

ROOTS - circular policies for changing the biowaste system

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The circular economy has a huge potential to make our societies more sustainable and decarbonised, with a reduced impact on the planet's resources. The European Union (EU) has made a significant commitment to this model and several initiatives and projects have been launched since the approval of the first Circular Economy package (2015).

As up to 50% of European municipal waste is organic, valorisation of biowaste is a key tenet of a circular economy. Indeed, the EU Bioeconomy Strategy (2018) sees cities becoming major circular bioeconomy hubs, where biowaste is a feedstock for safe and sustainable biobased products. Changes in the EU waste legislation are expected to lead to more quality biowaste becoming available for use in biorefineries from 2024.

However, **numerous regulatory bottlenecks hinder the full deployment of revolutionary solutions in the field of urban biowaste valorisation and re-use.** The European Green Deal and associated legislative initiatives provide the opportunity to rectify this.

The ROOTS Initiative

In this framework, five Horizon 2020 projects working on biowaste valorisation have teamed up to promote innovative solutions for the European circular bioeconomy and bring down the regulatory barriers blocking a more sustainable future. This joint initiative is named **ROOTS - circular policies for changing the biowaste System.**

The projects **HOOP, VALUEWASTE, SCALIBUR, WaysTUP! and CITYLOOPS** are piloting new solutions to transform urban biowaste and wastewater into valuable products like Feed, Fertilisers, Bioplastics, Biopesticides, Proteins and Bioethanol. They use different processes and technologies, but they all rely on a higher level of recycling and propose valorisation solutions relevant to the uptake of a truly Circular Economy.



These projects have received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement Nos. 101000836, 817788, 818312, 818308 & 821033.

The promoters have discussed their views and shared their concerns on policy barriers hindering new innovations leading to the Circular Economy for urban biowaste. **The joint-work resulted in the release of a first Position Paper in May 2021 discussing four policy issues and the related proposed solutions.** After the release, the ROOTS group has grown and continued its work. In March 2022, a group of European cities participating in the five projects were asked to share their experiences and views regarding the barriers that still hinder the full valorisation of biowaste. The cities that participated were **Porto, Kalundborg, Kuopio, Albano Laziale, Kozani, Bergen, Murcia, Elliniko-Agrypouli** and **Vari-Voula-Vouliagmeni**. Their feedback has been used to prepare points 6 and 7.

1. Recycling targets and treatment plants

Despite separate collection of biowaste being mandatory from January 2024, there is no specific recycling target for biowaste at EU level. There is no reward mechanism for the collection and recycling of materials that could be treated in bio-refineries and fully valorised.

Recommendation: Set recycling targets for biowaste and efficient collection schemes. Develop new support mechanisms for the new biowaste treatment plants enabling the production of clean compost, bioenergy and new low impact biobased products.

2. Waste and by-products

There are overlaps and inconsistencies in the definitions of “by-products” and “waste” in the current legislation, specifically (Directive 2008/98/CE and Regulation 1069/2009).

Recommendation: Products coming from biowaste should have more specific regulation/standardisation allowing for multiple re-use, aligned with the principles of the Circular Economy. This should help to clarify and simplify the whole framework.

3. Biopesticides

Biopesticides are defined as “low risk” plant protection products “not containing substances of concern, being sufficiently active, and not causing unnecessary pain and suffering to vertebrates to be controlled”, according to Regulation 1107/2009. However, they face the same barriers as chemical pesticides. This implies that even products



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completely renewable, biodegradable, coming from low-impact technologies cannot be used.

Recommendation: The EU should create a simplified regulatory framework allowing for an easier commercialisation of biopesticides, characterised by biodegradability and of 100% vegetable source.

4. Insects for Animal Feed

Insects are a great source of proteins and using biowaste to grow and feed insects could unlock several economic opportunities. The projects of **ROOTS** are developing value chains based on insect-rearing for feed production. Until 2021, their use as feed ingredient was approved only for aquaculture. However, in the second half of 2021, the EU has made a major step forward by allowing the use of insect protein for pig and poultry feed. This is in line with objectives of the **Farm to Fork strategy**, aiming to make livestock farming more sustainable and seek alternative feed materials. Insect-protein could be the answer to this challenge.

Recommendation: The EU legislator should favour the uptake of insect-based animal feed by bringing down all the remaining regulatory impediments and further enlarge its use. Specifically, **ROOTS** pledges for the revision of Regulation 767/2009 and 1069/2009.

5. (Bio)waste prevention

While improving biowaste valorisation is an absolute necessity, it is also crucial to prevent biowaste generation in the first instance, following the waste hierarchy. With the Farm to Fork Strategy, the European Commission has set ambitious food waste reduction targets. However, no such targets have been set for other categories of biowaste.

Recommendation: In parallel with food waste prevention and in line with the Farm to Fork Strategy, we ask for ambitious prevention targets for all streams of biowaste and for the provision of adequate support mechanisms for local authorities' waste prevention policies.

6. The Behavioural problem

In the **ROOTS** workshop held in March 2022, the nine participating cities shared with the group their experiences and models in terms of biowaste management and valorisation



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pathways. They also discussed extensively about the issues and problems faced by their administration in such processes. One common issue that came up is linked to the quality of biowaste, which often contains impurities or other non-organic materials. This stems from careless sorting of biowaste at the household level, or lack of knowledge about proper sorting. This is not a regulatory barrier but can be addressed by using policy tools.

Recommendation: The EU should devote more efforts and resources, via direct or indirect funding, to communication campaigns targeting citizens in Europe. These campaigns should promote a more careful sorting of biowaste, letting people understand why this will have a strong impact on their communities and on the circular economy.

7. Investment needs

Another common concern evidenced by the cities involved in the workshop was the need for more investments in the field of biowaste management and valorisation. Small or medium-size cities do not always have the infrastructure or the facilities to create new circular value chains and private actors do not always see opportunities in some peripheral contexts.

Recommendation: Via the use of structural and investment funds (ERDF, CF, InvestEU, etc.), the EU should push for the allocation of more resources to the biowaste valorisation compartment. These could be in the form of waste-to-energy or waste-to-products models, allowing for the creation of new opportunities and incentives in more territories to fully valorise biowaste.

The road ahead

The European Green Deal must address crucial topics for the Circular Economy, like those mentioned above. We express the wish that forthcoming policies will be guided by two clear principles:

- Simplify the regulatory framework.
- Unlock new opportunities in adherence with safety and health standards.

The **ROOTS** group wants to play an important role in achieving a more sustainable society through circular biowaste valorisation schemes. We want to show that Horizon 2020 projects and their partners can speak out loud and concretely contribute to transform and improve our society. For this reason, **we must combine the development of new**



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innovative solutions with the necessary dialogue with policy makers on regulatory barriers. Policy makers should pay more attention to the results arising from the hundreds of EU funded projects which constantly provide results, field experiences and best practices.

For this reason, on **27 September 2022 the ROOTS group will organize a high-level policy event in Brussels** to discuss in detail the content of this paper together with EU policy-makers and other relevant industrial stakeholders. All the details will be provided via the websites of the ROOTS partner projects.

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