



D6.3 Report on the engagement activities implemented through the Biowaste Clubs in the Lighthouse Cities and Regions

Author: CSCP



The HOOP project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°101000836

Document information

Project Title	Hub of circular cities bOOsting Platform to foster investments for the valorisation of urban biowaste and wastewater
Project Acronym	HOOP
Grant Agreement No.	101000836
Project Call	CE-FNR-17-2020
Project Duration	48 months: 1 st October 2020 – 30 th September 2024
Project URL	https://hoopproject.eu/
Work Package	6
Deliverable	6.1
Lead Partner	CSCP
Contributing Partners	Almere, AWM, BIR, CETENMA, CluBE, ITENE, ANCI Lazio, LIPOR, Murcia, SAVONIA UAS, SfC, 2GOOUT, BAXCO
Dissemination level	Public
Contractual delivery date	30 th September 2022
Actual delivery date	30 th September 2022
Authors	Anna-Carina Diedrich, Francesca Grossi, Dimitra Ioannidou, Felix Schumacher, Fiona Woo (all CSCP), Mar Escarrabill, Miguel Hernández (SfC)
Reviewer	Elisa Gambuzzi, Miguel Á. Suárez (CETENMA)
Document history	Draft1 sent to WP leaders on 1 st September 2022 Draft2 sent to the Coordinator on 14 th September 2022 Final version ready for submission on 30 th September 2022



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List of acronyms

Acronym	Description
BC	Biowaste Club
BCM	Biowaste Club Meeting
B2B	Business to business
CE	Circular Economy
DIY	Do-it-yourself
HoReCa	Hotel/Restaurant/Catering
H2020	Horizon 2020
LHs	Lighthouse Cities and Regions
MMSW	Mixed municipal solid waste
MSW	Municipal Solid Waste
NGO	Non-Governmental Organisation
OFMSW	Organic Fraction of Municipal Solid Waste
PAYT	Pay As You Throw
SME	Small and medium-sized enterprises
UWWS	Urban wastewater sludge
VKU	Verband Kommunaler Unternehmen
WWTP	Wastewater treatment plant

1. Executive summary

The HOOP project aims to provide Project Development Assistance (PDA) to eight Lighthouse Cities and Regions for the future implementation of bio-based processes for the valorisation of the organic fraction of the municipal solid waste (OFMSW) and urban wastewater sludge (UWWS). The goal is to help unlock bio-based investments and deploy local bio economies in Europe. Facilitating this change requires multi-stakeholder takes place in Biowaste Clubs.

Each of the eight HOOP Lighthouse Cities and Regions has set up its own local or regional Biowaste Club and carried out its first stakeholder engagement activities through Biowaste Club meetings. In order to meet each Lighthouse's target groups and goals for engagement, each Biowaste Club's set-up, format and size vary. While some are built upon existing local initiatives, others bring stakeholders together for the first time. In some Lighthouses, Biowaste Clubs are accompanied by citizen science activities. The chapters below document the stakeholder engagement activities that have taken place so far and what can be expected next.

The first preparatory step for establishing the Biowaste Clubs was to assess the status quo of each biowaste value chain. Secondly, stakeholder mapping identified key actors along the value chain and assessed their interest, relevance and influence in HOOP activities as well as their connections with each other. Thirdly, the CSCP developed a "How to Biowaste Club Playbook"¹ and provided training webinars to Lighthouse partners on the concept, tools, set-up and execution of Biowaste Clubs.

The CSCP and WP6 partners organised bilateral "Welcome Talks" with each Lighthouse and facilitated an internal presentation series for them to present to and discuss with each other their biowaste value chain, previous related work, vision for HOOP as well as challenges, promising practices and envisioned pathways for stakeholder engagement. Additionally, bi-monthly WP6 jour fixes are being used to keep all Lighthouses and HOOP partners updated on current developments in each Lighthouse. As WP6 aims to facilitate exchange of learnings and promising practices across Lighthouses and Biowaste Clubs (task 6.2). the first HOOP study tour took place in June 2022 in Almere and Münster.

All of these WP6 activities culminate in a stakeholder engagement plan tailored to each Lighthouse. These individual plans are detailed in this document. It is important to customise the plan to each Lighthouse due to their diversity in experiences, ambitions and local contexts. Accordingly, the structures between the chapters vary slightly to accommodate the most relevant topics in each Lighthouse.

One trend that emerges when looking at the eight Lighthouses together is the focus on citizens as a key target group for stakeholder engagement. All Lighthouses want to improve their separate collection rates and quality by understanding and tackling the challenges citizens face in separating their biowaste. Some Lighthouses are considering using citizen science to do so. A second common theme among Lighthouses is the understanding that stakeholder engagement needs to accompany any scaling-up of pilots or neighbourhood activities. A third

¹ "How to Biowaste Club" Playbook. CSCP 2021. URL: https://hooproject.eu/wp-content/uploads/2022/09/HOOP_WP6_HowToBiowasteClub_Playbook_version210602.pdf

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key topic is the connections and potential conflicts between EU and national legislation and the potential barriers in national legislation and policies. These issues are tackled in the ROOTS initiative². In addition, there is the common challenge of creating acceptance of bio-based products for the implementation of HOOP technologies to enjoy long-term success.

² Four Horizon 2020 projects (SCALIBUR, HOOP, VALUEWASTE and WaysTUP) working on biowaste valorisation teamed up to promote innovative solutions for the European circular bioeconomy and reduce the regulatory barriers.



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2. Introduction

2.1. HOOP Project

The EU Bioeconomy Strategy sees cities becoming major circular bioeconomy hubs, where biowaste is a feedstock for safe and sustainable bio-based products. But until now very few cities and regions have developed circular bio-based economy strategies or projects for the production of innovative bio-based products. The HOOP project aims to be the catalyst, providing Project Development Assistance (PDA) to eight Lighthouse Cities and Regions. HOOP supports these Lighthouses in developing large-scale urban circular bioeconomy initiatives that will focus on making bio-based products from urban biowaste and wastewater. As part of the HOOP replication strategy, the [HOOP Urban Circular Bioeconomy Hub](#) was created. The HOOP Urban Circular Bioeconomy Hub thereby grants access to an online platform to foster knowledge exchange and replication in cities and regions across Europe.

HOOP provides PDA to Albano-Laziale (Italy), Almere (The Netherlands), Bergen (Norway), Kuopio (Finland), Münster (Germany), Murcia (Spain), Greater Porto (Portugal), and Western Macedonia (Greece).

2.2. Stakeholder engagement

Stakeholder engagement is a guided process in which relevant actors are included in frequent exchange and join forces to achieve a common goal. Stakeholder engagement is an ongoing, inclusive dialogue among all actors that can contribute directly or indirectly to a given goal. It is a process of agenda-setting and collective implementation of activities that are shaped according to the stakeholders' needs and expectations.

Facilitated by the CSCP as well as SfC (in Murcia) and 2GOOUT (Greater Porto), the eight HOOP Lighthouse Cities and Regions (LHs) bring local stakeholders together in a dialogue platform called a **Biowaste Club (BC)**. Under the guidance of aforementioned HOOP partners, stakeholders representing the quadruple helix meet at least twice per year per LH. In these meetings, they identify the main barriers, challenges and opportunities along the value chain, including their own needs and interests. They agree on a roadmap of how this transition should take place. It is up to the stakeholders to plan and carry out pilot activities together.

The Quadruple Helix Model

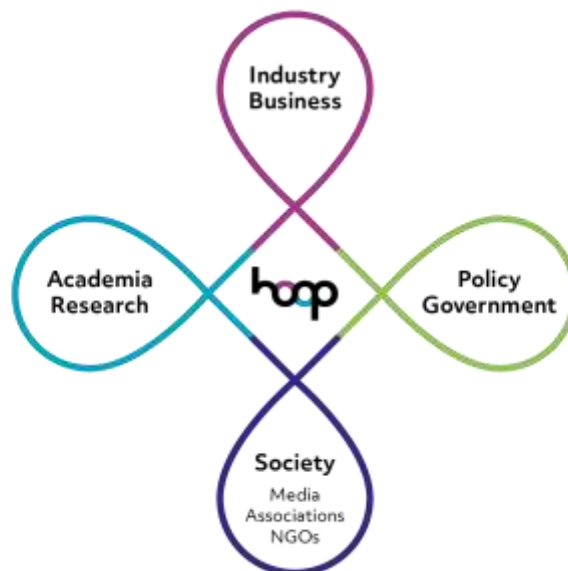


Figure 1. Sectors involved in multi-stakeholder engagement activities in HOOP

2.3. Biowaste Club concept

Biowaste Clubs are the main dialogue platform for stakeholder engagement in the HOOP Lighthouses. They are made up of key local stakeholders, such as representatives of the municipality, of waste collectors or of citizens' initiatives. Biowaste Clubs aim to foster local commitment and engagement for a more circular biowaste value chain. Specific goals of the Biowaste Clubs may be to:

- Increase consumer awareness and acceptance of urban biowaste-derived products.
- Change behaviour towards better recycling rates, in order to increase quality and quantity of the biowaste collected.
- Implement best practices in biowaste collection, transport, sorting, pre-treatment and characterization.
- Promote new, circular business models and foster social innovation.
- Initiate new local and national policies and initiatives.
- opportunity to build regional collaboration among cities facing the same challenges and interested in the topics investigated
- Set milestones for national action manuals.
- Collaborate with Local HOOP Committees in tracking financial and non-financial leverage of HOOP in each Lighthouse.

More information on the concept of Biowaste Clubs can be found in the "[Short explainer video about the Biowaste Clubs](#)" and the "[How To Biowaste Club playbook](#)."

The BCM set-ups, compositions and formats may vary depending on the topics relevant in each Lighthouse at a given time.

From October 2020 to September 2022, Biowaste Club meetings have been organised as face-to-face, hybrid, and online events, according to the COVID-19 measures in place in each region or country, with all Lighthouses having had at least one meeting. The Biowaste Club facilitators together with the Lighthouses co-developed the timelines and agendas of the first Biowaste Club meetings, building on the results of the baseline and urban metabolism analyses conducted in WP2 and WP6. The participants of the meetings were selected through the stakeholder mappings conducted under Task 6.1.

2.4. Preparatory activities

The first preparatory step for establishing the Biowaste Clubs was to assess the status quo of each Lighthouse and its biowaste value chain. This resulted in a baseline assessment for each Lighthouse. The second step was to undertake a stakeholder mapping exercise that identified key actors along the value chain and assessed their interest, relevance and influence in HOOP activities as well as their connections with each other. Then the CSCP developed a "How to Biowaste Club Playbook" (2021), which is available in the HOOP Virtual Academy and HOOP website. Additionally, the CSCP provided training webinars to Lighthouse partners on the concept, tools, set-up and execution of Biowaste Clubs.

3. Engagement activities through Biowaste Clubs

In this chapter the reader can find an overview of the stakeholder engagement activities held in each of the eight Lighthouse Cities and Regions of the HOOP project. The content summarises the main topics, type of stakeholder engaged, the event format and the frequency of Biowaste Club Meetings.

3.1. Albano Laziale

The city of Albano Laziale is a peculiar case within the HOOP project. The city is also one of pilot cities of the [SCALIBUR](#) project (Scalable Technologies for the Recovery of Organic Waste) together with Madrid (Spain) and Kozani (Greece). This means that local partners together with the municipality have already had the opportunity to run several Biowaste Clubs meetings as well as engage stakeholders and citizens who to a certain extent were already familiar with the concepts of sustainable and circular biowaste value chains. As the duration of the HOOP and SCALIBUR project overlapped for two years, the SCALIBUR Biowaste Clubs run during that time were already linked to the HOOP project. Furthermore, building upon the gathered knowledge and insights from SCALIBUR, a series of SCALIBUR pilot activities were already implemented at the local level, i.e. sensors installation for the optimization of waste collection via routes' tracks improvements, and building up of a local reuse center and anaerobic digestion plant.

Accordingly, the initial Biowaste Club meetings ran under the HOOP's project umbrella built upon these activities as well as further expanding them with the aim of promoting higher citizens' engagement and fostering B2B cooperation among key actors operating in the region for the market exploitation of biowaste. Focusing initially on the latter aspect, the first HOOP Biowaste Club meeting entitled "*The companies of Albano Laziale and the circular economy: opportunities for innovation in waste management*" took place in December 2021. It focused on sharing the latest progresses with respect to technologies for biowaste valorisation, to the pilot activities ongoing in Albano Laziale and on connecting the objectives of those to the further areas of opportunity brought in by the HOOP project activities.

Following this kick-off event, a broader one was organized entitled "*Circular Economy Action Week*" in May 2022. The goals were twofold: firstly, it aimed to promote knowledge of emerging circular technological solutions and applications; secondly, the event focused on enabling stakeholders to exchange and discuss pathways for enhancing investments for the valorisation of the organic fractions of municipal solid waste and waste water. The week, thus, consisted of a series of ad-hoc target events, starting with a public and an experts' seminar dedicated to international best practices for the circular economy and for the improvement of individual and collective consumption models and discussions around new potential scenarios in terms of economic and employment opportunities offered by novel technologies in the field of biowaste management and valorisation. These initial events were followed by a day dedicated to participatory processes during which high school students had the opportunity to learn about the educational platform "[Green Learning 360°](#)" - promoted by ANCI



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Lazio and Regione Lazio and produced by Ancitel Energia e Ambiente - and to exchange and explore the future of circular cities and in particular Albano Laziale in the year 2030. The week concluded with an exhibition which displayed products of several companies operating in the fields of circular economy, reusing, recycling and up-cycling.

Table 1. Overview of Biowaste Club meetings in Albano Laziale

Date	No. of stakeholders	Format	Focus	Main conclusions
16/12/2021	23	Hybrid	Introduction of the HOOP project, progresses on pilot activities and respective challenges, further opportunities within the HOOP projects	<ol style="list-style-type: none"> 1) need for systemic solutions which overcome fragmented approaches currently developed across the Lazio region 2) need of cross-sectors collaboration to expand the market potential of (bio)waste
From 17/05 to 20/05/2022	135 - 150	In person	Awareness raising on proper waste management and (bio)waste potential application, investments opportunities in the field, B2B collaboration as well as across neighboring municipalities, progresses of pilot activities	<ol style="list-style-type: none"> 1) citizens engagement at the local level is still challenging when it is not directly linked to the PAYT system 2) B2B collaborations have great market exploitation potential in the region 3) Further discussions are needed to best identify: <i>i)</i> opportunities areas and <i>ii)</i> funding and financing schemes for biowaste management and valorization given the different focus on the circular and bioeconomy adopted by the Italian recovery plan
13/09/2022	60 expected	In person	As part of the TRAINING CAMP VENTOTENE 2022 organised by ANCI Lazio. The BCM will be a specific session within the Training Camp, aimed at PA administrators (Mayors, Councilors, municipal staff, etc.)	



10/2022 (TBC) 30 expected TBC Transition from SCALIBUR to HOOP project / scaling-up to the next level

What has emerged from these Biowaste Club meetings is the **need for increasing B2B and municipalities collaborations**. The current fragmented strategies applied at the regional and national level are hindering the market uptake of existing novel technologies, as well as representing a barrier to further advance (bio)waste and wastewater valorization at the regional and national level due to a lack of structured channels and market-demand. Furthermore, the meetings also pinpoint to a still rather evident lack of knowledge and interest from citizens when it comes to sustainable lifestyles and circular economy modes of production and consumption. Indeed, though the implemented measures such as the PAYT have positively impacted the local waste management, it is also clear that when strategies are not directly linked to practical aspects, citizens’ interest is significantly lower. Finally, another aspect to be addressed in upcoming Biowaste Club meetings concerns the investments opportunities linked to (bio)waste and wastewater valorization processes and measures which appear to be slightly misaligned if one looks at the Italian national level and the European level.

3.2. Almere

Almere is a rapidly growing city that needs to build over sixty thousand homes and accompanying infrastructure in the next twenty years. Based on this need and its existing experience in producing bio-based concrete, it is particularly interested in circular and virgin bio-based construction material. The challenge now is scaling up bio-based construction technologies by connecting supply with sufficient demand.

A message that was repeated by various stakeholders at the first Biowaste Club meeting was that the technology for producing bio-based products already exists – albeit on a small scale. Scaling up of technologies is lagging because of non-structural market demand.

Table 2. Overview of Biowaste Club meetings in Almere

Date	No. of stakeholders	Format	Focus	Main conclusions
7/3/2022	6	Online	Introduction to HOOP and stakeholder engagement, understanding stakeholders’ concerns and visions for bioeconomy, identifying stakeholders in bio-based construction for future engagement	Need to understand perceive risks of using bio-based construction material
TBC	5-10	In person (TBC)	Risks perceived by project developers and construction companies in using biowaste-based construction material	N/A



HOOP's stakeholder engagement ambitions in Almere align very closely with existing engagement aims and activities from the Grondstoffen Collectief Almere, Grondstoffen Collectief Nederland and the Floriade Horticulture Expo to build coalitions of the willing for circular biowaste. One of the main motivations of the collectives is to help city representatives and project developers understand and decide what to do with urban waste and which technologies or companies to choose.

The next Biowaste Club meetings will target two main stakeholder groups. First, companies producing biowaste-based products will discuss the barriers they face to market entry and upscaling. Second, project developers and construction companies will discuss what risks they perceive in potentially implementing the biowaste solutions for construction material, such as the biowaste-based concrete developed by the companies [Millvision](#) and [CIRWINN](#). Finally, the aim is to bring these two main groups together in a multi-stakeholder dialogue to identify and drive areas of cooperation.

3.3. Bergen

Bergen municipality and region are in a unique geographical situation located within a region characterized by fjords that makes in-land logistics difficult and aquaculture one of the largest industries in the region. Thus, aquaculture is a dominant industry and many of the established biowaste valorisation routes, such as composting, are not as viable in the region. This is reflected in the BCMs that have happened in the Bergen lighthouse, where material flows and valorisation routes towards circularity not related to composting have been in focus. In addition, the innovative Bergen region with many research institutes, universities, start-ups and established industrial companies has actors that are relevant in terms of circular bioeconomy solutions. Bringing those actors together to establish potential symbiosis has been another key topic in Bergen since many waste or side streams from one actor can become a valuable resource for others.

The first BCM focused on informing participants about the HOOP project but also the CE landscape in Bergen municipality and region. This included visions of not only the public bodies but also stakeholders like BIR that are relevant to the urban circular bioeconomy. Besides opportunities for stakeholders to discuss topics such as separate collection and waste treatment, the BCM also gave the opportunity to showcase innovative and circular examples through study visits. An algae research facility, local small-scale composting solutions, a circular economy fair and the innovative underground PAYT containers within the city were visited together, to foster better understanding of the bioeconomy and biowaste situation in Bergen.

After the first BCM successfully showcased that collaboration between actors is one of the keys to success this notion of symbiosis thinking was enhanced even further for the second BCM. After initial introductions of the HOOP project and the biowaste club concept to new stakeholders several key stakeholders got the chance to host roundtable discussions with the participants. The co-hosts included research institutions, market solutions for secondary resources, BIR itself, regional bodies and an industrial cluster. With focus on topics such as biomaterials, industrial symbiosis, raw material sourcing for scale-up, technological solutions or the build-up of market place solutions. This way, targeted discussions with the up to 50 participants were possible and information about existing initiatives in the region could be shared.

Table 3. Overview of Biowaste Club meetings in Bergen

Date	No. of stakeholders	Format	Focus	Main conclusions
20/9/2021	22	In person	Introduction to HOOP and stakeholder engagement, Bergen CE strategy, introduction of separate sorting, implementation of symbiosis thinking, local adapted solutions, dissemination of best practice examples	Collaboration between stakeholders necessary, BCM can be the forum for that
31/3/2022	50	In person	Key topic of industrial symbiosis in the region and potential for collaboration. Including round-table discussions facilitated by different co-hosts including waste management companies, research, industrial actors & market actors	A lot to discuss and explore in terms of collaboration in the region, additional formats such as this needed
Xx/11/2022 (TBC)	20-30	In person	Biochar – production and local utilization, climate credits	N/A
Xx/0	100	In person	Biohubs – mapping of resources, no. of biogas plants needed, industrial symbiosis	N/A

The next BCMs will alternate between small events focused on single treatment options; biochar, biogas and larger teambuilding events with other biohubs in the region. The former BCMs were a huge success so there is also a plan to run a similar event again next year. The events planned all align well with the municipalities, the region and BIRs own vision and strategies for the circular bioeconomy.

3.4. Kuopio

The first Biowaste Club meeting took place on 9th June 2021. In attendance were value chain actors Jätekuikko Ltd, Gasum Ltd, Kuopion Vesi Ltd, the municipality of Kuopio, and SAVONIA University of Applied Science. An outcome of the meeting was a clearer understanding of the interests of each stakeholder and the barriers they currently face in their work regarding waste management. Following this first meeting, SAVONIA led bilateral meetings with each of these stakeholders at the end of 2021 to discuss further potential activities and developments in detail.

Table 4. Overview of Biowaste Club meetings in Kuopio

Date	No. of participants	Format	Focus	Main conclusions
9/6/2021	5	Online	Introduction to HOOP and stakeholder engagement, understanding stakeholders' barriers, opportunities and motivations for bio-economy	<ol style="list-style-type: none"> 1. Limited kitchen space in private households is a limiting factor 2. Tap into new national campaign for sorting 3. Technology for bioplastics from predecessor projects would be interesting

Kuopio would like to raise people’s awareness about biowaste collection and increase the separation rate. In the past, the waste management company Jätekukko Ltd developed an app to gamify recycling among households. In addition, it has run numerous information campaigns on waste reduction and awareness. However, the public response has been tepid thus far. It seems that the low separate biowaste collection rate among households is not due to a lack of awareness or knowledge. For some households, a lack of space in the kitchen may create a barrier to sorting.

The next Biowaste Club meeting may use citizen co-design workshops that target households in order to identify the main barriers to separate collection and to co-develop potential solutions.

3.5. Münster

The HOOP partner in Münster is the local municipal waste management company whose customers are mainly the citizens. There are already several high-level operations ongoing in terms of valorization such as the compost production from different waste streams or the biogas production. More technical solutions are planned within HOOP but the similarity for all is that the quality of the biowaste is one of the key factors in the successful implementation of those technical solutions. Hence, the stakeholder engagement also aims in at discussing those topics and critical aspects.

The BC in Münster has adopted the German name “Biomehrwert Initiative Münster”. The first meeting aimed at introducing HOOP and the BCM concept to participants while also giving vast background information on many biowaste topics both within Münster and the AWM structures as well as in the wider context of biowaste management in Germany. The discussion phase focused on several aspects such as how the separation behavior of citizens could be further improved or potential initiatives to launch in certain neighborhoods in Münster. With technical experts and also civil society representatives present, many perspectives in the discussions were taken up.

The second citizen-centric focus of the Biomehrwert Initiative Münster continued on 15th September 2022. The focus of the meeting was to discuss ideas and solutions for the large building complexes housing multiple



families. These complexes are main contributors to impurities in the Münster biowaste collection. Together with technical experts, owners and managers of large building complexes in Münster, civil society representatives and AWM experts, promising practices were discussed regarding engaging, informing and motivating citizens living in the building complexes, including a focus on marginalized groups such as refugees.

Table 5. Overview of Biowaste Club meetings in Münster

Date	No. of stakeholders	Format	Focus	Main conclusions
23/11/2021	12	Online	Introduction to HOOP and stakeholder engagement, opening event of the Biomehrwert Initiative, technical status of the biowaste monitoring, Status of the biowaste campaigns, discussion cooperation Twente, separation behaviour	Developing neighborhood initiatives and further informing and engaging citizens is an ongoing effort
15/9/2022	16	Hybrid	Challenges for biowaste collection in dense urban structures, Waste consulting in refugee accommodations, Aktion Biotonne Münster! Results of the controls at large residential properties, Outlook - New approaches for the reduction of contaminants in the (bio)waste collection in Münster	Challenges in engagement in large housing complexes and ideas for pilots
TBC	TBC	In person	Implementation of engagement initiatives in large housing complexes	N/A

Building on the second BCM, the next BCM in Münster will potentially focus on the implementation of engagement initiatives in large housing complexes to further improve the rate and quality of biowaste separation by the residents.

3.6. Murcia

The municipality of Murcia, represented in HOOP by the City Council (Ayuntamiento de Murcia), is the capital of the autonomous Region of Murcia, in the South-East of Spain. Due to the climate and the large tourist and agricultural sectors (both of them being highly seasonal), the waste compositions, qualities and amounts in Murcia vary a lot with the seasons, which is a key challenge in the waste management. Additionally, the climatic conditions and the intensive agriculture require a big emphasis on water recovery – also in the stakeholder engagement of HOOP. The stakeholder engagement and Biowaste Club in Murcia are facilitated by the HOOP partner Science for Change (SfC).

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OFMSW is so far only collected in few pilot neighborhoods of the city and food markets, within the [VALUE-WASTE](#) mother project. One goal for Murcia for the HOOP project is, thus, to extend this collection to more parts of the city. With extending the collection, also citizen engagement activities will have to be upscaled and improved accordingly. Next to increasing quantities, also the quality of the already collected OFMSW still needs to be improved in order to be able to use it for further valorisation. Also herein lie many opportunities for engagement.

Next to working with households and different citizen initiatives, also collection from HoReCa, retail sector and food processing industries is envisioned. Engaging these actors will, hence, also be crucial for stakeholder engagement and the Biowaste Clubs in Murcia. Some of the challenges in the HoReCa and retail sector and ideas how to work further with them, have already been identified in the first HOOP BCM in Murcia.

Given that SfC is specialized on citizen engagement and co-creation and that also CETENMA and Murcia City Council have already been running extensive engagement activities together within VALUEWASTE, Murcia's BC is well positioned to achieve a wide citizen engagement and to take the engagement to the next level. A first exciting step in this direction has already been taken with the 2nd Biowaste Club Meeting, which took place in February 2022 (back-to-back with Murcia's first Circular Economy fair). Here participants took up the identified pathways from the 1st BCM and co-designed awareness raising collages to disseminate key messages. SfC turned these collages into 16 digital postcards gathered in the padlet platform in order to engage citizens further through social media. Thus, citizens took virtually part in this collective exercise by rating how relevant/important was the message of the postcard to move towards the circular bioeconomy and commenting on them. In the Spanish version, the most voted key message to convey the concept of circular bioeconomy and reflect on it was "Learn from your grandparents, circularity is already invented". In the English version the most voted message was "Let's rely on technology. From the lab to the farm, from the farm to the lab". The Spanish postcards had a total of 35 reactions and the English a total of 50.

Also, Murcia will be one of the first HOOP Lighthouses to test and implement the HOOP citizen science app. A first co-creation workshop with the city of Murcia and SfC was already organized to identify the key topics relevant for citizen science and for the app development in Murcia. The app will be launched in Murcia by the end of 2022 - early 2023 (as its launching will be aligned with the implementation of the new OFMSW selective collection bins of the city) and will be first promoted in a special BCM. Further uptake of the app will be ensured by Murcia City Council's communication about the app and the hand-in-hand work with the education and awareness raising actions carried out within Task 6.4.

Table 6. Overview of Biowaste Club meetings in Murcia

Date	No. of stakeholders	Format	Focus	Main conclusions
25/11/2021	12	In person	Introduction to HOOP and stakeholder engagement, understanding stakeholders' barriers, opportunities and motivations for bioeconomy. Discussion of possible first citizen	Key challenges for citizens and households in waste separation identified Challenges in working with HoReCa and retail sector



engagement activities in Murcia.

10/2/2022	30	In person	Co-designing of awareness raising collages/ linking to Murcia's Circular Economy fair	Co-design of awareness raising campaign Agreement on key messages for citizen engagement Design of digital engagement cards
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3.7. Greater Porto

The Greater Porto region is located in the North-West of Portugal. For the HOOP project, the region considered covers eight municipalities (Espinho, Gondomar, Maia, Matosinhos, Porto, Póvoa de Varzim, Valongo and Vila do Conde) in North-western Portugal and is represented by LIPOR (Intermunicipal Waste Management Service of Greater Porto). This geographic scope for HOOP was determined by LIPOR's operating radius.

In the Greater Porto region there are approximately one million inhabitants. The main economic areas are services, tourism, construction and agriculture. OFMSW is separately collected in Greater Porto region from a growing number of households, HoReCa actors, markets and public green spaces.

While so far “only” some of the households of Greater Porto region are participating in the separate collection, there are still various challenges hindering the engagement and motivation of citizens. At the same time, LIPOR has already run various successful communications campaigns, resulting in high awareness and motivation levels in some neighbourhoods. Also, the engagement of and campaigning towards the HoReCa sector has proven successful, with a consequently changed and improved waste sorting behaviour.

In order to increase the quality and quantity of biowaste collected, it will be crucial to engage the citizens and together find solutions for the citizens' current main issues. These issues include in particular 1. the wish for recognition and involvement, 2. the limited space in the kitchens, 3. the avoidance of plastic bags and other pollution in the biowaste and 4. the need for clean bins.

As also identified in Greater Porto's first BCM, in the engagement of citizens it will be important to focus on a combination of different strategies and engagement tools. Especially for those citizen groups that so far do not participate (properly) in biowaste collection, it will be an important task of HOOP stakeholder engagement to support in the development and implementation of new and more effective approaches to communicate. Additionally, focus on the citizen engagement in Greater Porto will not only have to be on education and awareness raising and behaviour change on waste sorting, but also on the social acceptance of new bio-based technologies and products.

With the goal of expanding the collection scheme to the whole region, it will be crucial for Greater Porto region to focus the HOOP stakeholder engagement not only on citizens, but also to improve the cooperation across the value chain in the 8 associated municipalities. As such, topics that were identified in both the first BCM as



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well as in project partner meetings and that will, hence, also need to be tackled in upcoming BCMs and/or other actions include:

- The importance of creating open communication lines between the actors of the biowaste collection and management value chain
- How to improve the communication with the citizens and acknowledge their participation in biowaste recycling.
- The importance of investing in innovation to improve biowaste collection and management.
- Whether and how to introduce a common waste tariff that is transparent, fair and incentivising of good practices

Also with regard to biowaste valorisation, it will be a crucial part of Greater Porto's stakeholder engagement to seek collaboration across the 8 municipalities in order to together:

- Identify ways to overcome the currently poor economics of biowaste valorisation
- Increase acceptance of new bio-based technologies and solutions, across all actors
- Agree upon the importance of and commit to shared investments both in a new biowaste treatment plant as well as in new innovative solutions for valorisation

Table 7. Overview of Biowaste Club meetings in Greater Porto

Date	No. of stakeholders	Format	Focus	Main conclusions
23/9/2021	56	Online	Introduction to HOOP and stakeholder engagement, case study separate collection of biowaste, challenges associated with biowaste collection	Overview of citizens' current main issues and challenges Identification of possible strategies to engage citizens
20 or 21/09/2022	40-60	In person	Separate collection – barriers and enabling factors for a better separation	N/A
17/10/2022 (TBC)	40-60	Online / In person	Bio-based products – introduction and identification of barriers and enabling factors	N/A
24/10/2022 (TBC)	40-60	In person	Presentation and discussion of case studies of biowaste collection and valorization	N/A

The focus of the next BCMs in Greater Porto will be on bio-based products – more specifically, their introduction and acceptance by the public. A special focus will be placed on looking more closely at the barriers as well as

driving factors for behaviour change and a shift towards consumption of such products. During the next meetings, different case studies will also be showcased to present different systems of biowaste collection and valorisation to increase awareness and foster circular behaviours.

3.8. Western Macedonia

Similar to the case of Albano Laziale, the region of Western Macedonia and the city of Kozani are a pilot city in the mother project SCALIBUR. During the four years of SCALIBUR's duration, a number of Biowaste Club Meetings have been held in Kozani, engaging stakeholders from different stages of the biowaste value chain. As a direct outcome of the discussions and exchanges that took place in the Biowaste Club Meetings several pilot activities have been designed and implemented. These include the development and installation of sensors on bins to optimize the collection routes and the expansion of the separate collection of biowaste from open markets to increase and improve the organic fraction collected. As the duration of the HOOP and SCALIBUR project overlapped for two years, the SCALIBUR Biowaste Clubs run during that time were already linked to the HOOP project.

The Biowaste Club Meetings that are organized in Western Macedonia in HOOP aim to build on the work and engagement that has already been initiated in the SCALIBUR project. In this light, local project partners together with the local stakeholders have already discussed and identified pathways to engage HoReCa actors more actively in the city's efforts towards valorizing biowaste. More specifically, in the first HOOP Biowaste Club Meeting in Western Macedonia, the participants discussed the opportunities that lie in the valorization of spent coffee grounds from HoReCa activities. The successive meeting focused on further detailing the action plan for the rollout of the activity, as well as engaging more HoReCa actors to ensure their participation in the activity.

The most recent Biowaste Club Meeting was held on 6th June 2022 and was part of a larger event, namely the "[Climate Neutral Week](#)" in Kozani, that took place from 30th May to 6th June 2022. Kozani is aiming at reaching climate neutrality by 2030 and so the Climate Neutral Week presented an opportunity for local, regional and national stakeholders to come together and exchange on how climate neutrality can be achieved in different sectors (waste management, energy efficiency, smart mobility and sustainable tourism). A total of six hybrid events was organized focusing on the barriers and opportunities posed by the transition to climate neutrality. Best practices from the areas of waste management, smart mobility, clean energy, digital transformation, sustainable tourism, and waste valorisation from the agricultural sector were presented in order for them to be replicated and scaled up on the national level. The case of Kozani was featured as a leading city in Greece in topics of waste and wastewater management. Furthermore, a special event was hosted under this week, focusing primarily on financial tools available for achieving climate neutrality. Local and regional stakeholders were presented with different opportunities on the regional, national and European level for financing the green transition in Kozani and also the benefits and investment opportunities by the development of business parks in the region of Western Macedonia. On the topic of biowaste valorisation, the economic potential and the financing opportunities for urban circular bioeconomy projects were discussed. HOOP partner RdA presented on European funding and financing opportunities. The last two days of the Climate Neutral Week aimed at raising awareness among citizens and instigating their active participation in the city's circular waste management efforts. These activities included "reduce- reuse- recycle" DIY workshops, an exhibition of circular products, a story-telling session to introduce children to the concepts of circular economy and its key principles, as well as games and interactive learn through play activities on proper waste sorting addressing children of all ages.

Table 8. Overview of Biowaste Club meetings in Western Macedonia

Date	No. of stakeholders	Format	Focus	Main conclusions
30/6/2021	15	Hybrid	Introduction to HOOP, transition from SCALIBUR	Need for active engagement strategies for HoReCa actors to participate in the separate collection of spent coffee ground scheme.
23/9/2021	7	In person	Collection of coffee residues from the HoReCa sector	Development of an action plan for rolling out the pilot activity (necessary quantities, location of bins, frequency of collection).
6/6/2022	10	In person	Collection of coffee residues from the HoReCa sector	Collection of data from participating businesses and recruitment of new businesses in the separate collection scheme.

Reflecting on the outcomes of the Biowaste Club Meetings thus far, the coming meetings in Western Macedonia will focus on the integration of spent coffee grounds stream in the separate collection scheme. The waste management company DIADYMA together with CluBE are already working on collecting all necessary data from actors and businesses that have expressed an interest in participating in the activity (i.e. quantities produced, purity of fraction, etc.). In parallel, the local partners are also trying to expand the network of participating businesses inviting them to attend the upcoming meetings. This will contribute to the successful planning of the pilot activity. Furthermore, in the next Biowaste Club Meetings, Western Macedonia wants to focus more on their citizen engagement activities and campaigns. These efforts will on the one hand contribute to triggering positive behaviour change towards more circular patterns of consumptions; on the other hand, they will contribute to the qualitative and quantitative improvement of biowaste, ensuring that its valorization and deployment becomes economically viable.

4. Conclusion

In the Biowaste Club meetings in these Lighthouses, stakeholders engaged represented, for instance, non-governmental organizations, research and development organizations, business (medium- to small-scale): SMEs and/or local business owners, local public bodies (e.g. city council or municipality) and service providers with a focus on waste e.g. waste collectors, treatment plants, waste management. Subsequent Biowaste Club meetings will be based on the discussion results of the meetings carried out in the first reporting period, the tailor-made stakeholder engagement plan for each LH, or will be planned to involve other stakeholders, such as members of the HOOP Network, that are considered to be essential to ensure HOOP leverage. The process of organizing a Biowaste Club meeting is summarised in Figure 2.



Figure 2. Process of organizing Biowaste Club Meetings³

³ For detailed guidelines, see “How to Biowaste Club” Playbook. CSCP 2021. URL: https://hoopproject.eu/wp-content/uploads/2022/09/HOOP_WP6_HowToBiowasteClub_Playbook_version210602.pdf

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There were several main challenges when organizing and running BCMs in the eight Lighthouses. The main learnings were the following:

- Many citizens seem to be unfamiliar with the concept of circular economy and therefore cannot connect with it or feel the relevance of circular economy to facets of their everyday lives. This widens the intention-action gap and requires the HOOP project and other circular economy initiatives and experts to translate complex or academic terminology into accessible language. In addition, it helps to provide concrete examples of actions to help citizens better understand how they can contribute.
- Stakeholders are now used to remote meetings and may prefer them due to the lower effort investment. Therefore, depending on the focus of the event, a hybrid format might be crucial for participation rate.
- The stakeholders identified as relevant and important to the BCM focus sometimes have limited time or financial resources to participate despite being motivated and interested to engage.
- In some cases, especially the initial approach, the focus was broad and did not include specific enough action points. Without clear objectives, the stakeholders did not see an added value of the BC to their work or their organization and therefore did not actively engage further.