For more information: www.circularcities.eu
Twitter: @CircularCityEU
Join the conversation: #CityLoops

OMSW flow optimisation tool

Developed by the City of Seville

Short Introduction

This software tool for municipalities can be used to model possible scenarios for separate collection of biowaste considering the data on biowaste material flows and quality collected in the report described above and develop the most optimal collection route. Factors such as type, origin and volume of the material; CO_2 emissions and loading of the waste trucks; and distance travelled are optimised to plan in a way that minimises negative environmental impact and maximises logistic efficiency of the collection. Data-driven planning decisions can support the proper scale-up of the separate collection to the whole city and help determine the optimal location for new treatment plants and optimal valorisation technologies.

Target groups
- Local Governments (waste management

Keywords
- #Recycle
- #Recover
- #Flow tracking

Format
- Software tool

Deployment

The tool will ultimately be used to define the optimal form to scale-up the separated collection of OMSW in the city both from large generators and households, including the positioning of new treatment plants to maximse valorisation options. During the inception phase it will be used to determine the neighbourhood where a separated collection system will be tested during the demonstration phase.

Replication

- *How could other cities use this tool?*

  The other cities of the CityLoops project could use the technical report on the software tool developed in order to replicate the tool taking into account local specifications and data.

For more information: www.circularcities.eu
Twitter: @CircularCityEU
Join the conversation: #CityLoops

- *Would they need to develop their own version, which aspects of the tool are adaptable to other contexts, and which ones are unique to your city/context?*

The software tool is unique to Seville since the data analysis and Backend use local data of the city. Then, each city has to develop its own version. The methodology used will be identified in the report to each city can develop different functionalities at its convenience.

Which advice would you share with others who would make use of this tool?

Select the functionalities of the tool taking into account the municipal requirements and available data.

Development

- *How was the tool developed?*

For the back-end part of the application, the data analysis and machine learning were powered by Python libraries. Communication between data sources was managed with Python when needed. The use of Django as a framework help to improve the performance of the applications developed with other popular web frameworks. The initial developments were provided to the managers for testing in containers or virtual machines to facilitate direct deployment in any computer. A GitHub repository has been created with a clean Django project to serve as template to implement the initial features of the software tool.

- *Which data sources were used for this?*

Socio-economic data from available statistic reports on the website of the municipality, municipal waste collection data from Lipasam and open access geospatial data.

- *Which stakeholders were involved?*

Not stakeholders but local partners, Lipasam, Emasesa and the municipality of Seville.

Barriers:
- *Which difficulties occurred in the development of the tool?*

The availability of data in the required format, and lack of historic socio-economic data.

- *How did you solve this issues, which solutions did you find?*

Regarding the data format: (1) changing the format by ourselves or (2) asking collaboration to our partners; the lack of data is not possible to solve, so we have to adapt the tool and the data analysis methodology to the available data.

For more information: www.circularcities.eu
Twitter: @CircularCityEU
Join the conversation: #CityLoops

- *Which difficulties to you expect/have you encountered in using this tool?*

    Some issues regarding the accuracy of the results can be solved during the demonstration phase.

Additional Information

- *Tool developed by: Optimizacion Orientada A La Sostenibilidad Sl.*
- *Contact points:*
    - *Santiago Rodríguez Pérez/ santiago.rodriguez@idener.es*