GOOD PRACTICE
GREATER PORTO AREA:

ECO-CONTAINER AT HOME

November 2014
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1. GENERAL INFORMATION ON THE GOOD PRACTICE (GP)

1.1 General information

<table>
<thead>
<tr>
<th>Region</th>
<th>Great Porto Region (Maia Municipality)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>Portugal</td>
</tr>
<tr>
<td>Short name of the good practice</td>
<td>Eco-container at Home</td>
</tr>
<tr>
<td>Geographical level of implementation (country, region, municipality…)</td>
<td>Maia Municipality</td>
</tr>
<tr>
<td>Target group</td>
<td>Citizens living in Maia Municipality</td>
</tr>
<tr>
<td>Date of implementation/duration</td>
<td>The “Eco-container at Home” Project with Door-to-door selective collection in <strong>100% of Maia Municipality</strong> began on 15&lt;sup&gt;th&lt;/sup&gt; October 2012. But the door-to-door selective collection starts, as pilot project, in 2002.</td>
</tr>
<tr>
<td>Waste stream (and subcategory)</td>
<td>Paper and Cardboard</td>
</tr>
<tr>
<td></td>
<td>Glass</td>
</tr>
<tr>
<td></td>
<td>Plastic and metal packaging</td>
</tr>
<tr>
<td></td>
<td>Mixed Waste</td>
</tr>
<tr>
<td>Legal framework</td>
<td></td>
</tr>
<tr>
<td>Main local instruments involved</td>
<td></td>
</tr>
<tr>
<td>Scale (pilot/partially roll out /roll out)</td>
<td>Roll out</td>
</tr>
<tr>
<td>Initiator/coordinator</td>
<td>Maiambiente, EM (Management Entity)</td>
</tr>
<tr>
<td></td>
<td>Maia Municipality (Legal Entity)</td>
</tr>
<tr>
<td>Demography</td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>136,000 inhabitants</td>
</tr>
<tr>
<td>Number of households</td>
<td>55,000</td>
</tr>
</tbody>
</table>
### General waste data (Not necessarily related to the GP but to give some background information. Data about the GP should be included under 3.1)

<table>
<thead>
<tr>
<th>Year of the following waste data</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of all waste streams excl. residual &amp; bulky waste (kg/inhabitant/year) (Use indicator 1 or 2 from the R4R Online Tool)</td>
<td>125,4 kg/inhab/year (all recycling and composting)</td>
</tr>
<tr>
<td>Residual waste (including sorting residues) (kg/inhabitant/year) (Use indicator 8 or 9 from the R4R Online Tool)</td>
<td>284 kg/inhab/year (residual waste)</td>
</tr>
<tr>
<td></td>
<td>287,9 kg/inhab/year (residual and bulky waste)</td>
</tr>
<tr>
<td>Total waste (add up the previous two)</td>
<td>• MSW Production 55,796 ton</td>
</tr>
<tr>
<td></td>
<td>• 1,13 kg/inhab/day</td>
</tr>
<tr>
<td>Sum of all waste streams excl. residual &amp; bulky waste to DREC (kg/inhabitant/year) (Use indicator 3 of the R4R Online Tool)</td>
<td>125,4 kg/inhab/year (all recycling and composting)</td>
</tr>
</tbody>
</table>

### 1.2 Context

This project provide a new waste collection model, with an easy to use disposal system, based on door to door, providing on every home reasons to participate more easily in the recycling system.

The aim was forced by the lower percentage of recycling wastes collected in Portugal, despite the good results achieved by Maiambiente until 2009. However, last years revealed a decline in recycling quantities, creating this need to promote a new solution, potentiating participation of more persons, with better habits of separation, allowing the persecution of the European targets to 2020.

Maiambiente is a local public company, dedicated to waste collection and street cleaning, in Maia municipality, with 135000 inhabitants and 82 km² area.

This project, named “Ecoponto em casa” ("Recycling bins at home"), it’s a unique implementation project in Portugal, based on the widespread distribution of single-use containers for disposal of four fractions of solid waste: paper, packaging, glass and rest.

It’s projected to serve the entire population of Maia, either in single and multifamily residences, as well as companies and institutional partners, schools and restaurants.
Maia municipality always dedicated special concern with environment issues, being the first one that implement door to door collection and ecocenter concept. In addition is recognized as leader in waste collection service and recycling index. This recognition was materialized in 2011 by national regulator (ERSAR) as the best national service provider in waste collection.

### 1.3 Short description

The “Eco-container at Home” Project is based on the distribution of individual containers/bins for waste selective deposition and for the mixed waste deposition (4 different bins with four different colours), which allows separate the waste without living home.

This is an innovative Project, that reflects the Maia Municipality pioneerism.

Besides the containers distribution, this Project includes a door-to-door collection with pre-defined timetable, optimizing the collection circuits and the collection frequency.

Maiambiente implemented a unique project in Portugal, based on the widespread distribution of single-use containers for disposal of four fractions of solid waste: paper, packaging, glass and rest.

It’s projected to serve the entire population of Maia (135000 inhabitants), either in single and multifamily residences, as well as companies and institutional partners, schools and restaurants.

Containers with a capacity adapted to each customer are equipped with an electronic identifier, for automatic data collection, recording the amount of waste collected from each customer.

Through this process, it’ll be possible to implement the PAYT principle, rewarding who separates (enhancing the amount of waste sent for recycling) and penalizing who less separates (reducing waste sent for landfill).

Complementary, RFID based technology it’s used to communication, monitoring and reporting the all process of waste collection, facilitating human resources and equipment optimization and regular information from customers.

Plus, this project contribute to reinforce the recycling industry, upgrading jobs qualifications, improve urban health and safety, reduce natural resources consumption as well as reduce pollutant emissions. Improving the well-being and life-quality in general, generating a more convenient and hygienic operation model, as well as more economically, transparent and fair system it’s the goal.

### 1.4 Objective

The “Eco-container at Home” Project offers a new service to the citizens, putting the waste separation available for everyone, contributing to help reduce the amount of mixed waste and helping the Municipality to be more sustainable.
The objective of the project was to provide a new waste collection model, with an easy to use disposal system, based on door to door, providing on every home reasons to participate more easily in the recycling system.

The main objectives are:

- Generalize the use of individual bins for waste disposal, in opposition of non-reusable plastic bags;
- Provide a user friendly collection service for citizens, based on door to door model;
- Increases the amounts of waste sent for recycling and preserve natural resources;
- Reduce the amount of waste sent to landfill / incineration and decrease treatment costs;
- Provide a system for data collection, communication, and reporting system, supported on RFID technology, for service management.
- Implement a fair tax model based on waste production, changing the actual methodology, indexed on water consumption;
- Decrease costs as a result of lower waste collection frequency and higher efficiency;
- End of direct contact with the waste, and reduce the physical effort for collection operators (use of containers and automatic lifters)
- Improve the quality of street cleaning due to the new waste disposal system;
- Create a new internet platform with clients;
- Refresh awareness campaign with focus on waste recycling benefits

Resume:

**Waste disposal on bins for all:**
- Decrease collection frequency (increase disposal capacity),
- Improve street cleaning,
- Improve safety conditions for workers,
- Decrease plastic bags consumption,
- Clients satisfaction,
- Workers satisfaction,
- Waste collection costs reduction.

**Door-to-door selective collection for all:**
- Decrease quantity of waste sent to landfill / incineration,
- Increase quantity of waste sent to recycling / composting,
• Waste treatment costs reduction,
• Improve recycling rate.

**Integrated Management System:**
• Planning, communication, monitoring and reporting,
• Continuous quality service improvement,
• Data Base - clients / containers / vehicles / workers / routes / …
• Operational costs reduction,
• Higher efficiency,
• More effective.

### 1.5 Method used to identify the good practice

This is a unique project in Portugal, based on the widespread distribution of single-use containers for disposal of four fractions of solid waste: paper, packaging, glass and rest.

It’s projected to serve the entire population of Maia Council (135000 inhabitants), either in single and multifamily residences, as well as companies and institutional partners, schools and restaurants.

Containers with a capacity adapted to each customer are equipped with an electronic identifier, for automatic data collection, recording the amount of waste collected from each customer.

Also the RFID technology used to communication, monitoring and reporting the all process of waste collection, facilitating human resources and equipment optimization and regular information from customers, it’s a new solution in Portugal.

Plus, this project contribute to reinforce the recycling industry, upgrading jobs qualifications, improve urban health and safety, reduce natural resources consumption as well as reduce pollutant emissions. Improving the well-being and life-quality in general, generating a more convenient and hygienic operation model, as well as more economically, transparent and fair system it’s the goal.

With this project, Maia will promote the environmental, social and economic development and evolution, promoting the best practices, regarding the best results associated in recycling indexes in Portugal and also in Regulatory Analysis (ERSAR) results.

### 1.6 External factors

Portugal have differentes goals to achieve, as:
- the lower percentage of recycling wastes collected in Portugal;
- decline in last years recycling quantities;
- distance between the reality and the targets of Europe to 2020.
- possible increase of landfill taxes;

Maia also have a political guideline that drive the collection system to a door-to-door reality, since the late 80’s, and don’t want to abandon the concept.

All this promote a new solution, potentiating participation of more persons, with better habits of separation.

2. IMPLEMENTATION

2.1 Preparation phase

The containers distribution was in a phased way, divided into 4 different areas of the Municipality.

This phase was accompanied by an communication and awareness campaign – with a carefully thought decoration in vehicles used for containers distribution and in vehicles used for the collection, with the distribution of information leaflets/ brochures to households and the distribution of programming schedules for timetables for the collection, with outdoors and mupis throughout the Municipality.

The containers distribution was accompanied by a special travelling vehicle (promotion vehicle), decorated with the logo of the Project and was transmitted a radio spot to communicate the new waste management service of Maia Municipality.
MULTIPLE SOLUTIONS

- **Private Area**
  - Individual Users
  - ID Container / Users

- **Building - with waste compartment**
  - Private Area
  - Collective Users
  - ID Container / Users

- **Building - without waste compartment**
  - Public Area
  - Collective Users
  - Access Card
  - ID Container / Users

INTEGRATED MANAGEMENT SYSTEM

- **Disposal**
- **RFID**
- **Events**
- **Billing**
- **BackOffice (Planning/Monitoring)**
- **Onboard Computer**

GOOD PRACTICES • 9
This project involved 5 persons on project development resources, 25 persons on the door to door distribution and data registering task, 5 in communication and marketing process. Involved in waste management services there are 170 persons in Maiambiente, including planning, collection, monitoring, maintenance, cleaning,…

With an initial budget of 2.3 million euros, cofinanced by European Regional Development Fund/ QREN-ON.2, this is the most important project ever made by Maiambiente.

Include door to door distribution of 77,000 containers all over single houses, buildings, educational, institutional and commercial entities, awareness campaign supported in all available channels, state of the art hardware and software solutions, and many others facilities involving a project with such a large range of action, touching every single person of this municipality.

The implementing steps were:

- Acquisition of 2 and 4 wheel bins, for paper, packaging, glass and rest fraction (about 77,000 bins, as a result of previous data collection focus on number, place and type of waste producers), supported on an international tender;
- Door to door distribution of 2 and 4 wheel bins in every clients of this project (about 25,000 points of collection), divided in 4 phases, and registering clients data base;
- Pilot project for test and select RFID technology and software provider, involving 4 different concepts and technical solutions;
- Planning new routes for collection vehicles, adapted to the new waste collection strategy, fraction and resources, and time schedules for collection services, adapted to noise regulation and well-being;
- Implement a solution, based on RFID technology, for data collection, on-line communication, monitoring and reporting data for better and faster solutions;
- Implementation of door-to-door collection, over the all area (82 km2);
- Create and promote an awareness campaign, supported on outdoors, radio, newspapers, mail, facebook and door to door communications;
- Flashmob event, with hundreds of students, to create a buzz, providing notority to the project, involving local community.
2.3 Communicative implementation

Maiambiente developed different platforms, based on door to door flyers and collection calendars (60,000 each), mupis and outdoors (all over the council, more than 30), marketing vehicles (some day before the distribution day in each street), as well as internet platforms (with a accurate website: [http://www.ecopontoemcasa.pt/](http://www.ecopontoemcasa.pt/)) and Facebook interaction.

Maia also developed a flashmobe event with the participation of hundreds of students who created a buzz in local population, as it can be viewed in [https://www.facebook.com/ecopontoemcasa](https://www.facebook.com/ecopontoemcasa)

2.4 Organisations

The project “Eco-container at Home” is an initiative of Maiambiente, with the support of LIPOR and Sociedade Ponto Verde (Portuguese Green Dot System), cofinanced by the National Strategic Reference Framework (in Portuguese, “QREN – Quadro de Referência Estratégico Nacional”), ON2 – The New North and European Union.
2.5 Key success factors

The project implementation was scheduled in 4 phases, with new collection service of the first started in November 2012. At this moment, 3 of those 4 stages, serving about 100,000 inhabitants, are already finished. At the 4th phase, paper, packaging and rest door to door collection service were already available. Next step will be starting glass door to door collection.

This are the key success results:

- Same waste collection service in all municipality (houses/buildings; residential/commercial, center/suburbs, …): 75,000 bins distributed, plus 20,000 existing, covering the whole municipality.
- Increase the amount of waste sent for recycling (more than 35% in main materials), and fulfill national targets;
- Decrease costs as a result of lower waste collection frequency and reduce the amount sent to landfill/incineration (-10%, with a 52€/ton cost);
- Awareness campaign support on outdoor, radio spot, advertising on newspaper, infomail for houses, facebook page, and door-to-door communication, flashmob event with hundreds of students, news on TV, …

This solution increased decisively waste separation and subsequent delivery to recycling.

2.6 Resources

This project involved 5 persons on project development resources, 25 persons on the door to door distribution and data registering task, 5 in communication and marketing process.

Involved in waste management services there are 170 persons in Maiambiente, including planning, collection, monitoring, maintenance, cleaning,…

With an initial budget of 2,3 million euros (containers, awareness campaign, informatic tools, RFID System, Collection innovation, etc), cofinanced by European Regional Development Fund/ QREN-ON.2, this is the most important project ever made by Maiambiente.
3. RESULTS

3.1 Monitoring of the progress of the GP

The lower percentage of recycling wastes collected in Portugal, despite the good results achieved by Maiambiente until 2009, where the aim of the project. However, since last years, Maia verified that selective collection was getting more difficult, so we had to change the approach to the problem. To invert a decline in recycling quantities, Maiambiente spreaded the door to door collection to all the municipal area, standardizing this service.

The begginig of the all ideia was in 2007. The development decorred until 2009, when Maiambiente submit the project to European Regional Development Fund/ QREN-ON.2. In 2010, with the approval of cofinancing, the kick-off was given, so the implementation began in 2011. The distribution began in the 3rd quarter of 2012 and extended until mid 2013.
This need to promote a new solution, potentiating participation of more persons, with better habits of separation, allowing a persecution of the European targets to 2020, was the main purpose of the project, who found a great support of local, national and European entities who participated on it.

Undoubtedly this solution helped increase decisively waste separation and subsequent delivery to recycling.

Note that the Municipality of Maia already held, before the implementation of this project, the best national recycling performance. This increase allowed counteract the reduction in consumption associated with the crisis registered in Portugal. In a scenario of strong reduction in consumption, as evidenced by the reduction of the amount of rest waste collected, these results show an increase in relevant quantities collected and delivered for recycling, as was the purpose of this project.
3.2 Other results

- **Sustainable development**
  - Total waste reduction (due to taxes);
  - Less pressure on natural resources (due to more recycling and less landfill disposal);
  - Environmental and civic education of citizens;
  - Best practice in Europe;

- **Economy**
  - Less costs due to optimization, based on real-time information;
  - Less costs due to reduction of waste collection frequency;
  - Less costs from waste treatment due to reduction of landfill disposal;
  - More jobs in recycling sector due to more recycling;
  - Increase revenues from waste valorization;

- **Environment**
  - More waste sent for recycling (due to home disposal solutions and taxes);
  - Less waste sent for landfill/incineration (transferred to recycling, due to taxes and
    consciousness);
  - Lower plastic bags consumption (bin disposal);

- **Equity**
  - All citizens served by door-to-door collection;
  - Citizens satisfaction
  - Fair taxes (indexed to real waste production);
  - External recognition

4. LESSONS LEARNED

4.1 Negative effects

There are no significant negative effects. Maybe, as weak point, the initial investment and the
financing process. Also the complexity of a door-to-door collection system, with a great amount of
data it’s a difficult, but certainly not a negative effect.
4.2 Challenges

Project with door-to-door selective collection in all (100%) Maia Municipality, with 135000 inhabitants and 82 km² area.

Find solutions for all cases (for private and public areas, individual solutions for single households, collective solutions for buildings, ).

5. PICTURES AND OTHER DOCUMENTATION

Project Logo’s:

ecoponto em casa
(In English, “Eco-container at Home”)

Promotion Vehicle

Eco-containers
Eco-containers distribution  
Collection Vehicle  
Project Presentation Session
6. FURTHER INFORMATION

| Organisation                  | Maiambiente EM  
|                              | LIPOR – Intermunicipal Waste Management of Greater Porto |
| Address                      | Maiambiente EM:  
|                              | Rua 5 de Outubro, nº 359 - 4475-302 Milheirós  
|                              | LIPOR:  
|                              | PO Box 1510 4435-996 Baguim do Monte |
| Contact person               | Carlos Mendes (Maiambiente)  
|                              | Susana Abreu (LIPOR) |
| Phone                        | Maiambiente: +351 229 478 130  
|                              | LIPOR: +351 229 770 100 |
| Email address                | carlos.mendes@maiambiente.pt  
|                              | susana.abreu@lipor.pt |
| Website                      | www.maiambiente.pt  
|                              | www.lipor.pt |
| Others                       | |

7. OTHER REGIONS WITH SIMILAR GOOD PRACTICES

The following partners of the R4R-project have a good practice similar to the good practice described in this factsheet:

| Organisation | Municipality of Lisbon |
### Address

<table>
<thead>
<tr>
<th></th>
<th>Rua da Boavista, n° 9, 1200-066 Lisbon PORTUGAL</th>
</tr>
</thead>
</table>

### Region

<table>
<thead>
<tr>
<th></th>
<th>Lisbon</th>
</tr>
</thead>
</table>

### Country

<table>
<thead>
<tr>
<th></th>
<th>Portugal</th>
</tr>
</thead>
</table>

### Contact person:

<table>
<thead>
<tr>
<th></th>
<th>Celeste São João / Lúcia Melo</th>
</tr>
</thead>
</table>

### Phone

<table>
<thead>
<tr>
<th></th>
<th>00351 213 253 584 / 443</th>
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</table>

### Email address

<table>
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<tr>
<th></th>
<th><a href="mailto:celeste.joao@cm-lisboa.pt">celeste.joao@cm-lisboa.pt</a>;</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><a href="mailto:lucia.melo@cm-lisboa.pt">lucia.melo@cm-lisboa.pt</a></td>
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</tbody>
</table>

### Website

<table>
<thead>
<tr>
<th></th>
<th><a href="http://www.cm-lisboa.pt/viver/higiene-urbana/recolha-de-residuos">http://www.cm-lisboa.pt/viver/higiene-urbana/recolha-de-residuos</a></th>
</tr>
</thead>
</table>

### Others

<table>
<thead>
<tr>
<th></th>
<th>In Lisbon there is door-to-door collection only for residual waste, paper/cardboard and packages (of plastic, metal and beverage cartons collected together), for households and non-households. The restaurants, hotels, canteens and the like have additionally door-to-door collection of glass and biowaste.</th>
</tr>
</thead>
</table>

### Organisation

<table>
<thead>
<tr>
<th></th>
<th>Agència de Residus de Catalunya</th>
</tr>
</thead>
</table>

### Address

<table>
<thead>
<tr>
<th></th>
<th>C/Dr. Roux 80</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>08017 Barcelona</td>
</tr>
</tbody>
</table>

### Region

<table>
<thead>
<tr>
<th></th>
<th>Catalonia</th>
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</thead>
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### Country

<table>
<thead>
<tr>
<th></th>
<th>Spain</th>
</tr>
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</table>

### Contact person:

<table>
<thead>
<tr>
<th></th>
<th>Francesc Giró</th>
</tr>
</thead>
</table>

### Phone

<p>|            | +34 935673300                                                  |</p>
<table>
<thead>
<tr>
<th>E-mail address</th>
<th><a href="mailto:fgiro@gencat.cat">fgiro@gencat.cat</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Website</td>
<td><a href="http://residus.gencat.cat/ca">http://residus.gencat.cat/ca</a></td>
</tr>
<tr>
<td>Others</td>
<td></td>
</tr>
<tr>
<td>Short description of the main differences.</td>
<td>In Catalonia, depending on the municipality, different combinations of waste streams are separated at source: residual waste, biowaste, packaging, paper/cardboard and glass. They are usually collected outside the front door according to a collection schedule for each waste stream.</td>
</tr>
</tbody>
</table>