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A Taste of Circularity: Meet CityLoops

Learn about how the EU-funded project CityLoops contributes to the ecological transition by harnessing two of the most important waste streams in Europe: Construction and Demolition Waste, and Bio-waste.

Simon Clement is a Senior Co-ordinator at ICLEI – Local Government for Sustainability and since 2019 has been in charge of CityLoops, an EU-funded project operating in the field of circular economy applied to the building sector and bio waste.

In this interview, we went over the milestones of this project and its future goals.

When did the Cityloops project start, and which cities are involved in the role of Demonstrators?

The CityLoops project started in October 2019 and consists of 27 partners coordinated by ICLEI Europe.

We have **7 cities "demonstrators"**: Apeldoorn (The Netherlands), Bodø (Norway), Høje-Taastrup (Denmark), Mikkeli (Finland), Porto (Portugal), Roskilde (Denmark), and Seville (Spain). The project will run until September 2023.
Moreover, we also have **7 replication or follower cities**, which learn from the demonstrators: Valles Occidental (Spain), Murcia (Spain), Torres Vedras (Portugal), Vienna (Austria), Ghent (Belgium), Espoo (Finland), and Prague (Czech).

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In the wider framework of the EU Green Deal, how does CityLoops contribute to the implementation of the circular economy action plan?

CityLoops innovates in two of the key sectors that generate the most (and the most problematic) waste: **bio-waste and construction and demolition waste**, including excavated soil. We also work to build the capacities of local governments in aspects of circularity like data collection and monitoring, stakeholder engagement, procurement and policy making. Through the pilot actions in each city, the local stakeholders gain expertise that allows them to upscale and adopt circular practices. This will be key for territorial transformation as the **EU circular economy action plan** is enacted. The CityLoops pilots help inform the Green Deal through analysis of wider socio-economic and sustainability indicators, including GHG emissions reductions, eliminating pollution, creating circular jobs and more.

What is the current status of the project?

We're now in the **demonstration phase**. The project cities have developed **over 30 new tools and processes** which are currently being applied, tested and demonstrated. Bodø and the two Danish cities are working to make Construction and Demolition Waste (CDW) more circular while Porto is focusing on Bio-Waste. Apeldoorn, Mikkeli and Seville are addressing both waste streams.

The cities have worked hard and have been rewarded with some concrete results. Høje-Taastrup has used recycled aggregate recovered from demolished concrete buildings to lay the foundation for the new city hall, making it the country's largest public building to do so, with a recycled foundation. Roskilde's experiences at demonstration site Musicon have helped introduce circular principles in the Municipality's construction strategies. In Porto, sustainable businesses can enter the circular entrepreneurship contest FoodLoop. Apeldoorn's work with bokashi has allowed its citizens to enjoy much greener parks.

Further north, Mikkeli's youth have learned how to make bio-waste paper bags out of newspapers, as part of a broader recycling awareness campaign. Bodø is demolishing its military airport to build a new district. It is using data and circular procurement to visualise and enable its urban transformation. And Seville has developed a tool to assess the quality of recycled material in water and sewage infrastructure, which will be used in replacement pipes in a few city streets this year.

What are your key tools and solutions for helping policy makers and planners manage waste in line with circularity principles?

We developed and piloted a **CO2-emissions calculator**. It shows the impacts that decisions about concrete, soil and mixed CDW can have on lifecycle emissions. Others can use this tool to better appreciate the difference between keeping a structure in place, using it elsewhere, recycling it or dumping it. The emissions calculator also factors in transport distances to encourage keeping things local, with emissions outcomes following the waste hierarchy.

Guidance was developed around pre-demolition activities to ensure maximum material value and recovery for decommissioned buildings. This includes a pre-demolition screening to make an inventory of hazardous, reusable and recyclable materials as well as a selective demolition guide on how to carefully separate materials and components at source.

Some cities have set out ways to involve residents in the proper management of CDW. For instance, they inform people about the correct use of clean points (recycling yards) and organise workshops about district renovation. This helps residents develop a sense of ownership and engagement while helping the city shape policy in line with user perspectives.

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A number of solutions and tools are being developed in the bio-waste stream. What's new about them is that together they will allow cities to embed circularity at different steps of the value chain, from awareness raising to bio-waste valorisation. In addition, the idea is not to develop technological breakthroughs but to make them easily accessible to many European medium-sized cities. These solutions include a circularity decision-making support tool, a smart collection system or a general guide for organic waste management in public procurement, respectively developed by cities of Porto, Seville and Mikkeli.

For the catering sector, including social institutions, hotels, restaurants, citizens and tourists, there is a circularity decision-support tool. It is based on a scoring system, on what to do each time organic material is used, bought, eaten, or discarded, with priority based on the hierarchy of the Lansink Ladder.

The **Smart Collection System** collects data about waste containers to help optimise biowaste collection routes. Sensors track each container and provide data on waste quantities, usage patterns and maintenance operations. Businesses and the general public will be able to use the tool through the Urban Services Platform.

The general guide for organic waste management aims to enhance the collection, sorting and use of organic waste and to reduce carbon dioxide emissions in services and functions in public procurement. The tool helps the city experts to identify organic waste aspects in a single tender within the wide scope of procurement processes. It will enhance the neutrality and quality of the tenders within different branches.

All tools will ultimately be made available on CityLoops website.

One of the "keywords" that identify CityLoops' project is "urban metabolism". What does it consist of in practice?

Urban metabolism is all the material and energy flows entering, being consumed, transformed, stocked in, and leaving cities. It is necessary to understand these processes and also the infrastructure (utility) and people involved if we are to apply circularity. That's why we're putting together a methodology for cities to assess circularity in sectors and city-wide.
The city-wide circularity assessments are still in development, but the Sector-wide Circularity Assessments (SCA), for both the biomass and the construction sectors are finalised. The CityLoops cities carried out these assessments with support from project partner Metabolism of Cities, through two courses on data visualisation and data.

In addition, we've been developing a comprehensive indicator framework for the circular city to help measure the progress towards a circular city and the success of circular economy pilots. The indicator framework is based on the project's definition of the circular city and the cities' circularity goals. A number of indicators included in this framework were measured and proposed during the development of the SCA reports.

How important are the cities' local partnerships in the project? How do they contribute?

Stakeholder engagement contributes to embedding circularity within cities' decision-making and planning over the long term. At the beginning of the project, cities developed Stakeholder Engagement Plans. A core element of this plan has been the formation of Local Stakeholder Partnerships, involved in the different aspects of the demonstration activities, and acting as the local steering group.

In particular, what has been the response rate of citizens to the circular economy initiatives promoted by the project? What are the best examples to date?

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Citizen engagement plays an important role for Bodø – it has developed the CityLab stakeholder platform to engage in citizen dialogue in its urban transformation project. Porto has its Circular Entrepreneurship Contest which aims to engage entrepreneurs, citizens and social institutions to turn socio-environmental challenges into circular business opportunities. And Seville organises an awareness-raising campaign to inform citizens about the bio-waste collection in their neighborhoods. But the most successful example of citizen engagement in CityLoops to date comes from Mikkeli.

In August and September 2021, Mikkeli's CityLoops team joined the annual Recycling Market in Mikkeli, organised in conjunction with the Climate Change Awareness Project. At the event, they promoted biowaste recycling to Mikkeli's young adults, showed how to fold a bio-waste paper bag from newspapers, and explained how the garbage trucks in Mikkeli run on biofuel from biowaste. The event proved an excellent opportunity to collaborate with different youth projects in Mikkeli such as the Yhdessä project and Ohjaamo Olkkariand. The Energy Weeks 2021 (in October) and the Recycling Market further helped Mikkeli to raise awareness among its citizens about the importance of circularity and recycling.

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