study: Reducing food waste at the Garden Museum	<a href="#">Read More</a>
8	Hotels	YouTube	Case study: Improving Your Resource Efficiency - Adnams, Suffolk	<a href="#">Read More</a>
9	Pubs	YouTube	Case study: Improving Your Resource Efficiency - Adnams, Suffolk	<a href="#">Read More</a>
10	Other Business	Welcome to Yorkshire	Case study: Eureka!	<a href="#">Read More</a>
11	Restaurants	Welcome to Yorkshire	Case study: Casa Mia	<a href="#">Read More</a>
12	Hotels	Welcome to Yorkshire	Case study: Sunnybank Guesthouse	<a href="#">Read More</a>
13	Leisure	Worm Research Centre	Case studies: Composting organic waste	<a href="#">Read More</a>
14	Other Business	WRAP	Reports and case studies: Lightweighting beer and cider packaging	<a href="#">Read More</a>
15	Other Business	WRAP	Case studies: Courtauld Commitment 2	<a href="#">Read More</a>
16	Other Business	WRAP	Reports and case studies: Optimising film packaging	<a href="#">Read More</a>
17	Other Business	WRAP	Case study: Cardboard packaging optimisation: best practice techniques	<a href="#">Read More</a>
18	Other Business	WRAP	Case studies: Reducing food and packaging waste and, recycling more	<a href="#">Read More</a>
19	Other Business	WRAP	Case study: Reducing corrugated cardboard weight without compromising performance	<a href="#">Read More</a>
20	Other Business	WRAP	Report and case study: Raising the bar in PET bottle lightweighting	<a href="#">Read More</a>
21	Other Business	WRAP	Case studies: Glass collection from commercial sites	<a href="#">Read More</a>
22	Other Business	WRAP	Case studies and reports: Reusable transit packaging	<a href="#">Read More</a>
23	Other Business	WRAP	Case study: Soft drinks packaging in a changing climate	<a href="#">Read More</a>
24	Other Business	WRAP	Case study: Minimising packaging: Coca-Cola's lightest ever PET 500ml bottle in Great Britain	<a href="#">Read More</a>
25	Other Business	WRAP	Case studies: Using recycled content in plastic packaging and rPET retail packaging	<a href="#">Read More</a>
26	Other Business	WRAP	Report and case study: Lightweighting carbonated soft drinks bottles	<a href="#">Read More</a>
27	Hotels	Preseli Venture	Case study: Preseli Venture (Wales)	<a href="#">Read More</a>
28	Hotels	Visit Wales	Case study: Swansea Valley Holiday Cottages (Wales)	<a href="#">Read More</a>
29	Hotels	Bryn Bella	Case study: Eco-friendly B&B in Betws-y-Coed, Snowdonia (Wales)	<a href="#">Read More</a>
30	Restaurants	Forestry Commission	Case study: Bwlch Nant yr Arian Visitor Centre (Wales)	<a href="#">Read More</a>
31	Education	Forestry Commission	Case study: Bwlch Nant yr Arian Visitor Centre (Wales)	<a href="#">Read More</a>
32	Leisure	Forestry Commission	Case study: Bwlch Nant yr Arian Visitor Centre (Wales)	<a href="#">Read More</a>
33	Leisure	Caterer and Hotelkeeper	Case study: Accor Hotels partners farms in sustainable tree planting project	<a href="#">Read More</a>
34	Hotels	Caterer and Hotelkeeper	Case study: Accor Hotels partners farms in sustainable tree planting project	<a href="#">Read More</a>
35	Other Business	Caterer and Hotelkeeper	Case study: Accor Hotels partners farms in sustainable tree planting project	<a href="#">Read More</a>
36	Education	Big Hospitality	Article: River Cottage works with SRA to create sustainability course	<a href="#">Read More</a>
37	Pubs	Big Hospitality	Article: River Cottage works with SRA to create sustainability course	<a href="#">Read More</a>
38	Restaurants	Big Hospitality	Article: River Cottage works with SRA to create sustainability course	<a href="#">Read More</a>
39	Hotels	Big Hospitality	Article: River Cottage works with SRA to create sustainability course	<a href="#">Read More</a>
40	Education	Green Business	Case studies: Resource efficiency in the hospitality sector	<a href="#">Read More</a>
41	Leisure	Green Business	Case studies: Resource efficiency in the hospitality sector	<a href="#">Read More</a>
42	Pubs	Green Business	Case studies: Resource efficiency in the hospitality sector	<a href="#">Read More</a>
43	Restaurants	Green Business	Case studies: Resource efficiency in the hospitality sector	<a href="#">Read More</a>
44	Hotels	Green Business	Case studies: Resource efficiency in the hospitality sector	<a href="#">Read More</a>
45	Other Business	Green Business	Case studies: Resource efficiency in the hospitality sector	<a href="#">Read More</a>
46	Staff Catering	Green Business	Case studies: Resource efficiency in the hospitality sector	<a href="#">Read More</a>
47	Leisure	Think. Eat. Save	Video case study: 9200 people dine on leftover food from wedding parties in Jaipur	<a href="#">Read More</a>
48	Other Business	Think. Eat. Save	Video case study: 9200 people dine on leftover food from wedding parties in Jaipur	<a href="#">Read More</a>
49	Leisure	London 2012 Olympic and Paralympic Games	Case study: Communicating a zero waste Games - recycling communications plan	<a href="#">Read More</a>

50	Quick Service Restaurants	London 2012 Olympic and Paralympic Games	Case study: Communicating a zero waste Games - recycling communications plan	<a href="#">Read More</a>
51	Other Business	London 2012 Olympic and Paralympic Games	Case study: Communicating a zero waste Games - recycling communications plan	<a href="#">Read More</a>
52	Services	London 2012 Olympic and Paralympic Games	Case study: Communicating a zero waste Games - recycling communications plan	<a href="#">Read More</a>
53	Leisure	London 2012 Olympic and Paralympic Games	Case study: Packaging and consumables for catering	<a href="#">Read More</a>
54	Quick Service Restaurants	London 2012 Olympic and Paralympic Games	Case study: Packaging and consumables for catering	<a href="#">Read More</a>
55	Other Business	London 2012 Olympic and Paralympic Games	Case study: Packaging and consumables for catering	<a href="#">Read More</a>
56	Services	London 2012 Olympic and Paralympic Games	Case study: Packaging and consumables for catering	<a href="#">Read More</a>
57	Supplier	London 2012 Olympic and Paralympic Games	Case study: Packaging and consumables for catering	<a href="#">Read More</a>
58	Leisure	London 2012 Olympic and Paralympic Games	Case study: McDonald's - developing a zero waste strategy for the Games	<a href="#">Read More</a>
59	Supplier	London 2012 Olympic and Paralympic Games	Case study: McDonald's - developing a zero waste strategy for the Games	<a href="#">Read More</a>
60	Quick Service Restaurants	London 2012 Olympic and Paralympic Games	Case study: McDonald's - developing a zero waste strategy for the Games	<a href="#">Read More</a>
61	Pubs	WRAP	Case study: Greene King - menu options and portion sizes	<a href="#">Read More</a>
62	Pubs	WRAP	Video: Spirit Pub Company - supply chain collaboration	<a href="#">Read More</a>
63	Supplier	WRAP	Video: Spirit Pub Company - supply chain collaboration	<a href="#">Read More</a>
64	Other Business	WRAP	Case study: Eden Caterers aims for zero waste to landfill	<a href="#">Read More</a>
65	Staff Catering	WRAP	Case study: Eden Caterers aims for zero waste to landfill	<a href="#">Read More</a>
66	Services	WRAP	Case study: Eden Caterers aims for zero waste to landfill	<a href="#">Read More</a>
67	Supplier	WRAP	Case study: Compass Group UK & Ireland - Eliminating kitchen waste	<a href="#">Read More</a>
68	Pubs	WRAP	Case study: Spirit Pub Company	<a href="#">Read More</a>
69	Supplier	WRAP	Case study: Wrap Film Systems Ltd	<a href="#">Read More</a>
70	Supplier	WRAP	Case study: Spirit Pub Company	<a href="#">Read More</a>
71	Supplier	WRAP	Case study: The Authentic Food Company	<a href="#">Read More</a>
72	Other Business	WRAP	Case study: The Authentic Food Company	<a href="#">Read More</a>
73	Other Business	WRAP	Case study: Bettaveg	<a href="#">Read More</a>
74	Supplier	WRAP	Case study: Bettaveg	<a href="#">Read More</a>
75	Supplier	WRAP	Case study: L'Aquila	<a href="#">Read More</a>
76	Supplier	WRAP	Case study: Reynolds	<a href="#">Read More</a>
77	Supplier	WRAP	Case study: Underwood Meat Company	<a href="#">Read More</a>
78	Hotels	WRAP	Case study: Small hotel makes big savings - Strattons Hotel	<a href="#">Read More</a>
79	Restaurants	WRAP	Case study: Small hotel makes big savings - Strattons Hotel	<a href="#">Read More</a>
80	Restaurants	The SRA	Case study: Reduce Food Waste - Doggy Boxes	<a href="#">Read More</a>
81	Hotels	Enworks	Case study: VILLAGE Hotels, Liverpool and Wirral	<a href="#">Read More</a>
82	Hotels	Enworks	Case study: Thornleigh Hotel & Conference Centre, Cumbria	<a href="#">Read More</a>
83	Hotels	Enworks	Case study: Resource efficient hotel - The Midland Hotel, Manchester	<a href="#">Read More</a>
84	Restaurants	Hospitality and Catering News	Case study: Sustainable hotel and Low-carbon restaurant - Premier Inn	<a href="#">Read More</a>
85	Hotels	Hospitality and Catering News	Case study: Sustainable hotel and Low-carbon restaurant - Premier Inn	<a href="#">Read More</a>
86	Restaurants	WRAP	Case study: Resource Efficient Restaurant - Mr Singh's India	<a href="#">Read More</a>
87	Other Business	Sustainweb	Case study: Growing Communities	<a href="#">Read More</a>
88	Restaurants	SRA	Case study: Sam's Brasserie & Bar	<a href="#">Read More</a>
89	Pubs	SRA	Case study: The Truscott Arms	<a href="#">Read More</a>
90	Restaurants	SRA	Case study: The Truscott Arms	<a href="#">Read More</a>
91	Restaurants	SRA	Case study: The Breakfast Club	<a href="#">Read More</a>
92	Restaurants	SRA	Case study: The Imperial	<a href="#">Read More</a>
93	Quick Service Restaurants	Sustainweb	Case study: Rejuce	<a href="#">Read More</a>
94	Other Business	Sustainweb	Case study: Rejuce	<a href="#">Read More</a>
95	Other Business	Sustainweb	Case study: Rubies in the Rubble	<a href="#">Read More</a>
96	Supplier	Sustainweb	Case study: Rubies in the Rubble	<a href="#">Read More</a>
97	Other Business	Sustainweb	Case study: Riverside Sourdough	<a href="#">Read More</a>
98	Supplier	Sustainweb	Case study: Riverside Sourdough	<a href="#">Read More</a>
99	Other Business	Sustainweb	Case study: The Carshalton Patch	<a href="#">Read More</a>
100	Supplier	Sustainweb	Case study: The Carshalton Patch	<a href="#">Read More</a>
101	Hotels, Restaurants	Food Wise Hong Kong Campaign	Guide: Food Waste Reduction Good Practice Guide for Hotel Sector	<a href="#">Read More</a>
102	Restaurants	Food Wise Hong Kong	Guide: Food Waste Reduction Good Practice Guide for Hotel Sector	<a href="#">Read More</a>

		Campaign		
103	Hotels	WRAP	Case study: The Dragon Hotel-Making food and packaging waste reduction work	<a href="#">Read More</a>
104	Pubs	WRAP	Case study: Greene King drives down food costs in pub chain	<a href="#">Read More</a>
105	Restaurants	WRAP	Case study: Greene King drives down food costs in pub chain	<a href="#">Read More</a>
106	Hotels	WRAP	Case study: Strathmore Hotels saves 18% of food costs	<a href="#">Read More</a>
107	Restaurants	WRAP	Case study: Strathmore Hotels saves 18% of food costs	<a href="#">Read More</a>
108	Hotels	WRAP	Case study: Large buffet savings at Crieff Hydro	<a href="#">Read More</a>
109	Restaurants	WRAP	Case study: Large buffet savings at Crieff Hydro	<a href="#">Read More</a>
110	Education	WRAP	Case study: Reducing food waste at Swansea University	<a href="#">Read More</a>
111	Restaurants	WRAP	Case study: Reducing food waste at Swansea University	<a href="#">Read More</a>
112	Quick Service Restaurants	WRAP	Case study: Reducing food waste at Swansea University	<a href="#">Read More</a>
113	Leisure	WRAP	Case study: Welsh businesses work together to deliver savings	<a href="#">Read More</a>
114	Pubs	WRAP	Case study: Welsh businesses work together to deliver savings	<a href="#">Read More</a>
115	Restaurants	WRAP	Case study: Welsh businesses work together to deliver savings	<a href="#">Read More</a>
116	Quick Service Restaurants	WRAP	Case study: Welsh businesses work together to deliver savings	<a href="#">Read More</a>
117	Hotels	WRAP	Case study: Welsh businesses work together to deliver savings	<a href="#">Read More</a>
118	Restaurants	BigHospitality	Case study: Behind the scenes at the UK's 'largest restaurant'	<a href="#">Read More</a>
119	Restaurants	SRA	Case study: Clever cooking - Poco restaurant makes the most of every morsel	<a href="#">Read More</a>
120	Hotels	WRAP	Case study: City Hotel Derry & RiverRidge Recycling	<a href="#">Read More</a>
121	Hotels	WRAP	Case study: Working together towards zero waste	<a href="#">City Hotel Derry &amp; RiverRidge Recycling</a>
122	Services	WRAP	Case study: Measuring food waste: manual and smart meter based approach	<a href="#">Sodexo smart and manual monitoring case study</a>
123	Hotels	WRAP	Case study: Strathmore Hotels saves 18% of food costs	<a href="#">Strathmore Hotels saves 18% of food costs</a>
124	Hotels	WRAP	Case study: The Dragon Hotel took part in a WRAP pilot project helping a cluster of hospitality and food service businesses to reduce food and packaging waste.	<a href="#">The Dragon Hotel - making food and packaging waste reduction work</a>
125	Other Business	WRAP	Case study: Welsh business cluster	<a href="#">Welsh businesses show the power of working together to deliver savings</a>
126	Public or private initiatives	European Week for Waste Reduction	Ecodesign workshop	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_eco-design-Workshop.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_eco-design-Workshop.pdf</a>
127	Public or private initiatives	European Week for Waste Reduction	Ecodesign contest	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_eco-design-contest.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_eco-design-contest.pdf</a>
128	Public or private initiatives	European Week for Waste Reduction	Shared economy: Setting up a sharing network	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_shared_economy.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_shared_economy.pdf</a>
129	Public or private initiatives	European Week for Waste Reduction	Campaign on dematerialised presents	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_dematerialised_presents.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_dematerialised_presents.pdf</a>
130	Public or private initiatives	European Week for Waste Reduction	Waste material reduction workshop	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_material-waste_workshop.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_material-waste_workshop.pdf</a>
131	Public or private initiatives	European Week for Waste Reduction	Paper waste reduction	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_paper_waste_reduction.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_paper_waste_reduction.pdf</a>
132	Public or private initiatives	European Week for Waste Reduction	Packaging waste reduction workshop	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_packaging_waste_reduction.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_packaging_waste_reduction.pdf</a>
133	Public or private initiatives	European Week for Waste Reduction	Repair fair/café /workshop	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_repair.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDs2015_dematerialisation_repair.pdf</a>

134	Public or private initiatives	European Week for Waste Reduction	Reuse market	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDS2015_dematerialisation_reuse-market.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDS2015_dematerialisation_reuse-market.pdf</a>
135	Public or private initiatives	European Week for Waste Reduction	Swapping event/service	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDS2015_dematerialisation_swapping.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDS2015_dematerialisation_swapping.pdf</a>
136	Public or private initiatives	European Week for Waste Reduction	Creative reuse	<a href="http://www.ewwr.eu/docs/PTD/EN_PTDS2015_dematerialisation_creative-reuse.pdf">http://www.ewwr.eu/docs/PTD/EN_PTDS2015_dematerialisation_creative-reuse.pdf</a>
137	Public or private initiatives	European Week for Waste Reduction	Give box	<a href="http://www.ewwr.eu/docs/PTD/en/PTD_reuse_give_box_EN.pdf">http://www.ewwr.eu/docs/PTD/en/PTD_reuse_give_box_EN.pdf</a>
138	Public or private initiatives	European Week for Waste Reduction	Collection for reuse	<a href="http://www.ewwr.eu/docs/PTD/en/PTD_reuse_collection_for-reuse_EN.pdf">http://www.ewwr.eu/docs/PTD/en/PTD_reuse_collection_for-reuse_EN.pdf</a>
139	Public or private initiatives	European Week for Waste Reduction	Creative reuse	<a href="http://www.ewwr.eu/docs/PTD/en/PTD_reuse_creative-reuse_EN.pdf">http://www.ewwr.eu/docs/PTD/en/PTD_reuse_creative-reuse_EN.pdf</a>
140	Public or private initiatives	European Week for Waste Reduction	Reused packaging	<a href="http://www.ewwr.eu/docs/PTD/en/PTD_reuse_reused_packaging_EN.pdf">http://www.ewwr.eu/docs/PTD/en/PTD_reuse_reused_packaging_EN.pdf</a>
141	Public or private initiatives	European Week for Waste Reduction	Flea market	<a href="http://www.ewwr.eu/docs/PTD/en/PTD_reuse_reuse-market_EN.pdf">http://www.ewwr.eu/docs/PTD/en/PTD_reuse_reuse-market_EN.pdf</a>
142	Public or private initiatives	European Week for Waste Reduction	Composting training	<a href="http://www.ewwr.eu/docs/PTD/1_EN_PTDS_2014_composting_training.pdf">http://www.ewwr.eu/docs/PTD/1_EN_PTDS_2014_composting_training.pdf</a>
143	Public or private initiatives	European Week for Waste Reduction	Feeding the 5000 event	<a href="http://www.ewwr.eu/docs/PTD/2_EN_PTDS_2014_feeding5k_event.pdf">http://www.ewwr.eu/docs/PTD/2_EN_PTDS_2014_feeding5k_event.pdf</a>
144	Public or private initiatives	European Week for Waste Reduction	Food donation campaign	<a href="http://www.ewwr.eu/docs/PTD/3_EN_PTDS_2014_food_donation_campaign.pdf">http://www.ewwr.eu/docs/PTD/3_EN_PTDS_2014_food_donation_campaign.pdf</a>
145	Public or private initiatives	European Week for Waste Reduction	Gleaning	<a href="http://www.ewwr.eu/docs/PTD/4_EN_PTDS_2014_gleaning.pdf">http://www.ewwr.eu/docs/PTD/4_EN_PTDS_2014_gleaning.pdf</a>
146	Public or private initiatives	European Week for Waste Reduction	Food waste diary	<a href="http://www.ewwr.eu/docs/PTD/5_EN_PTDS_2014_food_waste_diary.pdf">http://www.ewwr.eu/docs/PTD/5_EN_PTDS_2014_food_waste_diary.pdf</a>
147	Public or private initiatives	European Week for Waste Reduction	Workshop: Cooking with leftovers	<a href="http://www.ewwr.eu/docs/PTD/6_EN_PTDS_2014_workshop-cooking_with_leftovers.pdf">http://www.ewwr.eu/docs/PTD/6_EN_PTDS_2014_workshop-cooking_with_leftovers.pdf</a>
148	Public or private initiatives	European Week for Waste Reduction	Zero waste lunch	<a href="http://www.ewwr.eu/docs/PTD/7_EN_PTDS_2014_zero-waste-lunch.pdf">http://www.ewwr.eu/docs/PTD/7_EN_PTDS_2014_zero-waste-lunch.pdf</a>
149	Public or private initiatives	European Week for Waste Reduction	Eco - Restaurants (food)	<a href="http://www.ewwr.eu/docs/PTD/8_EN_PTDS_2014_eco-restaurant.pdf">http://www.ewwr.eu/docs/PTD/8_EN_PTDS_2014_eco-restaurant.pdf</a>
150	Public or private initiatives	European Week for Waste Reduction	Shopping and planning	<a href="http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_tips_1_shopping-planning.pdf">http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_tips_1_shopping-planning.pdf</a>
151	Public or private initiatives	European Week for Waste Reduction	Storing Food	<a href="http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_tips_2_storing.pdf">http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_tips_2_storing.pdf</a>
152	Public or private initiatives	European Week for Waste Reduction	Cooking and Eating	<a href="http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_tips_3_cooking.pdf">http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_tips_3_cooking.pdf</a>
153	Public or private initiatives	European Week for Waste Reduction	Use - by / Best - before dates	<a href="http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_tips_4_useby.pdf">http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_tips_4_useby.pdf</a>
154	Public or private initiatives	European Week for Waste Reduction	Zero waste lunch	<a href="http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_pract_1_ZW_Lunch.pdf">http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_pract_1_ZW_Lunch.pdf</a>
155	Public or private initiatives	European Week for Waste Reduction	Home and community composting	<a href="http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_pract_2_composting.pdf">http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_pract_2_composting.pdf</a>

				<a href="#">aste_pract_2_composting.pdf</a>
156	Public or private initiatives	European Week for Waste Reduction	Reuse Weight	<a href="http://www.ewwr.eu/docs/e_wwr/03_Annex_Count_%20quantity%20of%20items_%20reused-repaired_Filled_%20in%20by%20Action_%20Developer.pdf">http://www.ewwr.eu/docs/e_wwr/03_Annex_Count_%20quantity%20of%20items_%20reused-repaired_Filled_%20in%20by%20Action_%20Developer.pdf</a>
157	Public or private initiatives	European Week for Waste Reduction	Try our food waste game!	<a href="http://www.wisepuptowaste.org.uk/waste-less/food-waste/food-waste-game">http://www.wisepuptowaste.org.uk/waste-less/food-waste/food-waste-game</a>
158	Public or private initiatives	European Week for Waste Reduction	EWWR guide of good practices	<a href="http://www.ewwr.eu/docs/case_studies/EWWR_Guide_GP_EN_LD.pdf">http://www.ewwr.eu/docs/case_studies/EWWR_Guide_GP_EN_LD.pdf</a>
159	Public or private initiatives	European Week for Waste Reduction	Prevention Thematic Days 2014	<a href="http://www.ewwr.eu/docs/PTD/Report_PTDS_2014.pdf">http://www.ewwr.eu/docs/PTD/Report_PTDS_2014.pdf</a>
160	Public or private initiatives	European Week for Waste Reduction	Do you dare to be a ware?	<a href="http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_info.pdf">http://www.ewwr.eu/docs/PTD/PTDs_2014_stop_food_waste_info.pdf</a>
161	Public or private initiatives	European Week for Waste Reduction	Weigh and think	<a href="http://www.ewwr.eu/docs/case_studies/ES_case-study_awards2014_Campos_Estela.pdf">http://www.ewwr.eu/docs/case_studies/ES_case-study_awards2014_Campos_Estela.pdf</a>
162	Public or private initiatives	European Week for Waste Reduction	Awards of the European Week for Waste Reduction 2013	<a href="http://www.ewwr.eu/docs/press/2014-05%20Press%20file%20AWARDS%202013.pdf">http://www.ewwr.eu/docs/press/2014-05%20Press%20file%20AWARDS%202013.pdf</a>
163	Public or private initiatives	European Week for Waste Reduction	Awards of the European Week for Waste Reduction 2012	<a href="http://www.ewwr.eu/docs/awards/awards_2013.pdf">http://www.ewwr.eu/docs/awards/awards_2013.pdf</a>
164	Public or private initiatives	European Week for Waste Reduction	Awards of the European Week for Waste Reduction 2011	<a href="http://www.ewwr.eu/docs/awards/awards_2012.pdf">http://www.ewwr.eu/docs/awards/awards_2012.pdf</a>
165	Public or private initiatives	European Week for Waste Reduction	Awards of the European Week for Waste Reduction 2010	<a href="http://www.ewwr.eu/en/ideas/awards-2010">http://www.ewwr.eu/en/ideas/awards-2010</a>
166	Public or private initiatives	European Week for Waste Reduction	Awards of the European Week for Waste Reduction 2009	<a href="http://www.ewwr.eu/en/ideas/awards-2009">http://www.ewwr.eu/en/ideas/awards-2009</a>
167	Public or private initiatives	Zero Waste Europe	27 Blogs Sharing Creative Ways to Reuse Your Leftovers	<a href="http://www.zerowasteeurope.eu/2013/05/27-blogs-sharing-creative-ways-to-reuse-your-leftovers/">http://www.zerowasteeurope.eu/2013/05/27-blogs-sharing-creative-ways-to-reuse-your-leftovers/</a>
168	Public or private initiatives	VEOLIA	Love Your Leftovers Cook Book	<a href="http://www.veolia.co.uk/nottinghamshire/sites/g/files/dv_c541/f/assets/documents/2014/10/Love_your_Leftovers_Cook_Book.pdf">http://www.veolia.co.uk/nottinghamshire/sites/g/files/dv_c541/f/assets/documents/2014/10/Love_your_Leftovers_Cook_Book.pdf</a>
169	Public or private initiatives		Love Your Leftovers – The free app that helps you minimise waste and maximise taste	<a href="http://www.loveyourleftovers.nsw.gov.au/">http://www.loveyourleftovers.nsw.gov.au/</a>
170	Public or private initiatives	European Week for Waste Reduction	RecupDay	<a href="http://www.ewwr.eu/docs/case_studies/BE_Bxl_Awards_admin_CSF.pdf">http://www.ewwr.eu/docs/case_studies/BE_Bxl_Awards_admin_CSF.pdf</a>
171	Public or private initiatives	European Week for Waste Reduction	RAEE IN CARCERE	<a href="http://www.ewwr.eu/docs/case_studies/IT_EWWR_Awards_2013_CSF.pdf">http://www.ewwr.eu/docs/case_studies/IT_EWWR_Awards_2013_CSF.pdf</a>
172	Public or private initiatives	European Week for Waste Reduction	Film premiere of the Cherwell Incident	<a href="http://www.ewwr.eu/docs/case_studies/EWWR_2012_Case%20studies_Administration_Oxfordshire.pdf">http://www.ewwr.eu/docs/case_studies/EWWR_2012_Case%20studies_Administration_Oxfordshire.pdf</a>
173	Public or private initiatives	European Week for Waste Reduction	Eco Fest – R	<a href="http://www.ewwr.eu/docs/case_studies/EWWR_2011-Case%20studies NGO_Asturias.pdf">http://www.ewwr.eu/docs/case_studies/EWWR_2011-Case%20studies NGO_Asturias.pdf</a>
174	Public or private initiatives	European Week for Waste Reduction	External communication campaign (waste prevention)	<a href="http://www.ewwr.eu/docs/case_studies/ES_Basque%20Country_2013_Awards_business_CSF.pdf">http://www.ewwr.eu/docs/case_studies/ES_Basque%20Country_2013_Awards_business_CSF.pdf</a>
175	Public or private initiatives	European Week for Waste Reduction	A year without waste bins	<a href="http://www.ewwr.eu/docs/case_studies/BE_case_">http://www.ewwr.eu/docs/case_studies/BE_case_</a>

				<a href="#">study_awards2014_Yacine_Canamas.pdf</a>
176	Public or private initiatives	European Week for Waste Reduction	Waste sorting, recycling and reuse in our village	<a href="#">http://www.ewwr.eu/docs/case_studies/HU_case-study_awards2014_Greksa_L%C3%A1szl%C3%B3%C3%A9.pdf</a>
177	Public or private initiatives	European Week for Waste Reduction	One week for waste reduction – 600 clicks for the environment	<a href="#">http://www.ewwr.eu/docs/case_studies/HU_case-study_awards2014_%C3%9A%C3%81G.pdf</a>
178	Public or private initiatives	European Week for Waste Reduction	Toys, games you do not even think of?	<a href="#">http://www.ewwr.eu/docs/case_studies/HU_EWWR_Awards_Nominee_Dabas_CSF.pdf</a>
179	Public or private initiatives	European Week for Waste Reduction	Promotion of the 4 <sup>th</sup> R: Responsibility	<a href="#">http://www.ewwr.eu/docs/case_studies/ES_case-study_awards2014_San_Agost%C3%AD.pdf</a>
180	Public or private initiatives	European Week for Waste Reduction	Ricicloamatore – Chi Reduce Vince	<a href="#">http://www.ewwr.eu/docs/case_studies/EWWR_2012_Case%20Studies_Others_Italy.pdf</a>

## 1.5 Videos on Waste Prevention

Table 1.5.1 contains some of the many videos that exist on the Waste Prevention. The first 42 are recommended.

**Table 1.5.1 Video on waste prevention**

No	Title or comment	WebSite
1	Food waste prevention: what's packaging got to do with it?	<a href="http://www.euractiv.com/video/food-waste-prevention-whats-packaging-got-do-it-310920">http://www.euractiv.com/video/food-waste-prevention-whats-packaging-got-do-it-310920</a>
2	Food Waste: Cutting losses along the supply chain	<a href="http://www.euractiv.com/video/food-waste-cutting-losses-along-supply-chain-307730">http://www.euractiv.com/video/food-waste-cutting-losses-along-supply-chain-307730</a>
3	Towards a Resource Efficient Europe - EPR for packaging waste	<a href="http://www.euractiv.com/video/towards-resource-efficient-europe-epr-packaging-waste-307508">http://www.euractiv.com/video/towards-resource-efficient-europe-epr-packaging-waste-307508</a>
4	<b>Pourquoi composter ses déchets organiques ?</b>	<a href="https://youtu.be/qz9ah1rnhg0">https://youtu.be/qz9ah1rnhg0</a>
5	<b>Les bonnes pratiques du compostage !</b>	<a href="https://youtu.be/CQZQT40fOjo">https://youtu.be/CQZQT40fOjo</a>
6	<b>Pour tout savoir sur le lombricompostage !</b>	<a href="https://youtu.be/aDENHHgrJJE">https://youtu.be/aDENHHgrJJE</a>
7	<b>Fabriquer son lombricomposteur : tous les trucs et astuces !</b>	<a href="https://youtu.be/HY5VBQx-1hw">https://youtu.be/HY5VBQx-1hw</a>
8	<b>Pourquoi valoriser ses déchets verts ?</b>	<a href="https://youtu.be/62ggQjnB3N0">https://youtu.be/62ggQjnB3N0</a>
9	<b>Les bonnes pratiques de la valorisation des déchets verts !</b>	<a href="https://youtu.be/_xjgWHDI-4">https://youtu.be/_xjgWHDI-4</a>
10	<b>Réduisons le gaspillage alimentaire !</b>	<a href="https://youtu.be/h2Kx4j2AgGg">https://youtu.be/h2Kx4j2AgGg</a>
11	<b>Réduisons le gaspillage alimentaire ! (Jeune public)</b>	<a href="https://youtu.be/nW06_fxubAQ">https://youtu.be/nW06_fxubAQ</a>
12	<b>Lipor - Home Composting - EN</b>	<a href="https://youtu.be/3D75Eh61_1g">https://youtu.be/3D75Eh61_1g</a>
13	<b>SIC Jul2012</b>	<a href="https://youtu.be/0FwmUiFXQLA">https://youtu.be/0FwmUiFXQLA</a>
14	<b>TVI Fev2012</b>	<a href="https://youtu.be/wGSPRUeInIQ">https://youtu.be/wGSPRUeInIQ</a>
15	<b>Réduisons le gaspillage !</b>	<a href="https://youtu.be/PSfgL7rDjs">https://youtu.be/PSfgL7rDjs</a>
16	De Kringwinkel – Wie kringt, die wint	<a href="https://youtu.be/TQEAczE8cWE?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=28">https://youtu.be/TQEAczE8cWE?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=28</a>
17	<b>Kringwinkel jongeren wedstrijd- creatief met een Kringding.mov</b>	<a href="https://youtu.be/6h7IBe1DM9o?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=4">https://youtu.be/6h7IBe1DM9o?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=4</a>
18	<b>KringWinkel feestdag</b>	<a href="https://youtu.be/CFIY3_gd7Uo?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2">https://youtu.be/CFIY3_gd7Uo?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2</a>
19	<b>De Kringwinkel – wie kringt die wint</b>	<a href="https://youtu.be/2odB4MKtdVo?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2">https://youtu.be/2odB4MKtdVo?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2</a>
20	<b>Kringwinkel wrak Trailer</b>	<a href="https://youtu.be/_-9tuuz12JE?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=3">https://youtu.be/_-9tuuz12JE?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=3</a>
21	<b>Socijalna zadruga Humana Nova</b>	<a href="https://youtu.be/WomI8XxIoR8?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=3">https://youtu.be/WomI8XxIoR8?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=3</a>
22	<b>Atipičan "Second hand shop" u Čakovcu – Humana nova – poduzetnička ideja s novcem iz EU fondova</b>	<a href="https://youtu.be/Eu0YAsMxAQ8?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2">https://youtu.be/Eu0YAsMxAQ8?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2</a>

23	Humana Nova	<a href="https://youtu.be/MCgHBzGHWBo?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=1">https://youtu.be/MCgHBzGHWBo?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=1</a>
24	Mali dućan socijalne zadruge Humana Nova 13.6.2013	<a href="https://youtu.be/2Av-zKwallc?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/2Av-zKwallc?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
25	Prodaja reciklirane odjeće Socijalne zadruge Humana nova	<a href="https://youtu.be/5b51ZOk_W64?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/5b51ZOk_W64?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
26	klimax plus e radio.wmv	<a href="https://youtu.be/heQn2U1ofcA?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2">https://youtu.be/heQn2U1ofcA?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2</a>
27	Rehab Recycle	<a href="https://youtu.be/WLhmOp0lheo?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=1">https://youtu.be/WLhmOp0lheo?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=1</a>
28	Prisca Project	<a href="https://youtu.be/Ra_tgoskBw0?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=1">https://youtu.be/Ra_tgoskBw0?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=1</a>
29	Witness – Unwasted Poland	<a href="https://youtu.be/1_U7di0Or3A?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=1">https://youtu.be/1_U7di0Or3A?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=1</a>
30	ateliere fara frontiere – presentation	<a href="https://youtu.be/RFFStPI-39E?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/RFFStPI-39E?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
31	3 ani de Ateliere Fara Frontiere	<a href="https://youtu.be/rGp5nGM-Bew?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/rGp5nGM-Bew?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
32	Contra el Cambio Climático, yo 140eutilize... ¿y tú? ¡Calcula cuántas emisiones puedes evitar!	<a href="https://youtu.be/5Qr-QjTeSfc?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/5Qr-QjTeSfc?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
33	Inserción socio-laboral y medio ambiente	<a href="https://youtu.be/7k4zKRY1j5w?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/7k4zKRY1j5w?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
34	FRN – Working with Re-use Charities to Alleviate Poverty and Tackle Climate Change	<a href="https://youtu.be/3MMC0xfRIGA?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2">https://youtu.be/3MMC0xfRIGA?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2</a>
35	Re-use case study: Lancaster	<a href="https://youtu.be/-Rqb1AfeWjU?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2">https://youtu.be/-Rqb1AfeWjU?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=2</a>
36	Re-use case study: Buckinghamshire	<a href="https://youtu.be/Wuv4ObI3jYs?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/Wuv4ObI3jYs?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
37	Re-use case study: Surrey	<a href="https://youtu.be/6Z24l3kTucs?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/6Z24l3kTucs?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
38	Re-use case study: Banbridge	<a href="https://youtu.be/3bHVpdK1MD8?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=5">https://youtu.be/3bHVpdK1MD8?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH&amp;t=5</a>
39	Re-use1 case study: Leeds	<a href="https://youtu.be/FNeWuEsrnFs?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/FNeWuEsrnFs?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
40	Re-use case study: Shropshire	<a href="https://youtu.be/xgECEh0efCc?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/xgECEh0efCc?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
41	Re-use case study: Leicestershire	<a href="https://youtu.be/yAl3f7hSKbg?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH">https://youtu.be/yAl3f7hSKbg?list=PLo94HZXfSen7Z3aq-G5pxfk9H_pLiunIH</a>
42	Stop Food Waste - Food Technology. For Food at its Best.	<a href="#">Videos</a>
43	BTSF - Better Training for Safer Food	<a href="#">Videos</a>
44	Food Safety	<a href="#">Videos</a>
45	Stop Food Waste	<a href="#">Videos</a>
46	Food additives	<a href="#">Videos</a>
47	Food safety in the EU - Shanghai Expo 2010	<a href="#">Videos</a>
48	Safe food video traceability	<a href="#">Videos</a>
49	RASFF: Keeping an eye on your food	<a href="#">Videos</a>
50	Better information for better eating habits	<a href="#">Videos</a>
51	From farm to fork Safe food for European consumers	<a href="#">Videos</a>
52	Banning misleading labels in Europe	<a href="#">Videos</a>
53	Better Training for Safer Food	<a href="#">Videos</a>
54	<a href="#">Spirit Pub Company - supply chain collaboration</a>	<a href="#">Spirit Pub Company - supply chain collaboration</a>
55	Video case study: University canteen waste (Scotland)	<a href="#">Read More</a>
56	Disco Soup:	<a href="https://vimeo.com/70976541">https://vimeo.com/70976541</a>
57	<a href="#">Divethefilm</a>	<a href="http://www.divethefilm.com/default.aspx">http://www.divethefilm.com/default.aspx</a>
58		<a href="https://youtu.be/zplpyyxn8Fk">https://youtu.be/zplpyyxn8Fk</a>
59	<a href="#">WASTE</a>	<a href="#">WASTE - English</a>
60	<a href="#">Stefan Kreutzberger über sein Buch "Die Essensvernichter"</a>	<a href="#">Stefan Kreutzberger über sein Buch "Die Essensvernichter"</a>
61	<a href="#">Interview mit Valentin Thurn zu dem Buch "Die Essensvernichter"</a>	<a href="#">Interview mit Valentin Thurn zu dem Buch "Die Essensvernichter"</a>
62	<a href="#">Taste The Waste</a>	<a href="#">"Taste The Waste" - der Trailer</a>
63	<a href="#">Taste The Waste</a>	<a href="#">"Taste The Waste" - film trailer</a>
64	<a href="#">Save food from the fridge</a>	<a href="#">Save food from the fridge</a>
65	<a href="#">How to Make A Zeer Clay Pot Refrigerator</a>	<a href="#">How to Make A Zeer Clay Pot Refrigerator</a>
66	<a href="#">Storing Fruits and Vegetables</a>	<a href="#">Storing Fruits and Vegetables</a>
67	<a href="#">Zeer Pot Fridge. Cool your food or drinks with no electric needed</a>	<a href="#">Zeer Pot Fridge. Cool your food or drinks with no electric needed!</a>
68	<a href="#">How to Organize Your Refrigerator</a>	<a href="#">How to Organize Your Refrigerator - GinaHeart</a>
69	<a href="#">CARROTS, Harvesting, Long Term Storage</a>	<a href="#">CARROTS, Harvesting, Long Term Storage, 6 Months + &amp; whatnot :) Organic Gardening</a>
70	<a href="#">What Canned Foods Have The Longest Shelf Life</a>	<a href="#">What Canned Foods Have The Longest Shelf Life</a>
71	<a href="#">How to store leafy vegetables fresh for 10 days</a>	<a href="#">How to store leafy vegetables fresh for 10 days</a>
72	<a href="#">VacuVita, the Sustainable Way to Save Food and Money</a>	<a href="#">VacuVita, the Sustainable Way to Save Food and Money</a>
73	<a href="#">Save food from the fridge: Shaping traditional oral knowledge</a>	<a href="#">Save food from the fridge: Shaping traditional oral knowledge: Jihyun Ryou at</a>
74	<a href="#">How To Keep Raw Foods Fresh</a>	<a href="#">How To Keep Raw Foods Fresh - Episode 5</a>
75	<a href="#">How to Make a Fridge Root Cellar</a>	<a href="#">How to Make a Fridge Root Cellar</a>
76	<a href="#">Living Without a Fridge</a>	<a href="#">Living Without a Fridge</a>
77	<a href="#">home made fridge no power needed! "Evaprotive Fridge"</a>	<a href="#">home made fridge no power needed! "Evaprotive Fridge"</a>
78	<a href="#">Easy Raw Food Storage Tips</a>	<a href="#">Easy Raw Food Storage Tips</a>
79	<a href="#">Long Term Food Storage Basics - How to Pack Rice, Wheat, Beans and Dry Goods</a>	<a href="#">Long Term Food Storage Basics - How to Pack Rice, Wheat, Beans and Dry Goods</a>
80	<a href="#">Survival Food: Preserving Jerky</a>	<a href="#">Survival Food: Preserving Jerky</a>

81	<b>The Proper Way to Store Food in Your Fridge - CHOW Tip</b>	<a href="#">The Proper Way to Store Food in Your Fridge - CHOW Tip</a>
82	<b>taste the waste - trailer</b>	<a href="#">taste the waste - trailer</a>
83	<b>Freegans and Freeganism</b>	<a href="#">Freegans and Freeganism</a>
84	<b>Food Waste - The story of our garbage bins</b>	<a href="#">Food Waste - The story of our garbage bins</a>
85	<b>Food wastage footprint</b>	<a href="#">Food wastage footprint</a>
86	<b>Food Waste: Are You Gonna Eat That?</b>	<a href="#">Food Waste: Are You Gonna Eat That? (HD 720p version)</a>
87	<b>Taste the Waste</b>	<a href="#">Taste the Waste</a>
88	<b>Food, Taste &amp; Hunger</b>	<a href="#">Food, Taste &amp; Hunger</a>
89	<b>The Design for Change Food Waste Challenge</b>	<a href="#">The Design for Change Food Waste Challenge</a>
90	<b>16x9 - Freeganism: Living off trash</b>	<a href="#">16x9 - Freeganism: Living off trash</a>
91	<b>Food loss reduction in The Gambia</b>	<a href="#">Food loss reduction in The Gambia</a>
92	<b>World Hunger / Food Waste</b>	<a href="#">World Hunger / Food Waste</a>
93	<b>Just Eat It - A food waste story</b>	<a href="#">Just Eat It - A food waste story (Trailer)</a>
94	<b>WASTE-a documentary film. directed by parasher baruah</b>	<a href="#">WASTE-a documentary film. directed by parasher baruah</a>
95	<b>Food: A Project Envision Documentary</b>	<a href="#">Food: A Project Envision Documentary</a>
96	<b>Why Compost?</b>	<a href="#">Why Compost?</a>
97	<b>The First Steps to Composting</b>	<a href="#">The First Steps to Composting</a>
98	<b>Maintaining a Compost</b>	<a href="#">Maintaining a Compost</a>
99	<b>An Introduction to Worm Farming</b>	<a href="#">An Introduction to Worm Farming</a>
100	<b>An Introduction to Essential Ingredients</b>	<a href="#">An Introduction to Essential Ingredients</a>
101	<b>An Introduction to Portions</b>	<a href="#">An Introduction to Portions</a>
102	<b>Trouble Shooting in the Kitchen</b>	<a href="#">Trouble Shooting in the Kitchen</a>
103	<b>An Introduction to Smart Shopping</b>	<a href="#">An Introduction to Smart Shopping</a>
104	<b>An Introduction to Food Storage</b>	<a href="#">An Introduction to Food Storage</a>
105	<b>What's the deal with portions?</b>	<a href="https://youtu.be/b7LV-04mTyA">https://youtu.be/b7LV-04mTyA</a>
106	<b>FoRWaRd - Food Recovery and Waste Reduction</b>	<a href="https://youtu.be/3DQ4dCIDwFk?t=19">https://youtu.be/3DQ4dCIDwFk?t=19</a>
107	<b>FoRWaRd - Food Recovery and Waste Reduction GR - Greek</b>	<a href="https://youtu.be/OOpGUOi8eAc">https://youtu.be/OOpGUOi8eAc</a>
108	<b>GenerationAwake - Many European languages including Greek</b>	<a href="https://www.youtube.com/user/GenerationAwake/videos">https://www.youtube.com/user/GenerationAwake/videos</a>
109	<b>Sustainable Consumption 15 videos in 24 languages including Greek</b>	<a href="https://www.youtube.com/watch?v=bjZPXwXprd4&amp;index=2&amp;list=PLy3zSAJMOxk7vqVumNbLa805CDiWBVYJH">https://www.youtube.com/watch?v=bjZPXwXprd4&amp;index=2&amp;list=PLy3zSAJMOxk7vqVumNbLa805CDiWBVYJH</a>
110	<b>Stop PUB / Stop Reclame (French)</b>	<a href="https://vimeo.com/20733995">https://vimeo.com/20733995</a>
111	<b>Spirit Waste 2013</b>	<a href="https://www.youtube.com/watch?v=tUrwHj_yih8&amp;feature=c4-overview&amp;list=UUDVA49wnxWJQsbPRZ0-JJDA">https://www.youtube.com/watch?v=tUrwHj_yih8&amp;feature=c4-overview&amp;list=UUDVA49wnxWJQsbPRZ0-JJDA</a>
112	<b>2 videos</b>	<a href="http://www.multivu.com/players/English/45656-Sodexo-Food-Waste-Reduction/">http://www.multivu.com/players/English/45656-Sodexo-Food-Waste-Reduction/</a>
113	<b>A recipe for cutting food waste   Peter Lehner   TEDxManhattan</b>	<a href="https://youtu.be/UwOhpWTRsbE?t=110">https://youtu.be/UwOhpWTRsbE?t=110</a>
114	<b>Stop wasting food: Selina Juul at TEDxCopenhagen 2012</b>	<a href="https://youtu.be/dlhbjY4sA?t=3">https://youtu.be/dlhbjY4sA?t=3</a>
115	<b>What has your food been eating? Laurent Adamowicz at TEDxBeaconStreet</b>	<a href="https://youtu.be/S6ULOJIPyG4?t=7">https://youtu.be/S6ULOJIPyG4?t=7</a>
116	<b>Eat for real change   Dr Joanna McMillan   TEDxMacquarieUniversity</b>	<a href="https://youtu.be/fbeFn1Xcqo4?t=8">https://youtu.be/fbeFn1Xcqo4?t=8</a>
117	<b>Waste as Resource: Kevin Scoble at TEDxFortMcMurray</b>	<a href="https://youtu.be/Bqf3xTTCiu8?t=57">https://youtu.be/Bqf3xTTCiu8?t=57</a>
118	<b>Treehugger TV: Swaporamarama</b>	<a href="https://youtu.be/w3LJICqN9dE">https://youtu.be/w3LJICqN9dE</a>
119	<b>TASTE THE WASTE - 5 European languages</b>	<a href="http://tastethewaste.com/info/film">http://tastethewaste.com/info/film</a>
120	<b>Tristram Stuart: The global food waste scandal</b>	<a href="https://youtu.be/cWC_zDdF74s?t=2">https://youtu.be/cWC_zDdF74s?t=2</a>
121	<b>L'exemple de la CC de Coglès en Bretagne</b>	<a href="http://www.dailymotion.com/video/xe05as_lyexemple-de-la-cc-de-cogles-en-bre_lifestyle">http://www.dailymotion.com/video/xe05as_lyexemple-de-la-cc-de-cogles-en-bre_lifestyle</a>
122	<b>Reuse</b>	<a href="https://youtu.be/GXDRPpU2gaU?t=4">https://youtu.be/GXDRPpU2gaU?t=4</a>
123	<b>Less is better</b>	<a href="https://youtu.be/y02TaV68m8s?t=29">https://youtu.be/y02TaV68m8s?t=29</a>
124	<b>Waste plastic film recycling machine</b>	<a href="https://youtu.be/y02TaV68m8s?t=128">https://youtu.be/y02TaV68m8s?t=128</a>
125	<b>Zero Waste packaging super market</b>	<a href="https://youtu.be/Mh-gFOoTYrc?t=65">https://youtu.be/Mh-gFOoTYrc?t=65</a>
126	<b>Don't waste your waste</b>	<a href="https://youtu.be/Mh-gFOoTYrc?t=65">https://youtu.be/Mh-gFOoTYrc?t=65</a>
127	<b>Weight and Think</b>	<a href="http://www.rubitv.cat/20141124/7411/una-arrossada-per-a-600-persones-consciencia-els-rubinenys-sobre-el-malbaratament-alimentari">http://www.rubitv.cat/20141124/7411/una-arrossada-per-a-600-persones-consciencia-els-rubinenys-sobre-el-malbaratament-alimentari</a>
128	<b>Weight and Think</b>	<a href="http://www.rubitv.cat/20141117/7371/una-arrossada-popular-amb-productes-del-mercat-plat-fort-de-la-setmana-europea-de-la-prevencio-de-residus">http://www.rubitv.cat/20141117/7371/una-arrossada-popular-amb-productes-del-mercat-plat-fort-de-la-setmana-europea-de-la-prevencio-de-residus</a>
129	<b>European Week for Waste Reduction – Italy 2009 (1 video)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/italy/2009">http://www.ewwr.eu/en/gallery_media/category/italy/2009</a>
130	<b>European Week for Waste Reduction – Belgium 2009 (7 videos)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/belgium/2009">http://www.ewwr.eu/en/gallery_media/category/belgium/2009</a>
131	<b>European Week for Waste Reduction – Catalan 2009 (4 videos)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/catalan/2009">http://www.ewwr.eu/en/gallery_media/category/catalan/2009</a>
132	<b>European Week for Waste Reduction – Portugal 2009 (1 video)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/portugal/2009">http://www.ewwr.eu/en/gallery_media/category/portugal/2009</a>
133	<b>European Week for Waste Reduction – France 2009 (5 videos)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/france/2009">http://www.ewwr.eu/en/gallery_media/category/france/2009</a>
134	<b>European Week for Waste Reduction – Belgium 2010 (8 videos)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/belgium/2010">http://www.ewwr.eu/en/gallery_media/category/belgium/2010</a>
135	<b>European Week for Waste Reduction – Italy 2010 (3 videos)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/italy/2010">http://www.ewwr.eu/en/gallery_media/category/italy/2010</a>
136	<b>European Week for Waste Reduction – Ireland 2010 (1 video)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/ireland/2010">http://www.ewwr.eu/en/gallery_media/category/ireland/2010</a>
137	<b>European Week for Waste Reduction – Dominican Republic 2010 (1 video)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/dominican-republic/2010">http://www.ewwr.eu/en/gallery_media/category/dominican-republic/2010</a>
138	<b>European Week for Waste Reduction – France 2010 (1 video)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/france/2010">http://www.ewwr.eu/en/gallery_media/category/france/2010</a>
139	<b>European Week for Waste Reduction – Austria 2010 (1 video)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/austria/2010">http://www.ewwr.eu/en/gallery_media/category/austria/2010</a>
140	<b>European Week for Waste Reduction – Global 2010 (1 video)</b>	<a href="http://www.ewwr.eu/en/gallery_media/category/global/2010">http://www.ewwr.eu/en/gallery_media/category/global/2010</a>

141	European Week for Waste Reduction – Spain 2010 (8 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/spain/2010">http://www.ewwr.eu/en/gallery_media/category/spain/2010</a>
142	European Week for Waste Reduction – Brazil 2010 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/brazil/2010">http://www.ewwr.eu/en/gallery_media/category/brazil/2010</a>
143	European Week for Waste Reduction – Germany 2010 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/germany/2010">http://www.ewwr.eu/en/gallery_media/category/germany/2010</a>
144	European Week for Waste Reduction – Portugal 2010 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/portugal/2010">http://www.ewwr.eu/en/gallery_media/category/portugal/2010</a>
145	European Week for Waste Reduction – Slovenia 2010 (3 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/slovenia/2010">http://www.ewwr.eu/en/gallery_media/category/slovenia/2010</a>
146	European Week for Waste Reduction – Belgium 2011 (7 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/belgium/2011">http://www.ewwr.eu/en/gallery_media/category/belgium/2011</a>
147	European Week for Waste Reduction – Malta 2011 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/malta/2011">http://www.ewwr.eu/en/gallery_media/category/malta/2011</a>
148	European Week for Waste Reduction – France 2011 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/france/2011">http://www.ewwr.eu/en/gallery_media/category/france/2011</a>
149	European Week for Waste Reduction – Portugal 2011 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/portugal/2011">http://www.ewwr.eu/en/gallery_media/category/portugal/2011</a>
150	European Week for Waste Reduction – Ireland 2011 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/ireland/2011">http://www.ewwr.eu/en/gallery_media/category/ireland/2011</a>
151	European Week for Waste Reduction – Sweden 2011 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/sweden/2011">http://www.ewwr.eu/en/gallery_media/category/sweden/2011</a>
152	European Week for Waste Reduction – Spain 2011 (16 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/spain/2011">http://www.ewwr.eu/en/gallery_media/category/spain/2011</a>
153	European Week for Waste Reduction – Italy 2011 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/italy/2011">http://www.ewwr.eu/en/gallery_media/category/italy/2011</a>
154	European Week for Waste Reduction – Europe 2011 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/europe/2011">http://www.ewwr.eu/en/gallery_media/category/europe/2011</a>
155	European Week for Waste Reduction – Netherlands 2011 (3 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/netherlands/2011">http://www.ewwr.eu/en/gallery_media/category/netherlands/2011</a>
156	European Week for Waste Reduction – UK 2012 (3 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/united-kingdom/2012">http://www.ewwr.eu/en/gallery_media/category/united-kingdom/2012</a>
157	European Week for Waste Reduction – Italy 2012 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/italy/2012">http://www.ewwr.eu/en/gallery_media/category/italy/2012</a>
158	European Week for Waste Reduction – Bulgaria 2012 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/bulgaria/2012">http://www.ewwr.eu/en/gallery_media/category/bulgaria/2012</a>
158	European Week for Waste Reduction – Spain 2012 (17 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/spain/2012">http://www.ewwr.eu/en/gallery_media/category/spain/2012</a>
159	European Week for Waste Reduction – Bosnia Herzegovina 2012 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/bosnia-and-herzegovina/2012">http://www.ewwr.eu/en/gallery_media/category/bosnia-and-herzegovina/2012</a>
160	European Week for Waste Reduction – France 2012 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/france/2012">http://www.ewwr.eu/en/gallery_media/category/france/2012</a>
161	European Week for Waste Reduction – Denmark 2012 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/denmark/2012">http://www.ewwr.eu/en/gallery_media/category/denmark/2012</a>
162	European Week for Waste Reduction – Portugal 2012 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/portugal/2012">http://www.ewwr.eu/en/gallery_media/category/portugal/2012</a>
163	European Week for Waste Reduction – Spain 2013 (17 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/spain/2013">http://www.ewwr.eu/en/gallery_media/category/spain/2013</a>
164	European Week for Waste Reduction – Andorra 2013 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/andorra/2013">http://www.ewwr.eu/en/gallery_media/category/andorra/2013</a>
165	European Week for Waste Reduction – UK 2013 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/united-kingdom/2013">http://www.ewwr.eu/en/gallery_media/category/united-kingdom/2013</a>
166	European Week for Waste Reduction – Malta 2013 (5 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/malta/2013">http://www.ewwr.eu/en/gallery_media/category/malta/2013</a>
167	European Week for Waste Reduction – Portugal 2013 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/portugal/2013">http://www.ewwr.eu/en/gallery_media/category/portugal/2013</a>
168	European Week for Waste Reduction – Europe 2013 (3 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/europe/2013">http://www.ewwr.eu/en/gallery_media/category/europe/2013</a>
169	European Week for Waste Reduction – Italy 2013 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/italy/2013">http://www.ewwr.eu/en/gallery_media/category/italy/2013</a>
170	European Week for Waste Reduction – Portugal 2014 (12 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/portugal/2014">http://www.ewwr.eu/en/gallery_media/category/portugal/2014</a>
171	European Week for Waste Reduction – Spain 2014 (12 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/spain/2014">http://www.ewwr.eu/en/gallery_media/category/spain/2014</a>
172	European Week for Waste Reduction – Italy 2014 (6 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/italy/2014">http://www.ewwr.eu/en/gallery_media/category/italy/2014</a>
173	European Week for Waste Reduction – Belgium 2014 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/belgium/2014">http://www.ewwr.eu/en/gallery_media/category/belgium/2014</a>
174	European Week for Waste Reduction – Bulgaria 2014 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/bulgaria/2014">http://www.ewwr.eu/en/gallery_media/category/bulgaria/2014</a>
175	European Week for Waste Reduction – France 2014 (3 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/france/2014">http://www.ewwr.eu/en/gallery_media/category/france/2014</a>
176	European Week for Waste Reduction – Germany 2014 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/germany/2014">http://www.ewwr.eu/en/gallery_media/category/germany/2014</a>
177	European Week for Waste Reduction – Hungary 2010 (0 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/hungary/2014">http://www.ewwr.eu/en/gallery_media/category/hungary/2014</a>
178	European Week for Waste Reduction – Malta 2014 (3 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/malta/2014">http://www.ewwr.eu/en/gallery_media/category/malta/2014</a>
179	European Week for Waste Reduction – UK 2014 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/united-kingdom/2014">http://www.ewwr.eu/en/gallery_media/category/united-kingdom/2014</a>
180	European Week for Waste Reduction – Andorra 2014 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/andorra/2014">http://www.ewwr.eu/en/gallery_media/category/andorra/2014</a>
181	European Week for Waste Reduction – Catalan 2014 (6 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/catalan/2014">http://www.ewwr.eu/en/gallery_media/category/catalan/2014</a>
182	European Week for Waste Reduction – Europe 2014 (2 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/europe/2014">http://www.ewwr.eu/en/gallery_media/category/europe/2014</a>
183	European Week for Waste Reduction – Catalan 2015 (4 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/catalan/2015">http://www.ewwr.eu/en/gallery_media/category/catalan/2015</a>
184	European Week for Waste Reduction – Germany 2015 (1 video)	<a href="http://www.ewwr.eu/en/gallery_media/category/germany/2015">http://www.ewwr.eu/en/gallery_media/category/germany/2015</a>
185	European Week for Waste Reduction – Italy 2015 (15 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/italy/2015">http://www.ewwr.eu/en/gallery_media/category/italy/2015</a>
186	European Week for Waste Reduction – Latvia 2015 (0 videos)	<a href="http://www.ewwr.eu/en/gallery_media/category/latvia/2015">http://www.ewwr.eu/en/gallery_media/category/latvia/2015</a>

# **STEP II “Planning”**

## **2. Step II “Planning”**

After the completion of Step I , during which the basic information on matters concerning the content of possible prevention activities has been presented and experience and expertise have been gained, it's time to implement the internal processes which are necessary for a municipality - community to respond positively to the challenge of prevention. This second step refers to the internal organization and preparation actions that must be done to enable the LA to move to the Step III: Choosing Prevention Activities.

### **2.1 Organizing and preparing the Local Authority**

Once the political decision to initiate a waste prevention strategy, which will bring long-term environmental, social and economic benefits, has been taken by the municipal council, focus will have to be given on organizing and properly preparing the Local Authority, so that it can respond to the new challenge. This organization and preparation should include at least the following:

#### **2.1.1 Organizing the LA**

The organization may include the following:

1. The recruitment of at least one person in the financial department (administrative / financial officer), who will assume all administrative and financial issues related to the Prevention activities. This person can be either a new recruit for the municipality, or a pre-existing staff member, who will be responsible for the administrative - financial tasks related to the activities.
2. The appointment of a technical officer in the waste management/cleaning department, who will be responsible for the technical issues relating to prevention activities.
3. The creation of a new "Support & Awareness" Department, which will be staffed with people responsible for communication.

These people can be pre-existing staff, systematically engaged in the implementation of other actions and projects on waste management and environmental protection, such as recycling, public awareness, home composting, the application of PAYT schemes etc...

If there is lack of experienced staff in the specific department, try recruiting staff, interested to engage in prevention activities, from other departments. If the appropriate staff cannot be found internally, then consider the possibility of hiring new staff, who will be specifically dedicated to work on prevention activities. This option should be considered only if all other options are exhausted and if it can be demonstrated that the chosen prevention activities will save financial resources for the municipality / community that can be invested in creating new jobs.

#### **2.1.2 Creation of Prevention Team**

*The Prevention Team can consist of a minimum of 4 people:*

- 1 financial - administrative officer
- 1 technical officer, responsible for the Prevention actions mentioned above,

- 1 member of the "Support & Awareness" department,
- 1 elected member of the town council, preferably a deputy mayor responsible for waste or financial issues. If this is not possible, then you should look for another deputy mayor, who supports prevention activities. Alternatively, in the Prevention Team a member of the Municipal or Community Council could be involved.

**The Prevention Team can be expanded with the participation of more people:**

- A special expert or someone outside the local authority with proven experience in carrying out prevention actions, who can directly and effectively contribute in resolving problems related to the implementation of actions by the local Authority.
- Possibly a couple of representatives of local environmental or social - professional organizations who express genuine interest, if it is deemed by the municipality that they can actually contribute positively to the overall effort.

However, regardless the composition of the Prevention Team a vital prerequisite for its effectiveness is that its members must believe in and positively view the implementation of prevention activities in the Local Authority.

### **2.1.3 Information on Prevention**

Before starting up anything else on prevention in your municipality, all members of the Prevention Team should have very good knowledge regarding Prevention, such as how it is applied, the existing international experience, and which are the critical parameters for the successful implementation of relevant actions.

For the development and training of the Prevention Team, there is sufficient material produced in the framework of many European projects collected within the context of the LAWPreT project. Specifically, the development of the Prevention Team may include the following:

- An initial comprehensive briefing by the Team's expert(s), which will give basic directions according to the needs of the Local Authority and possible future prevention actions.
- A careful study of this Guide (Part A and B), which summarizes a large part of the current relevant experience.
- The study of the Output O3, on the Prevention legislation, as well as on policy implementation in EU Member States.
- The additional in-depth study of all the Best Practices and Case Studies from other European projects contained in this Guide, and also on LAWPreT website.
- Watch of selected informative videos on prevention issues and actions.
- Finally, the study of the documentation related directly to the specific actions of interest to each member of the Team. The documents are the results of relevant projects implemented in the EU and internationally and are available on the website of LAWPreT.

By organizing the Local Authority, the creation of the Prevention Team and the developing in-depth knowledge on the topics, substantial progress can be made in the design and implementation of prevention activities in the Local Authority.

## **2.2 How much will implementing waste prevention cost my Municipality?**

### **2.2.1 Let's think about cost...**

The question could be reversed: *How much would the Municipality save if they implemented Prevention on some products or materials?*

The argument that a municipality cannot afford prevention actions because they are costly to implement, can be answered thus: Yes, they may include a smaller or larger cost, but they can reduce the present cost of waste management, and in fact on a constant, annual basis. So, medium-to-long term, even the most “expensive” Prevention actions can be depreciated after a few to several years, from which point on the municipality can have substantial financial gains.

This sub-chapter aims to show a simple and applicable methodology for the municipalities to use to calculate their own cost of managing a certain material as waste,; a cost that can be saved if this material can be prevented from becoming waste through certain Prevention actions.

### **2.2.2 Every material has its own waste management cost**

Waste components do not all have the same management cost for municipalities. The volume of a material is a major cost parameter, since their collection and transportation is always the largest part of the overall management cost. Waste is collected in certain volume storage containers and transported (with vehicles of certain capacity), medium or longer distances, for treatment and final disposal. So, bulky and usually lightweight materials (e.g. plastic bottles) cost more to be stored and transported than small and heavy materials (e.g. organics). So, before a Municipality starts to design and implement prevention actions for a material, it is useful to know the true cost of management of a material per ton or per item that they already pay, so that they will be able to estimate the financial benefit from the Prevention action that will keep the material from being managed as waste.

### **2.2.3 Estimating the existing cost of management of a certain material**

All Municipalities keep financial records that once studied and analyzed can lead to valuable conclusions. The first step is to calculate the cost of management of each material and compare it to the average cost of waste management. This calculation will in turn provide the opportunity to compare this with the cost of alternative management (prevention ideas) that are included in this Guide or can be provided by the officers of the Local Authority themselves.

The key to the methodology of calculation of the cost of a material is the ability either to allocate costs for materials contained in the mixed waste of the LA (e.g. organics, plastic bags etc) or, for materials that are separately collected (e.g. trimmings, bulky material), to calculate the management cost per ton or per item.

In broad terms, the elements that need to be determined are the quantity of the material to be prevented and its management cost. The latter includes staff, outsourced labour, equipment (operational cost and depreciation cost), cleaning supplies, management studies, cost of disposal,

exceptional annual fees and other expenses. Record-keeping and calculations are done on an annual basis.

The elements that the LA needs to know in order to implement the methodology of calculation of the management cost of a material contained in the LA waste are as follows:

- **Overall amount of waste in the LA (A in tons per year):** A municipality may determine the total amount (**A**) of its waste from the total annual waste delivery weight logs from the landfills or the treatment units.
- **Weight or Volume percentage of the material to be prevented in the total waste of the LA (W, V):** A municipality can determine the composition of its waste by weight (**W=wt%**) or by volume (**V=vol%**) for any material of interest: a) from waste composition measurements that have been done or are being performed by official state bodies (Ministries, Regions, Universities), b) from their own measurements of waste composition that they can perform in a systematic or periodic manner , and c) from indicative measurements from other areas or from the international literature. The more accurate the data the municipality will use, the more accurate the calculations of the management cost of the material to be prevented will be.
- **Cost of collection – transportation of overall waste of the LA (C )in euros:** A municipality can calculate the total cost of collection-transportation of waste (**C**)in euros from the analysis of costs included in the annual financial report of the LA. They must then allocate all the costs that relate to the collection – transportation of waste. Usually the collection – transportation costs include costs like: a) collection personnel, permanent or temporary (drivers, workers), b) outsourced labour, c) fuel, repairs, vehicle maintenance, fees, bins repairs-replacements etc, d) employee supplies, e) waste studies, f) depreciation costs of collection – transportation equipment, g) depreciation costs for storage means, h) administrative cost for collection – transportation, i) other costs.
- **Total cost of final Treatment, Disposal and other Fees of the LA (TDF) in euros:** A municipality can easily calculate the total cost of final treatment and disposal of its waste and of other Fees (**TDF**). Usually the landfills and treatment facilities charge in euro per ton. The cost of disposal and treatment must include the fee (**F**), if any, that is charged for the final disposal or treatment in each area or country.

By determining the above mentioned parameters (A, V, W, C and TDF), the total cost of management of a material (**M**) that the LA wishes to prevent is calculated using the relation:

#### **Calculation of the current cost of management of a material (€/t):**

$$M = V \times (C/A) + W \times (TDF/A) \quad (1)$$

Where:

- **M** = The current management cost of the material to be prevented, in euro per ton,
- **A** = The total amount of waste in the LA, in tons per year,
- **V** = The volume percentage (vol%) of the material in the total amount of waste,
- **W** = The weight percentage (wt%) of the material in the total amount of waste,
- **C** = The cost of collection – transportation of all waste in the LA, in euro per year,
- **TDF** = The total cost of final treatment, disposal and other fees of the LA, in euro per year.

In STEP I, the data for each material – product contains a typical width of values for the management cost of a material in several cities and countries of the EU, based on a) the European

data for collection – transportation and final disposal (Eunomia<sup>123</sup>) and b) the estimations of their volume percentage in the total waste (OEA, 2015).

If there is for some materials – waste there is a separate collection and transportation mechanism (e.g. trimmings, furniture, bulky material, debris) then the current management cost for these materials can be alternatively calculated by estimating the specific annual cost of the material divided by the total annual quantity of the material, using the methodology explained above.

Annex 5 of the O6 Deliverable contains a detailed table for the calculation of the specific cost of trimmings in a LA. A similar methodology can be applied for any material for which the LA plans to implement Prevention actions.

## 2.2.4 Information about the individual management costs

**Personnel:** Waste management (collection, transportation, disposal) involves employing permanent as well as (possibly) temporary personnel. Drivers and cleaning staff are included here as well, the allocated percentage administrative personnel costs have to be factored in. The cost (wages, contributions) for the personnel that participates in waste collection and possibly in further management of the material must also be considered and recorded (€/year). This amount can be derived from the relative total cost multiplied by the percentage of employment of personnel for the management of the material under study as to the total time of their employment.

**Outsourced labour:** Many municipalities, depending on the material, collaborate with private contractors, either for collection or for further management of waste (temporary storage, transportation and disposal). This cost must also be recorded and factored in the management cost. The measurement unit here is €/year also.

**Operational cost – depreciation cost:** Waste management also includes equipment such as vehicles, garbage trucks, bins or other storage means. For vehicles specifically we need to calculate the annual operational cost in euro (fuel, lubricants, maintenance, repair, washing, insurance fees, road taxes) as well as the annual depreciation cost. For bins and storage we also need to calculate cost of maintenance-operation and depreciation. Annual depreciation costs should be calculated based on the national rules for depreciation.

**Supplies:** Another source of cost that needs to be taken into account is the cleaning supplies involved in waste management. These can be waste collection bags, gloves, uniforms, etc.

**Studies:** Many municipalities have performed studies for the management of their waste, often by commissioning external experts. This is another category of cost that needs to be counted in, naturally on an annual basis.

**Cost of treatment and disposal:** During the estimation of cost, one must not leave out the cost of final treatment and disposal cost. This is calculated based on the possible cost coming from the price per ton charged by the treatment facility or the landfill the waste is delivered or disposed to, respectively, or from the total contribution to the Solid Waste Management Authority (SWMA) for final treatment and disposal of the LA waste.

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123 <http://ec.europa.eu/environment/waste/studies/pdf/eucostwaste.pdf>

**Other costs:** Finally, other annual exceptional costs or costs that may concern the LA waste management are determined and counted in.

This methodology can be applied to all materials an LA may handle.

## 2.3 Municipality/Community special characteristics

The special characteristics of a Municipality/Community can more or less influence the effective implementation of a Waste Prevention action. For this reason, a Local Authority must identify them , analyse them and take them into serious consideration during the design of a Prevention program.

Regarding these characteristics and factors, it should be noted that even if a Local Authority finds that it does not fulfil one of the preconditions for the effective implementation of a Prevention action, this should not necessarily mean that the Municipality must not implement that action. Since the success of Prevention actions depends on many parameters, a Local Authority could possibly implement any action, in fact, as long as the decision for the implementation takes into account every possible negative characteristic that the Municipality would encounter.

Bearing this in mind, a LA's characteristics and parameters play a more or less important part in the effective design of a Waste Prevention program in the Municipality/Community, are presented and described below.

### 2.3.1 The demographic criteria

#### Description

- **Small Municipality or Community:** A Municipality or Community is considered small if they have a population of less than 10.000 residents. This means that several Waste Prevention actions cannot be implemented either because there are not enough employees, or the funds are not available, or because the no objective standards are not met.
- **Medium Municipality or Community:** Municipalities with population between **10.000-50.000** residents meet the objective conditions to implement most Waste Prevention actions.
- **Large Municipality or Community:** Municipalities with population larger than **50.000** residents are presumed to meet all the objective conditions to implement all Waste Prevention actions.

#### What it affects

The size of the municipality influences all the steps of a program or a prevention action, expanding from the selection of the action, its design, the selection of information methods, to the design, implementation and results measurement.

#### Example

Actions like centres for collection, repair and reselling products (e.g. electrical appliances, furniture, bicycles etc) cannot be effective in small municipalities. Even though they create jobs, financially they could be less than efficient, unless such a centre or a similar action also serves neighbouring municipalities. Furthermore, some actions relating to electronic governance, although they can be very effective for medium and large municipalities, contributing significantly to saving resources and waste reduction, they are not as much effective for small ones.

## **2.3.2 Average age of population**

### **Description**

The largest proportion of the population of the municipality is aged (according to the latest census data) a) up to 45 years old, b) 45-65 years old, c) over 65 years old.

### **What it affects**

It affects the actions to select, the design and the implementation of the information program. It seems that the younger the average resident of the LA is, the more effective “difficult” actions can be.

### **Example**

Where the average age of the population in a municipality is over 65 years old, electronic governance action will possibly not have the expected results, since these ages are not familiar with new technologies. Furthermore, the average age of the population affects the methods of communication in order for the participation of the residents to be more effective, as well as the means to be used (e.g. printed or face-to-face if the average age is over 65, electronic if it is less than that).

## **2.3.3 Municipal units**

### **Description**

Municipal units can be:

- In small distances
- Relatively distanced but with easy access
- In a distance and with difficult access (rough roads, small islands)

### **What it affects**

It affects the extent of the actions, as well as the selection of actions.

### **Example**

If the municipal units are remotely placed, the actions will probably start in some of them and then will be expanded to the others. The selection of actions, such as collection centres (Green Spots), must take into consideration the accessibility to these from all municipal units, otherwise the design of the action must include interventions in all municipal units.

## **2.3.4 Density of population / building conditions**

The information about the density of the population and/or the building conditions can be found from the Statistical Service of each country according to the latest census.

### **Description**

As presented in the following table:

<b>Population Density</b>	<b>Prevalent type of building</b>
Over 9.000 residents / km <sup>2</sup>	Apartment buildings
1000 - 9000 residents / km <sup>2</sup>	Apartment buildings and duplex houses
100 – 1000 residents / km <sup>2</sup>	Duplex and detached houses
Up to 100 / km <sup>2</sup>	Detached houses, cottages

#### **What it affects**

It affects the determination of goals and the benefits gained from the prevention of waste generation. Also, it affects the selection of information actions for prevention and methods of implementation.

#### **Example**

By reducing the waste generation we need less bins on the road and fewer journeys for the garbage trucks, we help facilitating residents' movement. In densely populated areas the selected actions must be ones that would require minimum use of space or ones that would result the most effective use of empty spaces (old schools) e.g. the creation of a centre for the exchange of toys, books, houseware and other small objects among the residents in a neighbourhood.

### **2.3.5 Unemployment rates in the Municipality/Community**

#### **Description**

- Municipality or Community with an unemployment rate below the national average
- Equal
- Higher

#### **What it affects**

The selection of actions with, directly or indirectly, positive financial results for the residents (reduction of municipal fees, creation of jobs, application of PAYT, vocational training for the unemployed).

#### **Example**

The unemployed in the area could benefit from:

- The operation of repair / reuse centres in 2 ways : a) by finding employment in them and b) by buying products in low prices
- The application of PAYT, since these systems allow the resident to reduce their municipal fees

### **2.3.6 Geography**

#### **Description**

A Local Authority can be, in a geographical sense:

- Urban
- Semi-urban
- Rural
- Mountainous
- Insular
- Remote from urban areas
- Coastal

### **What it affects**

The selection of the action subject.

### **Example**

Although the high proportion of organic is produced in rural areas, most of the time they do not end up as waste because for example they are used to feed the animals. In the islands very often the tap water is not of excellent quality and a large quantity of plastic bottles is consumed, an action concerning the installation of filters to improve the quality of the tap water will contribute in the reduction of plastic bottles.

## **2.3.7 Environmental characteristics**

### **Description**

Some environmental characteristics of the areas of the municipalities can affect the Prevention actions, such as:

- If there are free spaces
- If there are green spaces (public parks, groves)
- If there are NATURA areas
- If there are any other special environmental characteristics

### **What it affects**

Geographical/environmental characteristics influence the selection of target material/products, the design of information as well as the evaluation method of the Prevention programme.

### **Example**

Some environmental characteristics may render the selection of an action necessary. If the municipality has parks and groves, composting on the spot can be a necessary and compatible action. If there are free, undeveloped spaces, they could serve as collection and reuse centres. In areas with special environmental characteristics some actions are much more obvious and desirable, e.g. in Zante (Zakynthos) where the only natural habitat for the Careta - Careta sea turtle exists, there could be a Prevention action about plastic bags that end up in the seas, since it is known that they cause death to sea turtles. An action like that could have a very positive impact on the residents and mainly on the visitors of the island.

## **2.3.8 Characteristic infrastructures**

### **Description**

The existence of some important infrastructures or actions in the Local Authority can be the basis of some important and effective Prevention actions. Such infrastructures are:

- Small or large industries, industrial parks
- Ports, marinas
- Airport
- Railway station
- Public assembly areas (plazas with shops, concert halls, election gathering areas, archaeological sites)

- Sports facilities (multi-sport arenas for professional or amateur sports)
- Small or large school compounds
- Restaurant or bar neighbourhoods
- Shopping malls
- Organized beaches
- Crowded non-organized beaches
- Tourist areas
- Universities / Colleges
- Small or large industrial areas out of use
- Other public buildings out of use

#### **What it affects**

The selection of the subject and the design of the action.

#### **Example**

Places like ports, airports, railway stations, have large numbers of people passing through, usually discarding large quantities of single use products (plastic bottles, cups etc), therefore actions regarding the replacement of single use products by multiple use products or the serving of non-bottled beverages (beer, refreshments, etc) could be very effective. A similar action could be done in organized beaches with the cooperation of the owners of canteens and bars or even in non organized beaches with the initiative of the municipality. In small or large school compounds communication actions could be performed, using the vast student resource for giving information in the municipality, with multiplying effects. In areas with a lot of bars and restaurants, targeted prevention actions could be organized concerning glass containers and on-the-spot composting of food residuals. In very touristic areas, actions for the reduction of single use plastic bottles could be promoted, or for the increase of recycling. Industrial areas and buildings that are out of operation could be used for the implementation of reuse – resale actions for second-hand objects. In universities and colleges many prevention actions could be promoted, such as paper reduction, electrical waste, reuse, EMAS actions etc. If there are neighbourhoods with high concentration of bars and restaurants, there could be a voluntary agreement between the municipality and the owners to conjointly organize an action to gather food residues to dispose to the homeless/poor.

### **2.3.9 Level of environmental awareness of the residents**

#### **Description**

The residents' level of environmental awareness should be taken into consideration for the means of implementation of many prevention actions. Concerning environmental issues, residents are likely to be:

- Not at all aware
- A little aware
- Fairly aware
- Very aware

#### **What it affects**

The design of the communication program and the complexity of the selected Prevention action.

### **Example**

If awareness – information actions have been previous awareness programs (eg. in schools) regarding environmental protection, residents will have acquired some awareness, so securing their participation would be easier. .

If pilot projects for sustainable waste management have previously been implemented (home composting, separation at the source, etc) then the residents are fairly accustomed to waste management issues, therefore more complex actions such as targeted or even total application of PAYT in the municipality /community can be implemented.

## **2.3.10 social partners / networking**

### **Description**

**In order for Prevention actions to be effective, they must be adopted by local bodies, such as:**

- Active environmental / cultural residents' groups
- Active commercial / professional associations
- Local teachers associations
- Other local initiatives
- National initiatives

### **What it affects**

The success of the information of residents and therefore the increased participation and the greater effectiveness of the Prevention action.

### **Example**

Environmental / cultural groups of residents can be valuable allies in prevention actions, by effectively contributing to the information/ raising awareness of the residents. The commercial / professional associations can contribute to prevention actions for certain materials, such as plastic bags, plastic bottles, clothes, electrical/electronic appliances, etc and can possibly financially support (directly or indirectly) some action within their social responsibility policies. Local teachers' association can cooperate with the municipality for the information of students and their families with multiplying effects. Other nationwide initiatives can be implemented locally, such as re-use activities, food banks, etc...

## **2.3.11 Communication of the local authority with the residents**

### **Description**

The existence of local and national media, as well as the possibility to form alliances and make use of them, can multiply the effectiveness of the Prevention actions. The LA should examine its relationship with media such as:

- Local media
- Newspapers / magazines (printed)
- Radio stations
- TV
- Digital media
- Blogs
- Portal

- Private corporate means of communication (e.g. client lists)
- Access to and cooperation with nationwide media

#### **What it affects**

The choice of emphasizing (or not) on communication actions. The effectiveness of the communicational actions that are possibly included in the selected Prevention actions.

The awareness of the residents and the dissemination of information about the goals, the benefits (environmental, social, financial), the ways of participation and the results of the action.

#### **Example**

Support of a Prevention action by the local media brings the message to the residents on a daily basis, which is then easier and more effectively absorbed. Through the media, the local authority can project the goals, the progress of implementation, the intermediate results as well as the expected results. This way the residents feel that the action is an issue that concerns their area and that the municipality that has the initiative is accountable to them. Furthermore, presenting small intermediate accomplishments brings satisfaction to the residents and pushes them to more actively participate and, thus, to bigger long-term results.

### **2.3.12 Does my LA have an immediate problem with waste?**

#### **Description**

In Greece, as well as in other EU countries, there are municipalities and communities that face severe and immediate problems, financial or administrative, with their waste, such as:

- The landfill that serves the LA is full and there is no apparent viable alternative,
- The existing landfill is about to be full in very little time,
- The current waste management has a large cost,
- The existing landfill has a very expensive Fee of reception
- The country has a high Fee of disposal of untreated waste and the LA cannot treat them immediately,
- The treatment unit that receives the waste has a high fee of reception
- The LA does not achieve the targets for recovery, recycling and deterrence from landfill and may face large fines in the future.
- Other serious immediate problem of waste management to be determined.

If an LA faces one or more of the above mentioned problems, has even more reasons to start implementing Prevention actions which could very quickly diminish the produced amounts of waste.

#### **What it affects**

The most immediate problems of waste management in an LA can partly be handled, in medium-to-long term, with the selection of Prevention actions that reduce significantly the amount of the waste produced. Such actions can be some of the most effective actions of the Thematic Prevention Fields about the large waste streams of the areas of large waste production, such as: organics, paper, packaging, construction and demolition waste (if they are increased), food catering, hotels, large schools or areas for gathering of residents.

It would affect the awareness of the residents and the dissemination of information concerning the goals, the benefits (environmental, social, financial), the ways of participation and the results of the action.

### **Example**

If a municipality has the immediate waste management problems mentioned above and also a large portion of its waste is generated by many, large hotels, the municipality could choose: a) many Prevention actions for hotels alone, or b) targeted implementation of PAYT only for hotels. Effective implementation of these actions could help reduce the produced hotel waste by a quantifiable percentage within a year and, thus, Prevention can contribute to addressing with the overall waste management issues of the Municipality. The implementation of similar initiatives can be examined by municipalities with immediate waste management problems, such as many and supralocal restaurants, supralocal areas of people gathering (sports arenas, ports, airport, large schools), large generation of demolition waste, etc.

### **2.3.13 Table of characteristics for my municipality**

The following table 2.3.1 will help you record the specific characteristics of your LA and the possible ideas for prevention, in order to use for the selection of the basic Prevention actions for implementation.

**Table 2.3.1 Table of characteristics of the municipality / community**

No	Characteristic or Parameter	Note what applies to your municipality / community	Note possible compatible ideas for Prevention
1	Demographically, the population of your LA is: A. Small B. Medium C. Large		
2	What is the average age of the population in your LA? A. up to 45 years old B. 45-65 years old C. over 65 years old		
3	If there are municipal districts in your LA, these are: A. adjacent to each other? B. Relatively remote, but easily accessible? C. remote and not easily accessible?		
4	What is the population density in your LA? A. Over 9.000 residents / km <sup>2</sup> B. 1000 - 9000 residents / km <sup>2</sup> C. 100 – 1000 residents / km <sup>2</sup> D. Up to 100 / km <sup>2</sup>		
5	How does the unemployment rate in your LA compare to the national average? A. It is lower B. It is equal C. It is higher		
6	In a geographical sense your LA is: A. Urban B. Semi-urban C. Rural D. Mountainous		

	E. Island F. Remote from urban areas G. Coastal		
7	Which of the following environmental characteristics does your LA have? A. Free spaces B. Green spaces (public parks, groves) C. NATURA sites D. Other special environmental characteristics (please describe)		
8	Which of the following infrastructures are there in your LA? A. Small or large industries, industrial parks B. Ports, marinas C. Airport D. Railway station E. Public assembly areas (plazas with shops, concert halls, election gathering areas, archaeological sites) F. Sports facilities (multi-sport arenas for professional or amateur sports) G. Small or large school compounds H. Restaurant or bar neighbourhoods I. Shopping malls J. Organized beaches K. Crowded non-organized beaches L. Tourist areas M. Universities / Colleges N. Small or large industrial areas out of use O. Other public buildings out of use		
9	What is the level of environmental awareness of the residents of your LA? A. Almost non existent B. Low C. Fairly good D. Very good		
10	Which of the following local bodies are there in your LA? A. Active environmental / cultural residents' groups B. Active commercial / professional associations C. Local teachers associations D. Other local initiatives E. National initiatives		
11	Which of the following media outlets are there in your LA? A. Local media B. Newspapers / magazines (printed) C. Radio stations D. TV E. Digital media F. Blogs G. Portals H. Private corporate means of communication (e.g. client lists) I. Access to and cooperation with nationwide		

	media		
12	<p>Which of the following is true for your LA?</p> <ul style="list-style-type: none"> <li>A. The landfill that serves the LA is full and there is no apparent viable alternative</li> <li>B. The existing landfill is about to be full in very little time</li> <li>C. The current waste management has a large cost</li> <li>D. The existing landfill has a very expensive Fee of reception</li> <li>E. The country has a high Fee of disposal of untreated waste and the LA cannot treat them immediately</li> <li>F. The treatment unit that receives the waste has a high fee of reception</li> <li>G. The LA does not achieve the targets for recovery, recycling and diversion from landfill and may face large fines in the future.</li> <li>H. Other serious immediate waste management issues (please describe)</li> </ul>		

After completing Table 2.3.1 you must talk about the local characteristics that you have selected with other officers of your municipality / community, in order to produce a final version of the table of local characteristics, approved by at least 3 other members of the LA.

## 2.4 Targets and Indicators for Waste Prevention

According to Article 29(3) of the Waste Framework Directive (2008/98/EC), member states must determine suitable and specific qualitative and quantitative criteria for the waste prevention measures that they approve, in order to monitor and evaluate their progress. For this purpose, they can develop targets and indicators.

### A. PREVENTION TARGETS

In the preliminary phase of the development of a waste prevention program, local authorities must determine their overall approach, the roles of the involved parties and the objectives of the program. Before setting the targets, the extent of the program must be determined:

- Will the program be an integral part of the national or regional planning or will it be implemented independently?
- Will the program implement the prevention actions in conjunction with the interested parties (households, businesses), waste streams (biodegradables, paper, hazardous materials), lifecycle phases (design, production, consumption), etc...?
- Which is the role of the local and regional authorities within the context of the national program? What are the competences and obligations of the local authorities?
- Examination of the possibility to create stakeholders' group /a group of interested parties.

The targets of the waste prevention programs must take into consideration the general objectives to decouple waste production rates with economic growth and environmental impacts and to

move towards a zero-waste economy. Based on these, quantitative targets with clear deadlines are useful to motivate change in positions and practices for waste prevention or towards a more efficient resource management. For determining of suitable targets, the following stages can be followed:

### **1. Geographical scale of targets**

Quantitative targets are useful in a national, regional and local level. Countries with powerful regions may wish to implement waste prevention programs on a regional level. Regarding residents' awareness programs, implementation on all levels (national, regional and local) can bring significant measurable results and permanent changes in residents' behavior.

### **2. Quantitative or qualitative targets**

Quantitative targets, such as reduction of waste generated and confirmed increase of residents' awareness, are useful tools for prevention at all geographical levels (national, regional and local). Results can be measured through the reduction of the weight of the generated waste or the greenhouse gas emissions, or both. The direct correlation between reductions of the weight of waste generated or the greenhouse gas emissions is not necessarily the same for all types of waste. For example, benefits from prevention of a ton of aluminium may differ from that of a ton of construction waste.

Qualitative targets are useful when we are dealing with particularly difficult waste streams. The targets for the prevention of use or of production of hazardous materials and for reduction of the content of hazardous materials in the waste generated in the production processes concern especially businesses and industries.

### **3. Data collection**

For the determination of any target, it is necessary to examine the availability of data required in order to produce a meaningful result. Is the necessary data available at a national, regional or local level? Is the unavailable data difficult to collect?

### **4. Time schedule**

What is the time frame of the program and what initiatives must be undertaken? Are there other actions and initiatives relating to waste for that particular time period? Is the time frame adequate so as to receive the desirable results? Are the immediate and medium-term targets feasible in relation to the overall national strategy and priorities?

### **5. Voluntary or obligatory character**

Can the targets be obtained through voluntary agreements or are the requirements for any categories accompanied by non-conformity penalties?

### **6. General or specific targets**

General targets can be expressed as the reduction of quantities of waste that is collected by the local authorities, intended for the landfill or for recycling, or as the reduction of the greenhouse gas emissions generated by the waste management (in million tons of CO<sub>2</sub> equivalent)

Specific targets, like the weight of the waste generated and the ways of providing information and training, can vary for households and for businesses. In general, the smaller the selected sector, the more precise the measurement of results and the larger the portion of persons that will benefit from the campaign, according to the given parameters.

In general, targets can focus on the basic waste streams and be accompanied by strategic awareness campaigns or regulatory measures.

In other Deliverables of the present LAWPreT project (O3 and O4-1) the quantitative targets set by the prevention programmes of several EU member countries are described.

## B. PREVENTION INDICATORS

Monitoring a waste prevention program is necessary for the correct evaluation of progress and effectiveness of the design and/or the actions. Monitoring also helps the design and/or the actions remain reliable and thus helps to ensure support by the interested parties and the residents. Monitoring is done using a group of indicators, which may be quantitative (precise numbers or estimations, e.g. kg of waste per resident and per year, generated or avoided, etc) or qualitative (e.g. willingness of a person to change his/her behavior, etc).

While there is a necessity for the use of waste prevention indicators, there still are no internationally accepted models. There are, though, several local and, occasionally, national initiatives that aim at different waste streams and utilize a variety of methods. Usually, the quantity of generated waste, the percentage of waste that is recycled and the percentage of waste that is disposed to landfills per person or per household per year, as well as the GDP, provide a sufficient basis for analysis. If the targets of the policy include quantitative ones, then the indicator is immediately determined. If no quantitative targets can be set or they have to be clarified, then for the monitoring of progress of the approved waste management plan, indicators are necessary to show whether the qualitative and quantitative targets are met. It must be noted that changes in the annual amount of generated waste can be caused by a vast range of factors, including the size of the population and the GDP and thus the reductions of the waste quantities cannot be automatically attributed to the prevention actions.

In order for the indicators to be effective, they should focus to clearly defined waste categories and should also use an accepted protocol for the measurement of waste. The indicators that have been designed for the monitoring of progress should, if possible, be:

- Relevant (during the examination of the target, which is the measurement of the waste generation prevention results)
- Accepted (mostly by the targeted interested parties)
- Credible (certainty that the users and the interested parties are included in the targets)
- Easy (regarding the quantification and the monitoring with time in relation to the availability of data and the communication with the target group)
- Robust (quality of data, scope of application and representativeness)

In some cases, more than one indicators are necessary for the monitoring of a target.

### Determination of main indicators

Indicators can be used for various purposes, such as:

- Evaluation of the relevance of the waste prevention action using the evaluation of the potential results in connection with the real results
- Monitoring the progress of the action and comparison with the quantitative targets
- Comparison of the resources and the results, therefore facilitating the evaluation of the effectiveness of the prevention actions.

Indicators are often a compromise between various parameters. For example, an easily readable and comprehensible indicator can be too simple to provide a full understanding of what the monitoring is about. On the other hand, a very accurate indicator (that is, having considered the local peculiarities of a certain situation) might eventually prove inapplicable.

### **Indicator typologies**

The Organisation of Economic Cooperation and Development (**OECD**) has been dealing with the prevention indicators issue since the year 2000 and has suggested 3 types of indicators, which constitute the "Pressure-State-Response" model:

- Pressure indicators, which include the total waste production, the immediate material input, as well as the relevant data for GDP or population
- State indicators, measuring the changes to the waste induced environmental impacts (such as in atmosphere, water or soil)
- Response indicators, measuring the impact of the implemented programs or policies on waste management.

### **➤ PRE-WASTE PROJECT**

The **PRE-WASTE - waste prevention project** (<http://www.prewaste.eu/>) was implemented by a consortium of 10 partners and was co financed by the European Union's Regional Development Fund (2010-2013) in order to develop a reliable and complete approach to help local and regional authorities with the monitoring of their waste prevention actions. Within the scope of the project, among others, guidelines were produced for planning, implementing and monitoring regional waste prevention policies, as well as a web tool that would allow for the monitoring and assessment of waste prevention actions and policies, thanks to a set of indicators (<http://www.prewaste.eu/monitoring-tool.html>). Also, the following 3 types of waste prevention indicators have been agreed upon (<http://www.prewaste.eu/monitoring-tool/item/download/513.html>):

#### **1. Resources indicators**

These indicators monitor the resources allocated to the action. They serve several purposes: monitor the different resources over time, help assessing the efficiency of the action comparing results with resources and give interesting information for the transfer of the action. Resource indicators are grouped as such:

- financial resources
- staff
- communication tools
- equipment

#### **2. Results indicators**

These indicators monitor the main targets of the waste prevention actions, i.e. for most of the actions the number of participants and the avoided quantities. Depending on the actions, other results indicators can be defined such as the evolution of sales for eco-products. Results indicators are grouped in 2 categories:

- Change of behaviour: this category includes indicators allowing the monitoring of the evolution of behaviour, as regards to the waste prevention action under examination
- Evolution of waste generation: this category includes the indicators aiming to evaluate the potential avoided quantities thanks to the action

### **3. Impact indicators**

These indicators focus on further impacts of the waste prevention actions on the 3 cornerstones of sustainable development: costs, environment and social issues. Impact indicators are grouped in 3 categories:

- Environmental indicators: these indicators aim at assessing the environmental impact of a given action beyond waste generation, (e.g. material or energy consumption, air pollution, etc., set in greenhouse gas emissions),
- Financial indicators: these indicators generally aim at assessing the economical balance of the action, i.e. balancing costs, incomes and savings, etc.
- Social indicators: they aim at assessing social benefits of a given waste prevention action.

From the project results it was concluded that while the definition of a common set of indicators is relatively simple, it is more difficult to define a common method to calculate these indicators. Previous studies tend to show that there is no universal method to assess the efficiency of waste prevention. Several methods exist and have their advantages and limits.

Besides monitoring, it is interesting to use waste prevention indicators to make comparisons among different actions and to assess the transferability of a waste prevention action. These comparisons can serve several purposes: comparing the efficiency of different actions in order to prioritize waste prevention actions, assessing the efficiency of one given action before transferring it to another territory, etc.

Comparison indicators must give the following information:

- How many resources were needed to set and run the action?
- What are the main results of the actions?
- Did local specificities contribute to the success of the action?

➤ **Proposals for targets and indicators for waste prevention in four waste streams (Nordic Council of Ministers, 2013)**

In order to establish national waste prevention programmes for the Nordic countries, consisting of EU Member States (Denmark, Finland, Sweden) and Members of European Free Trade Association (Norway and Iceland), a project was commissioned by the Nordic Council of Ministers, with the objective of providing first proposals for targets and indicators that can be used in the Nordic countries' waste prevention programmes. Four waste streams were considered:

- Food waste,
- Construction and demolition waste (C&D waste),
- Waste electrical and electronic equipment (WEEE) and
- Textile waste.

The following typology of waste prevention indicators has been developed:

- Output-based indicators
- Input-based indicators
- Input-versus-output indicators
- Decoupling indicators
- Impacts indicators
- Hazardous content indicators
- Response indicators
- Other: any found which don't meet any of above classifications.

The project took a realistic approach for the development of proposals for targets and indicators. Following identification of potentially relevant indicators for the specificities of each waste stream, data components which could be used to build them were identified, with emphasis, as far as possible, on existing data.

For each individual indicator an assessment of its value was carried out, using the so-called RACER assessment methodology, in order to assess the relative advantages and disadvantages. Potentially useful targets and indicator pairs were suggested for the respective waste stream. For some targets both **best-available** and **best-needed** indicators were identified. **Best-available** indicators are those that can be created from currently available data. In some cases these indicators can provide only a proxy measure of progress against a target. In these cases a **best-needed** indicator which better corresponds to the target but which cannot be created from currently available data is used. When an authority wishes to apply **best-available** and **best-needed** indicators they should weigh the need for accuracy and reliability in monitoring the waste prevention against the cost of these measurements.

Detailed information about the project:

<http://norden.diva-portal.org/smash/get/diva2:701984/FULLTEXT01.pdf>

## C. PREVENTION INDICATORS EXAMPLES

In the following table, there are some examples of indicators that can be used in local prevention actions about the 24 thematic fields of Prevention that have been set by this project:

**Table 2.4.1 Example Indicators for 24 Thematic Fields of Prevention proposed by the LAWPreT project**

	THEMATIC FIELD OF ACTION	EXAMPLE INDICATORS THAT CAN BE IMPLEMENTED BY LOCAL AUTHORITY ORGANIZATIONS IN PREVENTION ACTIONS
1	Implementation of Sustainability in Supplies	<ul style="list-style-type: none"> <li>• Number of agreements the local authority made with businesses and bodies that participate or collaborate for the implementation of sustainable supplies.</li> <li>• Number of businesses that purchase paper according to the criteria laid out in the EU Eco-Label or other equivalent Ecological Labels.</li> <li>• Number of businesses that purchase cleaning services that conform to Ecological and/or other Sustainability criteria.</li> <li>• Number of businesses that purchase low fuel consumption vehicles in order to decrease the negative repercussions on atmosphere and climate.</li> <li>• Special indicators about measures that are being applied within the local authority itself for the implementation of sustainable supplies.</li> <li>• Web traffic of the relevant website.</li> <li>• Statistical processing of relevant internet data.</li> </ul>
2	Implementation of the PAYT	<ul style="list-style-type: none"> <li>• Total amount of household waste or municipal solid waste per resident or number of households.</li> <li>• The residual household waste per household or per resident (household waste that has not been sent for reuse, recycling or composting).</li> <li>• Cost of waste management per kg and resident by applying PAYT, compared to the previously applied system.</li> <li>• Change of the material recovery indicators (recycling of packaging, paper, organics, Green Spots, etc).</li> </ul>

		<ul style="list-style-type: none"> <li>Number of businesses that are participating in the targeted application of Pay-As-You-Throw (PAYT) in the municipality (e.g. restaurants, hotels, etc).</li> <li>Waste generated per customer annually, from businesses that participate in the targeted application of Pay-As-You-Throw (PAYT) in the municipality</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
3	Prevention awareness actions	<ul style="list-style-type: none"> <li>Number of information actions held by the local authority and/or other educational means of communication (courses, exhibitions, laboratories).</li> <li>Impact of the information actions to households where they were held (based on samples of e.g. 1000 residents per year)</li> <li>Answers of a significant number of residents to a specially formulated questionnaire, from which quantitative results will be drawn about the effectiveness of the information actions.</li> <li>Number of local bodies participating in the support or implementation of awareness actions.</li> <li>Number of volunteers participating in the support of awareness actions.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
4	Prevention Actions at Green Spots	<ul style="list-style-type: none"> <li>Number of Green Spots in the municipality area.</li> <li>Number of residents visiting the Green Spots in the municipality per year.</li> <li>Categories of items that could be collected through the Green Spots.</li> <li>Annual amounts of collected materials through the Green Spots.</li> <li>Annual amounts of collected materials, intended for reuse, through the Green Spots.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
5	Prevention Actions in schools	<ul style="list-style-type: none"> <li>Number of informative programs in schools about waste prevention.</li> <li>Quantities of special waste streams that were collected in schools for recycle and/or reuse like clothing, footwear, etc.</li> <li>Number of students participating in book recycling programs.</li> <li>Number of books recycled or reused each year in schools.</li> <li>Annual evaluation through special questionnaires of a statistically significant sample of students and teachers.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
6	Prevention Actions in offices	<p>Indicators for the implementation of systems for separate collection of paper and cardboard in offices, such as:</p> <ul style="list-style-type: none"> <li>Number of agreement signed.</li> <li>Number and type of measures applied.</li> <li>Number of municipality services where best practices are applied.</li> <li>Number of offices where best practices are applied.</li> <li>Number of machines with paper save option (double-sided photocopy machines, fax sending directly from the computers, etc).</li> <li>Reduction of the paper quantities purchased and consumed (compared to the quantities before measures were taken).</li> <li>Total quantity of waste from offices before and after the implementation of prevention actions.</li> <li>Total quantity of waste per employee from offices before and after the implementation of prevention actions.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>

7	Prevention Actions in hotels	<ul style="list-style-type: none"> <li>Number of hotels implementing prevention actions.</li> <li>Financial benefit from prevention actions (the difference in cost of waste, water, energy, before and after the action (intervention or change), in Euros.</li> <li>Number of hotel clients that were informed about prevention actions.</li> <li>Total quantity of hotel waste before and after the implementation of prevention actions.</li> <li>Total quantity of hotel waste per client before and after the implementation of prevention actions.</li> </ul>
8	Prevention Actions in eating establishments and catering businesses	<ul style="list-style-type: none"> <li>Food waste that is avoided per business (kg/business/year) based on certain calculation methodology.</li> <li>Reduction of cost for the supply of raw materials and the production of food per customer per year, based on certain calculation methodology.</li> <li>Food waste generated (kg) for customers per food consumption unit (kg/customer).</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
9	Prevention Actions in other places of public assembly (Ministries, public buildings, hospitals, medical centres, super markets, ports, airports, metro stations, bus stations, theatres, cinemas, sport sites, game fields, entertainment venues, campsites, military camps, accommodation centres, museums, archaeological sites, beaches, etc.	<ul style="list-style-type: none"> <li>Comparative evaluation of an individual company from a certain area or facility (per employee or per customer) in relation to the average waste quantities generated by similar companies in areas without prevention actions.</li> <li>The quantity of waste (kg/year) per area or facility compared to the time before prevention actions.</li> <li>The quantity of discarded packaging per area or facility compared to the time before prevention actions.</li> <li>Management indicators, such as hours of environmental training per employee, or percentage of reduction of the energy cost.</li> <li>Monitoring of the indicators of material recovery to recycling - composting. Quantitative monitoring of the following categories of ecological products used by businesses operating large public assembly spaces, where prevention actions are implemented: <ul style="list-style-type: none"> <li>Products bearing the European EcoLabel.</li> <li>Businesses that have adopted or are adopting the EMAS European Standard.</li> <li>Professional, low consumption electrical appliances (kitchen stoves, ovens, refrigerators, freezers, dishwashers, washing-drying machines, etc.).</li> <li>Businesses that receive cleaning services having the relevant eco label.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul> </li> </ul>
10	Actions to reduce the use of plastic bags	<ul style="list-style-type: none"> <li>Number of plastic bags sold by retail businesses in the municipality area.</li> <li>Number of reusable bags distributed by the businesses, instead of single use bags.</li> <li>Number of informative actions for the reduction of the use of plastic bags, organized by the local authority.</li> <li>Number of informative actions organized by the businesses using plastic bags.</li> <li>Number of businesses participating in Prevention actions about plastic bags.</li> </ul>
11	Prevention Actions for organic waste	<ul style="list-style-type: none"> <li>Food consumption (kg/resident/year).</li> <li>Total food waste generation (kg/resident/year).</li> <li>Food waste generation per business (per specific sector: retail, accommodation, food processing) in kg/business/year.</li> <li>Total food waste that could have been avoided (kg/resident/year), based on certain calculation methodology.</li> <li>Food waste that could have been avoided per household</li> </ul>

		<p>(kg/household/year), based on certain calculation methodology.</p> <ul style="list-style-type: none"> <li>• Food waste that could have been avoided per business (per specific sector: retail, accommodation, food processing) in kg/business/year, based on certain calculation methodology.</li> <li>• Food waste generated (kg) by the final consumers per unit (kg) of food consumption per capita, based on certain calculation methodology.</li> <li>• Web traffic of the relevant website.</li> <li>• Statistical processing of relevant internet data.</li> </ul>
12	Prevention Actions for green materials - trimmings	<ul style="list-style-type: none"> <li>• Total production of green materials – trimmings in the municipality (kg/resident/year).</li> <li>• Production of green materials – trimmings from the municipal green areas (kg/year/area).</li> <li>• Annual capacity of composting units, locally or regionally.</li> <li>• The number of special services provided by the municipality to the residents for on the spot shredding of trimmings.</li> </ul>
13	Prevention Actions for disposable plastic containers	<ul style="list-style-type: none"> <li>• Number of actions implemented by the municipality, involving the prevention of discarded plastic containers.</li> <li>• Number of informative actions organized by the municipality for the prevention of discarded plastic containers.</li> <li>• Total quantity of plastic containers recovered for recycling (there should be a reduction in percentage relative to the total generated quantity).</li> <li>• Web traffic of the relevant website.</li> <li>• Statistical processing of relevant internet data.</li> </ul>
14	Prevention Actions of discarded packaging	<ul style="list-style-type: none"> <li>• Number of agreements between the municipality and businesses and bodies for their participation or cooperation in the prevention of discarded packaging.</li> <li>• Number of businesses offering products in reusable glass containers.</li> <li>• Number of businesses promoting products with less packaging.</li> <li>• Total quantity of packaging recovered for recycling (there should be a reduction in percentage relative to the total generated quantity).</li> <li>• Web traffic of the relevant website.</li> <li>• Statistical processing of relevant internet data.</li> </ul>
15	Prevention Actions for discarded Clothing, shoes and accessories	<ul style="list-style-type: none"> <li>• Household expenses for clothing (and/or footwear and/or accessories) per resident per year.</li> <li>• Purchases (by weight and/or per item) of used (second hand) clothes per resident per year.</li> <li>• Ratio (by weight and/or per item) of exported used (second hand) clothes to the total available in the market.</li> <li>• Number of clothing products bearing an Ecolabel.</li> <li>• Quantities of certain chemicals contained in the imported clothing and footwear products.</li> <li>• Number of annual activities for exchange, donation or other relevant Prevention action.</li> <li>• Web traffic of the relevant website.</li> <li>• Statistical processing of relevant internet data.</li> </ul>
16	Prevention Actions for discarded toys	<ul style="list-style-type: none"> <li>• Quantity (in tons/year) of toys that have been reused through exchange and/or donation, via the internet.</li> <li>• Number (items/year) of toys that have been reused through exchange and/or donation, via the internet.</li> <li>• Number of bodies that can contribute to the exchange and/or donation of toys.</li> <li>• Web traffic of the relevant website.</li> <li>• Statistical processing of relevant internet data.</li> </ul>

17	Prevention Actions for discarded furniture	<ul style="list-style-type: none"> <li>Number of furniture items from local authority services reused or donated.</li> <li>Quantity of furniture (in metric tons) by businesses reused or donated.</li> <li>Number of annual activities for exchange, donation or other relevant Prevention action.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
18	Prevention Actions for discarded Electrical Appliances	<ul style="list-style-type: none"> <li>Quantities of electrical appliances available in the market (kg) per resident.</li> <li>Quantities of electrical appliances (kg) that have been reused or repaired.</li> <li>Production (kg) of electrical appliances per resident.</li> <li>Number of annual activities for exchange, donation or other relevant Prevention action.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
19	Prevention Actions for discarded Paper Products	<ul style="list-style-type: none"> <li>Agreements between the municipality and businesses and bodies, for the reduction of the amount of the distributed advertising material, such as:</li> <li>Number of agreements signed.</li> <li>Quantity of advertising material received by households.</li> </ul>
20	Prevention Actions for discarded Construction and Demolition Waste (CDW)	<ul style="list-style-type: none"> <li>Total production of construction and demolition waste.</li> <li>Quantity of construction and demolition waste in landfills.</li> <li>Quantity of recycled construction and demolition waste.</li> <li>Processing of municipal data for CDW production.</li> </ul>
21	Prevention Actions for discarded Hazardous household waste	<ul style="list-style-type: none"> <li>Number of special battery collection containers in the municipality.</li> <li>Quantity of batteries collected in the special containers at the businesses in the municipality (kg/year).</li> <li>Recovered quantities (tons/year) through the Green Spots.</li> <li>Processing of sales data for alternative products substituting others that contain harmful substances.</li> </ul>
22	Prevention Actions for other discarded household items (that are not included in other thematic categories)	<ul style="list-style-type: none"> <li>Agreements between the municipality and businesses and bodies, for the collection of used books to donate to establishments, such as prisons, institutes, hospitals, drug rehabilitation centres, etc.</li> <li>Number of agreements signed.</li> <li>Quantities of books collected (kg/year).</li> <li>Annual amount of items reused, through valid exchange bodies or secondhand sales.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
23	Prevention Actions through electronic governance of the LA	<ul style="list-style-type: none"> <li>Number of residents participating voluntarily in a database, in order to receive electronic information from the municipality services.</li> <li>Number of electronic communications of the residents with the municipal services instead of written requests or in person visits.</li> <li>Web traffic of the relevant website.</li> <li>Statistical processing of relevant internet data.</li> </ul>
24	Other possible initiatives by the LA about Prevention	<ul style="list-style-type: none"> <li>Agreements of the municipality with suppliers for Sustainable Supplies. Special indicators concerning measures for the responsible consumption by residents and the purchase of products that generate less waste, such as: <ul style="list-style-type: none"> <li>Number of products available with less packaging.</li> <li>Number of reusable bags distributed by businesses, instead of single use bags.</li> <li>Quantities and types of products sold in reusable glass containers in the municipality area.</li> <li>Many more indicators, depending on the municipality initiative.</li> </ul> </li> </ul>

**Useful websites:**

- GUIDELINES ON WASTE PREVENTION PROGRAMMES (European Commission)

[http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20Prevention\\_Handbook.pdf](http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20Prevention_Handbook.pdf)

- Preparing a Waste Prevention Programme Guidance document (European Commission)  
<http://ec.europa.eu/environment/waste/prevention/pdf/Waste%20prevention%20guidelines.pdf>
- Waste prevention programmes (EEA)  
<http://scp.eionet.europa.eu/facts/WPP>
- Waste Prevention Programme for England (The Waste Prevention Team- Defra)  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/264902/pb\\_14092-wpp-measures-evaluation-20131211.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/264902/pb_14092-wpp-measures-evaluation-20131211.pdf)
- Scotland's Zero Waste Plan  
<http://www.gov.scot/Topics/Environment/waste-and-pollution/Waste-1/wastestrategy>
- Guide for the preparation of local municipal waste prevention plans (Department of the Environment and Housing Waste Agency of Catalonia)  
[http://residus.gencat.cat/web/.content/home/la\\_gencia/publicacions/publicacions\\_destacats/guia\\_elaboraplanlocals\\_en.pdf](http://residus.gencat.cat/web/.content/home/la_gencia/publicacions/publicacions_destacats/guia_elaboraplanlocals_en.pdf)

**Zero Waste Europe**

<http://www.zerowasteeurope.eu/category/waste-prevention/>

# **Step III “Selection”**

# **3. Step III “Selection”**

In Step II the basic design and preparation was completed, namely a) the Prevention Group has been created b) the management costs of the materials - products for which the LA could implement prevention activities has been determined, c) all the specific characteristics of the LA have been identified and analyzed, and finally, d) possible targets and monitoring indicators have been identified. So the third step presents the methodology that may be followed by the LA to select the possible prevention actions that are best suited to its needs and its specific characteristics, as well as how actions will be officially adopted by the LA.

## **3.1 Choosing thematic prevention fields**

A LA can choose many Waste Prevention actions to implement. By choosing those that are best suited to its particularities, needs and capabilities, the highest environmental, economic and social benefits can be achieved and maximized.

To select the appropriate prevention actions the LA should first choose in which thematic field such actions will belong. This could be done as follows:

Based on the identification of specific characteristics of the LA, analyzed in STEP II (Chapter 2.3), STEP III identifies which of the 24 thematic prevention fields (Table 3.1.1) should be excluded, and which can be selected as the most suitable for each LA. The identification and analysis of specific characteristics of LAs carried out in chapter 2.3 together with the following table 3.1.2 can help local authorities investigate and determine the appropriate thematic prevention fields for further selection of prevention activities.

**Table 3.1.1 The 24 thematic prevention fields in which prevention activities can be classified**

	Prevention Thematic Field	Chapter in STEP I*
1	Plastic bags	1.1.1
2	Food and kitchen waste	1.1.2
3	Green waste	1.1.3
4	Plastic bottles	1.1.4
5	Packaging	1.1.5
6	Textiles – Clothing	1.1.6
7	Toys	1.1.7
8	Furniture	1.1.8
9	WEEE	1.1.9
10	Paper	1.1.10
11	C&D waste	1.1.11
12	Hazardous household waste	1.1.12
13	Household goods	1.1.13
14	Green Points	1.2.1
15	Schools	1.2.1
16	Offices	1.2.3
17	Hotels	1.2.4
18	Restaurants & catering	1.2.5

19	Crowded public places (ports, airport, squares, mall, stages, camps, railway stations, subway, hospitals etc.)	1.2.6
20	SPP	1.3.1
21	PAYT	1.3.2
22	Public Awareness	1.3.3
23	E-Government	1.3.4
24	Other	1.3.5

\* If necessary refer to the corresponding chapter

**TABLE 3.1.2 Supporting table for the exclusion or the selection of appropriate prevention thematic fields**

$\alpha/\alpha$	LAs Characteristics or parameters	Please, note what was indicated in the table 2.3.1	Note which Thematic prevention fields should be excluded and which should be selected, based on any specific characteristic of * the LA
1	According to the population number, the LA is considered: A. Small, B. Medium C. Large		The following thematic fields should be excluded:  The following thematic fields should be selected:
2	What is the average age of the population of your LA? A. up to 45, B. 45-65 years C. over 65		The following thematic fields should be excluded:  The following thematic fields should be selected:
3	If there are districts in your LA, these are: A. adjacent to each other? B. relatively remote, but easily accessible? C. remote and not easily accessible?		The following thematic fields should be excluded:  The following thematic fields should be selected:

4	<p>What is the population density of your LA?</p> <p>A. over 9000 inhabitants / km<sup>2</sup>,      B. 1000 - 9000 inhabitants / km<sup>2</sup>,      C. 100 - 1000 inhabitants / km<sup>2</sup>,      D. 100 inhabitants or less / km<sup>2</sup></p>		<p>The following thematic fields should be excluded:</p> <p>The following thematic fields should be selected:</p>
5	<p>The unemployment rate in your LA compared to the average in your country is</p> <p>A. lower,      B. equal,      C. greater</p>		<p>The following thematic fields should be excluded:</p> <p>The following thematic fields should be selected:</p>
6	<p>Geographically, your LA is</p> <p>A. an urban area      B. a suburban area,      C. A rural area      D. in a mountainous area      E. an insular area      F. at a distance from urban centers      G. a coastal area</p>		<p>The following thematic fields should be excluded:</p> <p>The following thematic fields should be selected:</p>
7	<p>Which of the following environmental characteristics does your LA have?</p> <p>A. public spaces      B. Green spaces (municipal parks, groves)      C. NATURA areas      D. some other particular environmental characteristics (please specify)?</p>		<p>The following thematic fields should be excluded:</p> <p>The following thematic fields should be selected:</p>

8	<p>Which of the following facilities exist in your LA?</p> <p>A. Manufacturers, Industries and Industrial Parks  B. Port, marinas  C. Airport  D. Train Station  E. Large gathering places(large squares with shops, concert halls, Pre-election places, archaeological sites)  F. Sports facilities (tennis several sports for professional or amateur sport)  G. Large or small school buildings  H. Neighborhoods with restaurants, bars  I. Malls  J. Organized beaches  K. Crowded unorganized beaches  L. Touristic region  M. Universities  N. industrial areas that do not work  O. Other municipal buildings that do not work</p>		<p>The following thematic fields should be excluded:</p> <p>The following thematic fields should be selected:</p>
9	<p>What is the level of environmental awareness of your LA's residents?</p> <p>A. Almost nonexistent  B. Low  C. Good enough  D. Very good</p>		<p>The following thematic fields should be excluded:</p> <p>The following thematic fields should be selected:</p>
10	<p>Which of the following local entities are present in your LA?</p> <p>A. Active environmental / cultural citizens' groups  B. Active trade / professional associations  C. local teachers' associations  D. Other initiatives at local level  E. Initiatives at national level</p>		<p>The following thematic fields should be excluded:</p> <p>The following thematic fields should be selected:</p>

11	Which of the following media exist in your LA? A. Local Media B. Newspapers / magazines (printed) C. Radios D. TV E. Electronic media F. Blogs G. Portal H. Business / private communication lists (eg customer lists enterprises) I. Access and cooperation with national media		The following thematic fields should be excluded:  The following thematic fields should be selected:
12	Which of the following apply to your LA? A. the landfill, serving the LA is saturated and there is no visible sustainable option B. The existing landfill will be saturated in a short time C. The existing method of waste management is costly D. The landfill has a very high "Gate Fee" E. a high "disposal fee" for untreated waste is imposed and the LA can not treat its waste directly. F. The processing unit, which receives the LA's waste imposes a high "Gate Fee". G. The LA does not achieve recovery targets for recycling and diversion from landfill and possibly in the future will have to pay high fines. H. Other serious waste management problem (specify).		The following thematic fields should be excluded:  The following thematic fields should be selected:

\* If necessary refer to the corresponding chapter 2.3

Table 3.1.1 can be used as follows:

- Exclude the prevention thematic fields, which for some particular reason are considered not suitable for the LA, and do not take them into account.
- Select the thematic prevention fields which, due to the specific characteristics of LA are considered suitable and continue the investigation and selection of the specific prevention activities.
- If in table 3.1.1 there are thematic prevention fields that for some reason must be excluded and should be selected due to a characteristic of the LA, then you should discuss the issue with other LA staff members/ executives whether to select or not the particular thematic

field. Most probably this field will be excluded and you will re-examine in the future the possibility of Prevention activities in this thematic field.

- If there are thematic prevention fields in table 3.1.1, which are neither excluded nor selected as suitable due to some characteristic of the LA, then these should be considered selected and you should continue the investigation for the specific prevention actions including these as well.

Upon completion of this process, a certain number of thematic prevention fields will have been determined upon which you will continue further the investigation for selecting specific prevention activities.

## 3.2 Selection Criteria

After the selection of the thematic prevention fields, specific prevention activities should be chosen.

For the selection of a particular action, and in order to be effective and realistic, the implementation of the proposed prevention activities, should take into account the following criteria:

- **Demographic criterion:** According to population numbers some thematic prevention fields may have already been rejected. However, the population significantly affects the efficient implementation of many prevention activities in all thematic fields. LAs with a population greater than 50,000 can theoretically implement any action, without being negatively affected by the population number. LAs with a population between 10,000 and 50,000 may encounter problems in the implementation of some prevention actions, possibly due to lack of appropriate human resources. However, local authorities with a population of less than 10,000 may encounter many problems and reduced efficiency in the implementation of many prevention actions for many reasons, which ultimately are caused by their small number of inhabitants. For this reason, it is proposed that the population criterion should be taken into account in the selection of all the prevention actions that will be explored. Also, before the final decision on the implementation of each action, you should have put the question: "Is this prevention action appropriate to the LA's population size, or problems may arise in the implementation?" If the answer is «the LA's population size would not cause a negative impact in the implementation of this action», then the prevention action can be selected for implementation.
- **Implementation cost:** A prevention action may: a) have no implementation cost because it employs only some LA's staff members in the context of their regular work for the LA, b) have a minimum or small organizational, preparation and implementation cost, which may amount to 1 euro/inhabitant/year, or c) have a significant implementation cost, which may amount to more than 0,2-1 euro/inhabitant/year (it depends of the EU country). So when the LA decides for a prevention activity, the amount of financial resources available for this purpose should have already been calculated. So if the LA' budget is small, then an activity with no or low cost should be selected. On the other hand, if the budget is significant (more than 0,2-1 euro per inhabitant), then actions with higher implementation costs can be chosen. In cost estimation of a prevention action concerning a specific material, should be included the existing cost paid by the LA for the management of this material when it becomes waste. So, for every prevention action the following questions should be answered: "Can the LA tackle the implementation cost of the action with its own resources?" "Could the

LA save from other sources some available financial resources?" "Can the cost of the prevention action be depreciated in the coming years by reduction of the existing waste management cost?". The evaluation of the answers to such financial queries will provide the data for the final selection -or not- of any particular action.

- **Organisational difficulties:** There are prevention activities with minimal organizational difficulties (eg sending messages on prevention via SMS or e-mail) and other with more serious (eg implementation of PAYT). So, each LA should assess whether it has the appropriate human resources that could deal with the implementation of a prevention action. This can include members of the Prevention Team of the LA, concerned staff members, skilled freelancers or even volunteers - residents or students. Therefore, before choosing prevention actions, the LA should have already assessed as to whether it can cope with any organizational difficulties of any given action. For this reason, before choosing any action, the following questions should be posed: "Does the LA have the appropriate and perhaps even skilled human resources for the implementation of the action?", "Could the LA find and engage proper volunteers -or train them - on the implementation of the action?", "Does the LA need to cooperate with a specialized external partner?", "Can the LA allocate financial resources to hire specialized external partner(s)?". The evaluation of the answers will give us the data for the final selection -or not- of any particular action.
- **Quantitative waste reduction due to the action:** There are prevention actions that: a) do not reduce the amount of waste at all but rather reduce the hazardous content of waste (e.g. use of environmental friendly paints), b) which decrease slightly, and almost in a non-measurable way, the amount of waste produced (e.g. purchase of electric appliances with Ecolabel) and c) reduces the produced waste significantly (e.g. use of mechanical composters by large food waste producers for composting and use the compost on-site). Regardless of whether the LA faces immediate management problems (see Section 3.3.12) it is reasonable to choose prevention actions that result in measurable reduction of waste.

If this occurs then the LA may reduce the administrative, economic and social costs of waste and this will be reflected in the financial budgets, but also in the quantities of waste going to landfills and treatment plants. The potential cost reduction will allow the LA to invest greater resources in prevention in the coming years. Therefore, it is important that the LA can reduce the amounts of waste, whenever it wants, through prevention actions. The actions that measurably reduce waste are those relating to large flows of materials and sites, such as: organic, paper, packaging, C&D waste (if increased), catering, hotels, large schools or of sites of large gatherings.

Therefore, the selection of actions relating to these thematic fields can contribute to quantitative reduction of the produced waste in the LA and should be considered during the selection process.

Based on the above proposed criteria the LA can choose ideas and prevention actions:

1. From the database of Prevention Ideas in the LAWPreT project platform. This database is designed in such a way that the user can choose prevention actions from any Thematic Field (out of 24 proposed thematic fields) and can filter out only those actions that meet the criteria 1-4 mentioned above. The user can also export and print all the Prevention ideas that meet all the criteria set.
2. From Prevention actions presented in the Best Practices and the Case Studies (Chapter 1.4).
3. From Prevention actions which can be found as links, together with this Guide in the platform of LAWPreT ([www.waste-prevention.gr](http://www.waste-prevention.gr))

4. From the proposed Prevention actions contained in Prevention Action Plan of each country (included in the platform of LAWPreT) ([www.waste-prevention.gr](http://www.waste-prevention.gr))
5. From any other available source.

All previous processes and work that have been done should result in ending up with a list of thematic fields with each field containing some prevention activities. It is desirable that the total number of prevention actions do not exceed 50-70 actions. It would be good if the Prevention Team discuss or consult on this list with:

- Members of all departments of the municipality or community (economic, clean, green, etc.) on how realistic the implementation of the selected prevention actions is. All comments and proposals should be taken into account very seriously.
- Officials and representatives of professional associations and other relevant local actors that could be involved in prevention actions that you initially selected. The aim of the discussion will be to inform them about the intentions of the municipality / community and to exchange views on whether it is realistic to implement the specific prevention actions that you want to engage them. Of course, all comments and proposals submitted by them will be taken into account very seriously.

As a result of the internal and external consultation some actions can be taken off the list and may be replaced with others, depending on the submitted proposals. After the consultation the list of actions is ready for the final selection.

### **3.3 Final list of thematic fields and Prevention Actions and LA's commitment**

Following the previous stage of defining proposals for Prevention actions, the proposed list of actions, as well as the data, conclusions and recommendations, submitted during the consultation within the Municipality / Community and during meetings with professionals and other local actors, should be prepared. Furthermore, the LA's Prevention Team should prepare the following:

- The indicative financial resources needed for each action and an indicative implementation timetable.
- Prioritization of actions per Thematic Field in order of priority for implementation, based on the criteria of the previous stage (Chapter 3.2).

The ranked list of the actions and all the extra data per Prevention action should be sent to the Mayor / President and to all members of the Municipal / Community Council. The list should be discussed with the Municipal Council and the waste prevention team along with the financial resources and an implementation schedule outlined. The final decision should then be taken. With the adoption of the final comments made by the Municipal / Community Council the final list of preventive measures, the available financial resources and the implementation schedule is finalized. The decision of the LA to proceed with the implementation of prevention activities can then be officially communicated by a press release.

# **Step IV**

## **“Implementation Evaluation Fine tuning”**

# **4. Step IV “Implementation–Evaluation – Fine tunning”**

Once the specific activity-(ies) has (have) been chosen, an action plan needs to be defined to properly implement your chosen activity (-ies). To that end, several stages have been set-out to facilitate its realization. These stages, provided below, take the form of tasks that need to be realised for the proper implementation of your chosen activity. These are defined and explained below:

## **4.1 STAGE I – SETTING OUT AN ACTION PLAN**

### **4.1.1 Setting an overall goal**

*Below are some questions that can be put forth by the Prevention Team to define the goals of the action:*

- *What is the prevention action's overall goal?*
- *To clarify this, overall targets can also be included.*
- *Is (Are) the goal(s) put forth compatible with the characteristics, needs and priorities set out by the Local Authority in steps 2 and 3?*
- *What will they accomplish?*
- *Why are you implementing this activity?*

Provide specific, clear and simple goals. Justify your choice with the local authority's characteristics (profile) defined in STEP 3. The details and complexities can be elaborated in the following steps.

Eg. Reduce waste produced/land-filled, raise awareness, increase waste prevention... Targets could include weight, number of people, household, %, geographic area...

Chapter 2.4, may act as a reference in regards to the goals that are set-out.

### **4.1.2 Defining the activity**

The Prevention Team should choose to implement an action from the final Catalogue of Actions, which set-out the local authorities' priority actions in STEP THREE. The next questions and procedures will allow you identify which prevention action you should (next) focus on.

*What action from the final Catalogue of Actions set-out in STEP 3 better meets the goals set-out in the previous stage?*

- *Define your main action/chosen activity?*
- *Is the chosen action the most necessary and implementable for your local authority?*
- *Define the reasons this should be the action you should currently focus on.*
- *Are there any specific reasons why you should not currently implement this action?*

- Ask two colleagues' (not on the Prevention Team) opinion about the proposed action. Do they agree that this action is a priority?
- Does it help achieve the above mentioned goals?

Eg. Promote the reduction of advertisement brochures distributed in my local authority.

#### **4.1.3 Defining the measures**

The following questions should be examined by the Prevention Team so as to define the necessary measures to be taken:

- Do the examined measures require some type of lacking legal framework (eg. PAYT measures in Greece)
- Are these measures outside the scope or ability of the Local Authorities? (Μήπως απαιτούνται μέτρα, που δεν μπορεί να πάρει ο ΟΤΑ)
- Do these measures require the cooperation of many stakeholders? Has this been secured? Will this pose a problem in the implementation?
- Could the proposed measures have some public back-lash? (e.g. banning the use of light-weight plastic bags?)

Finally,

- How will this be done?
- What measures will you take? Define.

Eg . Pass a by-law banning paper advertisement distribution door-to-door, pass a by-law allowing buildings to refuse paper advertisement, provide voluntary stickers to buildings, presentation in schools, promote local business use online advertising...). Also set-out specific targets here related to the different measures. (The targets can be the number of residents, businesses, geographic area, weight, volume, number of events, etc...,)

#### **4.1.4 Setting out the internal resources**

Define the human, financial, organisational resources and other resources necessary for implementing the actions that have been secured and are available. These relate internally to the local authority. Will this be an “in-house” action or will it be outsourced in whole or in part?

The Prevention Team should hold a meeting with the Local Authority's Mayor or equivalent and discuss the action and a) the available budget and human resources b) the overall timeline This will set-out the available internal resources that can be dedicated to the project.

#### **4.1.5 Identifying and defining the external stakeholders**

Identify the target group. Who will benefit from it? Who will implement it? These can include residents, businesses, geographic area, etc... You may also choose to set quantifiable targets.

#### **4.1.6 Communication (How will you communicate the action to the target group?)**

Set-out a communication plan. Communicating the action to the target group aims to secure the target group's engagement and cooperation. Some communication activities, such as stakeholder events and deliberation are also used to gage potential obstacles, problems or opposition. These will be of significant importance to help fine-tune and correct different phases of the action plan.

Examples of communication activities can include press and media campaign, social media campaign, public events, stakeholder meetings, conferences, presentation in schools etc. In the event that your chosen activity is in itself a communication action, much more weight should be given to organizing the communication plan

You should also include the communication of the results and successes of the project in the communication plan.

For more information on communication tools review chapter 1.22 as well as several documents in the LAWPreT website.

#### **4.1.7 Defining a time line**

Define the actions timeline. Keep in mind if this activity is related to other overall time related goals or parameters. (eg. Waste prevention strategy, Local authority's operational plan, other actions, etc..., reporting period, budget period, etc...). If your activity involves different phases (target oriented, target group oriented, geographical phases, etc...) include those in the timeline. Also include monitoring and measuring activities in your timeline as well a timeframe for the evaluation of results. Allow time for eventual delays, obstacles and fine-tuning and corrective actions. Your timeline can also include important milestones.

#### **4.1.8 Setting monitoring indicators**

Some targets and indicators have been set in the above steps. These include targets, resources, plans and timelines. These along with any other relevant indicators should be listed and used to as a means to monitor and measure the implementation of the activity in the next phase. A list of possible indicators has been developed in step 2.4

### **4.2 STAGE II – IMPLEMENTING THE ACTION PLAN**

#### **4.2.1 Implementing the Activity**

This stage requires putting into force the different phases of the action plan. The action plan defined in Stage I provides the different facets that need to implemented and followed during this phase.

## **4.2.2 Monitoring Actions**

Implement a data collection system to evaluate the progress of your activity. This can be set at different intervals or an ongoing process. During the different phases of the action plan, different measures, targets, resources, plans and timeframes were set out. Collect all different relevant data.

Collecting the results of the monitoring indicators over time will allow for the systematic evaluation of the specific action.

## **4.2.3 Evaluating the Results**

The activity needs to be evaluated during its different phases. This evaluation should be both qualitative and quantitative. Issues that need to be evaluated are closely linked with the monitoring of indicators but also needs to take into consideration the outcomes and impacts of the activity in question. Explain if the activity is helping to meet the long-term goal and how. Evaluate the strong and weak points of the activity. What are the areas in which the activity has succeeded? Have there been any obstacles/problems? How can these be overcome in the future, during a following phase, or in another similar activity in nature? Elaborate on how the activity can be fine-tuned and what corrective measures need to be taken. Communicate the results internally and externally as fit.

## **4.2.4 Applying the corrective measures**

Measures need to be taken and means used to apply the corrective actions defined in the evaluation process of the activity. The Action Plan should be adjusted and implemented accordingly, taking into account the corrective measures that have been introduced.

## **4.3 PHASE III REPEAT FOR OTHER ACTIVITIES**

The above stages should be applied for other activities, keeping in mind the goals, results, evaluation, corrective measures and lessons learnt.