

Good Practice in Waste Deposit in Heritage City Centres		
Nº.	Section	Description
0.	Title of the practice	<i>Underground waste containers</i>
1.	Photograph	
2.	Proposers	Municipality of Porto
3.	Contacts	Pelouro da Inovação e do Ambiente: pelouro.ia@cm-porto.pt +351 222 097 161
4.	Useful links	www.cm-porto.pt
5.	Start date	2010
6.	Activities' state of the art	Ongoing
7.	Location	Portugal, Porto, Heritage City Centre
8.	Inhabitants in the area	7000
9.	Description of the practice	<p>Origin:</p> <p>The utilization of underground waste containers in the heritage city centre arises because of the high waste production in the area, which means a high storage capacity of the street bins. Although we recognize this need for storage capacity we also have to take into account that we're dealing with a very important area, with a very high cultural value. Because of this, we couldn't install a big number of surface bins in order to cover the storage needs due to the visual impact that this would create.</p> <p>Furthermore, the heritage city centre didn't have a sufficient number of "Ecopontos" for local needs ("Ecoponto" is a group of bins intended to deposition of the main three selective waste fractions – paper and cardboard, plastic and metal packaging and glass). With the installation of underground containers we tried to deal with this issue by increasing availability of waste separation points.</p> <p>Development and Timescale:</p> <p>We have been installing underground containers in the heritage city centre (as well as in the entire</p>

	<p>city) since 2010. At the moment, in the heritage city centre, we don't plan to install any more than the ones already in place.</p> <p><u>Actors involved:</u></p> <p>The implementation of this system and the equipments instalation was promoted and executed by the municipality, including some of the equipments in the scoup of urban rehabilitation works.</p> <p>In some cases, the underground containers were installed by private companies in their building recovery works.</p> <p><u>Legal framework:</u></p> <p>The municipal legal and regulatory framework addressing the waste management issues defines that this kind of beans are the preferential system to be used when new bins are installed.</p> <p><u>Financial framework:</u></p> <p>We can't be precise respecting the costs and revenues associated with the system. However we know that the increase in the storage capacity of the street bins decreased the demand for operational interventions. The number of visits needed to empty the bins decreased significantly, which has an impact in the operational costs.</p> <p>There is no different model of financing applied to this system. The taxing model is the same in the entire city: the individual waste management fee depends on the water consumption.</p> <p><u>Use degree:</u></p> <p>We can't specify the number of users covered by these containers but we can state that all users in this area have 1 container less than 100 meters (the national reference value) away from their home or business.</p>
<p>10.</p>	<p>Results</p>
	<p><u>Proven results:</u></p> <p>1. Number of containers</p> <p>In 2010, the heritage city centre had 106 containers, of which 94 were for the deposition of unsorted waste and 12 for the selective deposition.</p> <p>In 2016, we have only 76 containers, of which 59 are for the deposition of unsorted waste and 17 for the selective deposition.</p> <p>We reduced collection points by 28%. Nevertheless, although we reduced the total number of collection points, we installed more bins for the selective collection. Therefore, the number of points that are now equipped with bins for the selective fractions is higher than it was in 2010.</p> <p>2. Deposition capacity</p> <p>In 2010, the heritage city centre had a total capacity of 258 500 liters for waste storage, of which 163000 liters were intended for unsorted waste and 95500 liters for selective deposition.</p> <p>In 2016, we have a total capacity of 352300 liters for waste storage, of which 158800 liters are for unsorted waste and 193500 are for the selective deposition.</p> <p>We increased by 36% the storage capacity and in the selective deposition we were able to double the capacity.</p>

	<p><u>Possible success factors:</u></p> <p>The utilization of underground waste containers is a good solution for waste collection particularly in heritage city centres which are exposed to high levels of tourism and economic activities that results in a large waste production. These systems provide a large storage capacity underground with discreet and small receptors on the surface witch are more aesthetic and integrate better into the urban structure.</p> <p><u>Main difficulties encountered:</u></p> <p>The main difficulty associated with the installation of underground containers in the heritage city centre is related with the location selection. The location has to be selected considering the strategic factors, like the proximity to the producers, but having always in mind the aesthetic issues. Once we're talking about the heritage city centre, the bins can't interfere with the visual context and have to be integrated in the urban structure.</p>	
11.	Main lessons learnt from the practice	By installing underground containers in the heritage city centre we realized that is possible to ensure a higher storage capacity in the street bins with minimal visual impacts. This kind of bins facilitate the integration of the waste management system in the urban dynamics and minimizes constrains associated with it.
12.	Additional information	Not applicable