

Mini WASTE



Miniwaste project synthesis report

www.miniwaste.eu



With the financial support
of the European Commission

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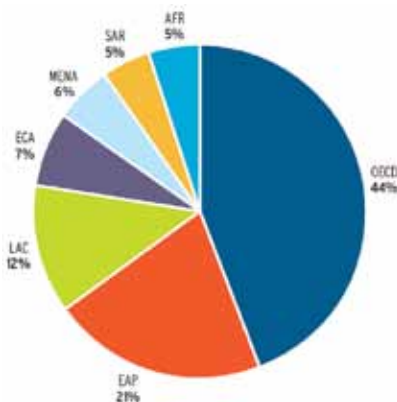
Presentation of the Project & Partners

Context

In the European Union, each citizen generates 502kg of municipal solid waste per year – and this amount is expected to rise: According to a 2012 report by the World Bank, annual global waste is set to rise from 1.3 billion tonnes to 2.2 billion tonnes by 2025, posing challenges on a scale with climate change.

Together with the limited capacity of waste treatment installations, this makes waste prevention a priority for waste management.

*Figure 1 Waste generation by region
(source: World Bank, 2012)*



Organic waste is kitchen waste
(raw or cooked food waste)
& **green waste**
(garden and park waste)

Organic waste, which amounts to about one third of EU citizens' garbage bin, is one of the main target waste flows for prevention and reduction actions.

It is a very poor source of energy and can be easily diverted from incineration. In fact, research by ACR+ showed that 10% of organic waste can be avoided by limiting food waste (eco-shopping, -cooking, -behaviour), and almost 30- 70% can be biologically treated, e.g. through composting.

The Project

In the Miniwaste project, three local authorities from France, Portugal and the Czech Republic joined forces with a European network



of cities and regions and a research centre to tackle the problem of organic waste by limiting food wastage, promoting collective and individual composting, and developing helpful implementation and monitoring tools.

The aim of the three-year (2010-2012) project was to show that it is possible to significantly reduce the amount of organic waste at source in a mastered and sustainable way, and to efficiently monitor waste reduction actions.

LIFE+

Miniwaste is co-financed by the European Commission's LIFE+ programme. The total budget amounts €2,289,402, with an EU contribution of €1,126,626.

LIFE is the European Union's financial instrument that supports environmental projects throughout the EU and beyond.

It was introduced in 1992 to facilitate the implementation and development of EU environmental policy and legislation by co-financing pilot or demonstration projects with European added value.



Objectives

The first target objective was the **implementation of demonstration projects** in Rennes Métropole (FR), Brno (CZ) and Lipor (PT). The demonstration actions focused on preventing organic waste by promoting behavioural changes such as composting at home and in private or public organizations, and fighting against food waste.

The scale of the demonstration projects varied from pilot (Brno) to large scale (Rennes Métropole, Lipor), and involved a great part of the population.

The project's second objective consisted in developing a **comprehensive system of organic waste prevention for local and regional authorities**.

The components of the system are:

- Guidance for European municipalities on how to minimise organic waste
- An inventory of European good bio-waste prevention practices



- Scientific procedures ('protocols') to assess the quantity of composted waste and the quality of the compost produced
- A computerised tool to make a territory diagnosis and monitor the efficiency of bio-waste prevention actions

Finally, Miniwaste's third objective was to **make the project and its results known to an audience as wide as possible** ('dissemination'), and to provide guidance to European authorities confronted with great amounts of organic matter in their residual waste.

The Partners

The Miniwaste partnership includes three local authorities, a network of local and regional authorities and a research centre. The partners vary in size, location and expertise in bio-waste prevention, mirroring the diversity among European municipalities.



	<p>Rennes Métropole (FR), Project Leader</p> <p>Rennes Métropole is the urban agglomeration of the city of Rennes, responsible for the waste management of the greater area's 38 municipalities.</p>
	<p>ACR+ (Europe), Communications Manager</p> <p>ACR+ is an international network of local and regional authorities. It promotes sustainable resource consumption and waste management through prevention at source, reuse and recycling.</p>
	<p>LIPOR (PT)</p> <p>LIPOR is the organisation responsible for the management of municipal waste of 8 municipalities in the Porto Region.</p>
	<p>Brno (CZ)</p> <p>The City of Brno is a territorial self-governing unit in the Czech Republic, managing the waste of 29 districts.</p>
	<p>Irstea (FR)</p> <p>Irstea is the French National research Institute of Science and Technology for Environment and Agriculture.</p>



The Inventory of good practices



The Inventory

Whenever you are confronted with a new or complex problem, it can be useful to have a look at already existing solutions and see if you can find some inspiration for your situation.

Municipalities all over Europe have already developed and implemented schemes to reduce or prevent organic waste in their jurisdiction. However, information on these projects can be difficult to find or not enough to allow other authorities to duplicate a successful system.

In order to make it easier for local and regional authorities to find detailed information on such schemes, ACR+ collected and analysed various (bio-)waste reduction case studies implemented in Europe (9 focusing on bio-waste and 1 on reuse). The result is a compilation of ten good practices and several annexes published on the project website in 2011.

The Inventory provides extensive information on process (responsible body, local context, strategy, relevant instruments, stakeholders, means and actions, legislative and financial aspects, results), success factors and challenges.

The Good Practices

Home Composting



> KENT

The importance of home composting was communicated through the media and at schools

Home Composting

> LIPOR



10,000 composting bins were handed out to interested individuals, schools, and businesses.

Home Composting

> CHAMBÉRY



The city developed a comprehensive bio-waste reduction programme for rural and urban areas.

Community Composting

> FLANDRES



Community composting parks provide residents without garden an alternative to bio-waste collection.

Community Composting

> ZÜRICH



Urban residents' bio-waste is diverted from the bin through a dense system of varied community composting parks.

Proximity Composting

> FREISTADT



Farmers collect organic waste, compost it on site, and use it as fertiliser or soil conditioner.

Food Waste Avoidance

'Love Food Hate Waste' helps



consumers reduce food wastage through raising awareness and easy-to-action advice.

Closed-loop Gardening

> FLANDRE



Municipalities support their residents in adopting smart gardening techniques.

Reuse Centre

> FLANDRE



A well-developed system of reuse centres allows the collection, repair and resale of a wide range of discarded products.





The Protocols on compost quantity and quality assessment

Implementing a new method or campaign of prevention is a lot of work, and can be expensive. Therefore it is necessary to first assess the scheme's potential, and to see whether it is actually worth all the hassle.

Thus, Miniwaste aimed to develop three procedures to assess the quantity of (potential) composted waste and the quality of the compost produced. Irstea tested various techniques, identifying the most reliable and affordable options.

These three scientific and technical methodologies, or 'protocols', will help cities and regions to evaluate the potential of composting projects on their territory.

The reports published by Irstea presenting the three protocols include helpful recommendations for regional and local decision-makers concerning the development of their own bio-waste prevention monitoring systems.

Quantifying the amount of waste composted in individual homes

A survey allows to identify households where home composting is implemented and where further action is possible. However, it should be complemented with other tools like waste characterization or GIS (geographic information system) to get information about the amount of the composted bio-waste and residual waste. Weighing of composted biowaste per household was found too work-intensive to be extensively implemented.





Quantifying the amount of collectively composted waste

To assess the potential of organic waste available for reduction at collective households and restaurants, Irstea's research revealed weighing the trucks as the easiest and most affordable solution. In order to find out how much organic waste is effectively composted, the best method is to find volunteer per collective housing who weigh several times per week the waste that is brought to the bin.



Compost Quality Assessment

The research showed the best indicators to assess compost on site to be the presence of life forms, smell, and rate of decomposition. According to the laboratory analysis, the sampled individual compost are generally more mature than the collective compost, and compost is a good growing medium rather than a fertiliser. The levels of heavy metals, parasites and pathogens were way below the standards considered for organic amendments.





The Miniwaste computerised tool



Background

Adapted and efficient computerised tools are helpful to implement, and to monitor in real time the progress of waste reduction actions. Only then can problems be discovered early on, and shortcomings remedied as fast as possible.

At present (2012), local authorities most often don't have such sophisticated tools at their disposal. They lack both sufficiently structured technical means to design and

to implement waste management plans and prevention programmes, and effective control systems to monitor if the objectives are met. The Miniwaste project aimed to fill this gap by developing a knowledge and feedback instrument that helps local and regional authorities to identify relevant models of action and provides them with measurable indicators for targets, actions and results.

The computerised tool

The tool consists of a set of Excel worksheets and PDF documents. It combines an interactive platform with two modules ('Diagnosis' and 'Monitoring') to identify relevant bio-waste prevention actions and monitor their implementation, and the Miniwaste Inventory of good practices as benchmark or a source of inspiration.

The Functions of the web tool



1 - Help to decision-making

On the basis of a territory diagnosis, the web tool helps authorities to find out which bio-waste prevention actions are possible and useful on their territory.

2 - Follow-up of bio-waste prevention actions

Off line, a collection of indicators will help authorities to monitor the implementation of each activity, and make it easier to visualise results in form of graphs or diagrams.



How it works - in more detail

The main home page allows to access to all modules of the application: diagnosis,

monitoring and results. The modules will be launched in new worksheets. The user can also access to the Scenario sheets (synthesis of bio-waste prevention actions' implementation) and Procedural sheets (detailing the steps to implement and assess the actions). Different online-help concerning the different parts of the tool are also proposed as friendly use.

Diagnosis

This module is a support to decision-making of the actions to be undertaken.

The user has to provide information on 13 indicators concerning the whole territory. Then he selects all the sectors/areas/cities for which he wants to make a specific diagnosis, and needs to complete 24 indicators per sector.



An algorithm was created to estimate the relevance of prevention actions for each sector among 5 types of actions:

- Home individual waste management,
- Home collective waste management,
- Home green waste management,
- Households food waste,



-Non households waste management.

A results panel displays statistics that allows the user to choose the priority actions to be undertaken regarding: the quotation of relevance and the reduction in waste (tonnes / year).

Monitoring

This module provides support to the indicators' monitoring.

The user chooses the sectors to be monitored and the monitoring period.



On the “Territory” sheet, indicators are to be provided for the whole territory. For each area sheet, indicators are displayed within 6 sections: resources, achievements, participation, behaviour, waste flow quantities (collected and avoided), intermediate calculation.

Results graphs

This module allows the user to track the results of the actions using graphs.

-Territory monitoring: The histograms (10 graphs) represent the evolution of various indicators by area and period. It is thus easy to compare statistics of areas between them.



-Sector monitoring: The « Area » tab displays the statistics of area indicators in the form of curves. In total, there are 6 types of indicators.

Testing and implementation

Several volunteering public waste management authorities across Europe tested the Miniwaste web tool during the summer 2012. They were invited to test the Diagnosis module, and to provide feedback on its use (ergonomic aspects) and diagnosis simulations. The Monitoring module was then tried out in a second test phase.

In November 2012, the participants of the Miniwaste final conference in Rennes had the chance to have a demonstration of the tool and to test it by themselves.

Additionally, Rennes Métropole supported Brno and LIPOR to install and implement their computerised waste management platform. Both municipalities are now using the Miniwaste computerised tool to implement and monitor their bio-waste prevention activities.

The tool is available for download on the **Miniwaste website**.



Engaging citizens to take actions



One of the main objectives of the Miniwaste project was to implement demonstration projects on different scales in Rennes Métropole, Brno and Lipor to showcase Miniwaste's results and prove that it is possible to significantly reduce organic waste in a sustainable and mastered manner.

The main components of these demonstration actions were:

- drafting, improving and assessing **local organic waste minimisation plans**
- involving citizens through **awareness-raising and mobilisation actions**
- implementing **technical monitoring tools to assess the impact in term of reduction of waste**

METROPOLE
vivre en intelligence
rennes



POPULATION: 400,756 (2011)

SIZE: 640 KM²

MUNICIPAL SOLID WASTE: 484 KG/PERSON/Y

Starting Point: RM is greatly experienced in promoting composting. It is an ADEME showcase site for individual home composting, and involved in the programme Eccoval «Towards greater citizen engagement for composting and use of their household waste». At the start of Miniwaste, 30% of people in individual housing composted, and 145 collective compost sites were in place.



Actions: RM tried to implement the project at full-scale. An organic waste minimisation plan was developed and implemented. RM launched a broad communication campaign, offered training sessions, and organised public events on reducing organic waste. Officials received additional training, and a network of 40 composting masters was created. Concerning monitoring, special emphasis was put on studying the psycho-sociological aspects and producing high quality compost. For this, Irstea carried out the analysis and, together with the composting masters, the necessary corrective actions.

Results: - 70% of the population aware of the different ways to reduce organic waste

- 500 projects for collective composting and more than 300 implemented sites
- 800 people trained in composting and gardening techniques
- More than 15 000 tons of organic waste diverted each year thanks to composting et sustainable gardening practices
- 80% of installed composting bins produce compost of good or very good quality



POPULATION: 1,000,000 (2009)

SIZE: 648 KM²

MUNICIPAL SOLID WASTE: 500 KG/PERSON/Y

Starting Point: Involved in bio-waste management and working groups for years, Lipor developed broad knowledge on bio-waste reduction. Around 40% of the waste produced in Lipor is organic waste and could be reduced by at least 400 kg/y per composting bin. Lipor has implemented several organic waste reduction schemes at pilot level, and has been encouraging composting in apartments.

Actions: Lipor too implemented the project at full-scale, following the common Miniwaste structure and at the same time focusing its efforts on implementing home and community composting and testing different kinds of bins such as small apartment composting bins to facilitate composting for people living in the city. Special attention was paid to awareness-raising campaigns at schools and the work with restaurants. Finally, in trainings and cooking courses citizens could learn how to prevent food waste.

Results: - 50% of the population is aware of the different ways to reduce organic waste

- 6,600 composting bins and 70 community composting sites in the on-site composting project
- 10,800 people trained in composting and 3,350 people trained in food waste reduction
- More than 3,000 tonnes of organic waste diverted each year thanks to composting
- 80% of the installed composter bins produce good or very good quality compost

Actions: An organic waste minimisation plan was developed for the city, with specific targets for Brno-Zebetín. Information was provided for the citizens through a website and at 9 green events to promote home composting. A handbook on composting and educational CDs were distributed together with composting bins. Local associations (e.g. fire-fighters, retired people, and mothers' club) were involved in special actions, such as eco-cooking classes. In the evaluation part of the project the data on waste composition and quantity has been collected allowing for comparative analysis and better understanding of the current situation.

B | R | N | O



POPULATION: 378,965 (2012)

SIZE: 230 KM²

MUNICIPAL SOLID WASTE: 189,3

Starting Point: Waste prevention and reduction at the source had not been addressed before the start of Miniwaste. The city had only organised campaigns focusing on familiarising citizens with sorting and disposing of waste at collection points. Therefore, the Miniwaste tools and methods were applied first in form of a pilot project in the municipal district of Brno-Zebetín, and will be considered later to extend these actions to the rest of the city.

Results: - 70% of the district population knows the different ways to reduce organic waste

- 350 households + 3 schools participate in the on-site composting project
- 52 tonnes of organic waste are diverted annually thanks to composting
- 80% of the installed composter bins produce good or very good quality compost





Communicating the Project

Communication & Dissemination

The aim of Miniwaste was to develop sustainable organic waste management solutions for regional and local authorities. In order to truly make a difference, the results and tools of the project have to be made known to these stakeholders. This is

Communication actions...

- Complement the partners' work by promoting technology and best practices transfer.
- Inform relevant European stakeholders of progress and results of the project.
- Insert results in European databases.
- Encourage new projects and collaboration on municipal waste reduction.

why communication and dissemination were so important to Miniwas

ACR+, the partner in charge of coordinating the communication around the project, in particular regarding the content of the project's communication tools and the European dissemination of the project, to ensure consistent and engaging dissemination of the project's progress and results.

Being a European network of public authorities committed to improve and share their waste expertise, ACR+ had also an essential role in reaching bio-waste stakeholders, experts and decision makers at local and regional level.

ACR+ was also in charge of disseminating the project's progress and results within its members and contacts, and to create links with other European projects in the field of waste prevention.



Communication Tools and Actions



Website – www.miniwaste.eu

With the support of RM, ACR+ created a website (www.miniwaste.eu) that provides detailed information on the project, and is regularly updated with news and information on the latest progress of the project. The Miniwaste web tool, the Inventory of good practices, and other material can be downloaded from there.

Leaflet

15.000 copies of a presentation leaflet descri-



bing the project in concise words were edited and distributed (4.000 in EN, 9.000 in FR, 1.000 in CZ, 1.000 in PT).

Newsletter

6 issues of an electronic newsletter (EN and FR) presenting the progress and results of the project were prepared and sent. All issues can be found on the Miniwaste website.

Notice Boards



10 notice boards are displayed in each partner city. The boards describe the Miniwaste project and are placed in strategic places accessible to the public, i.e. on demonstration sites, in public parks, etc.

Reports

This layman's report, aimed at the general public, presents the project and its results and was published in four languages (4.000 copies in EN, 4.000 in FR, 1.000 in CZ, 1.000 in PT).



The project's final report in French and English detailed the results of the project for a specialized audience, and offered some conclusions and recommendations concerning the actions' transferability at European level.



Conferences

An intermediate conference in Brno in September 2011 gave waste prevention experts from inside and outside the project the chance to exchange experiences and ideas.



At the Final Conference in Rennes (November 2012), the results of the project were presented to a broad international audience.

Media Work

Continuous media work supported the advancement of the project. Participation in expert conferences, regular news mailings, press releases sent to European and local media, as well as articles in scientific and specialised magazines gave additional visibility to the Miniwaste project.

Partners' Activities



A lot of the communication and dissemination work - especially geared towards the general public - has been carried out by the partners during their respective demonstration actions.

Each of them designed and updated a local website that kept citizens informed about Miniwaste and all the actions and events the

municipalities planned to promote composting and fight against food waste:

Rennes :

<http://blogducomposteur.blogspot.com>

Brno: www.miniwaste.cz

Lipor: www.lipor.pt

They also produced and distributed handbooks and toolkits for main stakeholders, in particular, main participants of the demonstration action such as schools, inhabitants, etc., and organised dissemination events.

After the project

The websites will stay available for the public and will be regularly updated for three more years after the end of the project. Also, the partners will continue to present the project at any events related to waste prevention, and will leave the notice boards in place for at least 5 years.

Most of the introduced actions will be continued and make sure that the effect of Miniwaste will be a lasting and sustainable one.





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