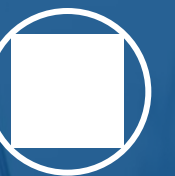


SAFETY AND ACCEPTANCE OF BIOBASED PRODUCTS

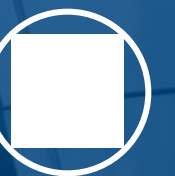
NOME COGNOME



JOIN THE URBAN CIRCULAR BIOECONOMY
WEBINAR SERIES



16.06.2021



Developing materials and biochemicals through the integration of **chemistry** and **agriculture**, by starting up **biorefineries** integrated in the local area and providing application solutions that ensure an efficient use of resources throughout their entire life cycle, with **advantages** for **social**, **economic** and **environmental** systems





RESEARCH, DEVELOPMENT AND INNOVATION PROJECTS

IN COLLABORATION WITH LEADING ITALIAN AND INTERNATIONAL COMPANIES AND R&D CENTERS

3

Novamont takes part in **Research, Development and Innovation projects** in collaboration with leading Italian and international companies and R&D centers, aiming to create **strategic and lasting partnerships** between the research, industrial, agricultural and institutional fields and to generate new integrated supply chains.



B-Ferst



BIOMAC

SCALBUR



GRACE

ForestComp



**DEEP
PURPLE**

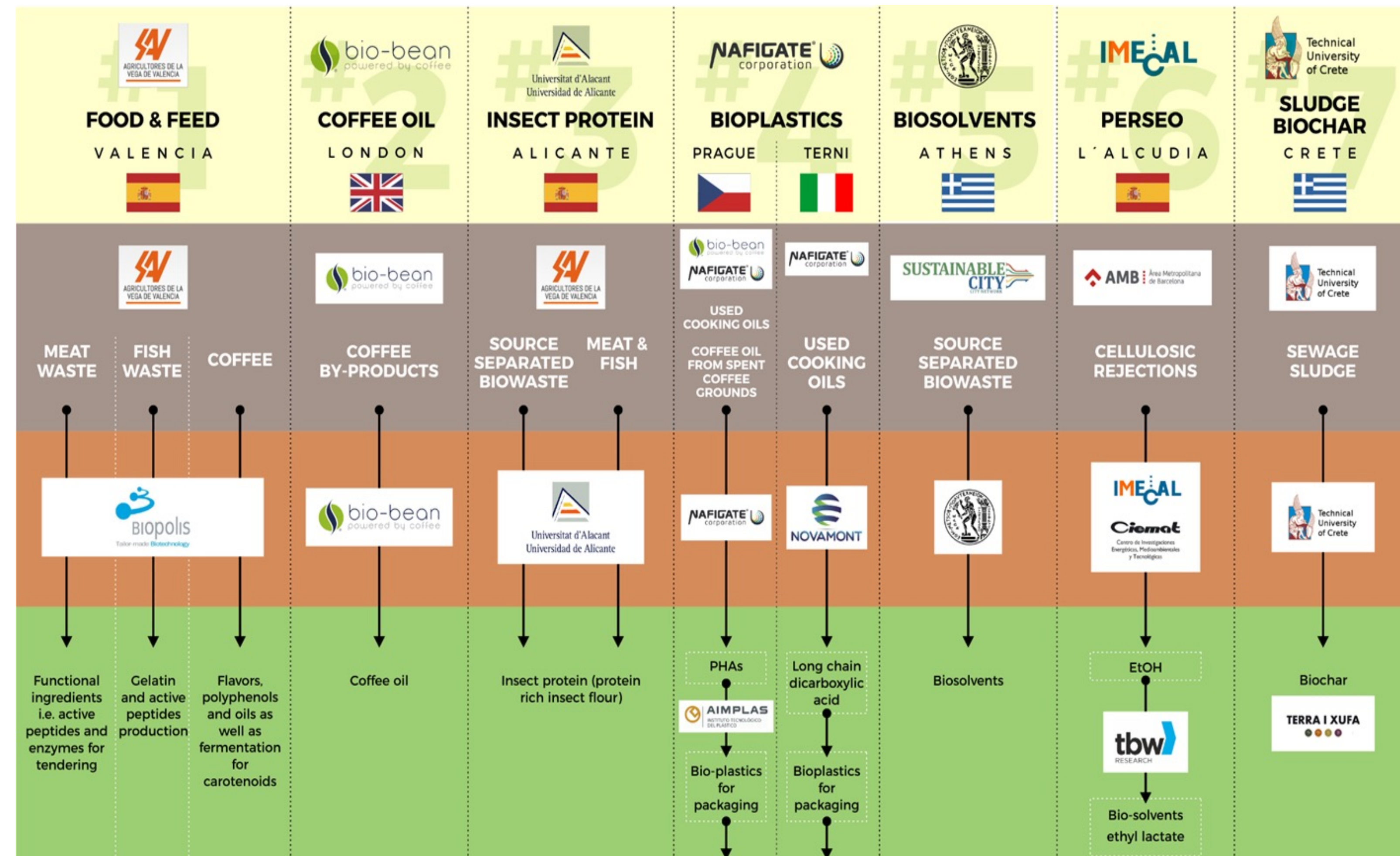


COMETA



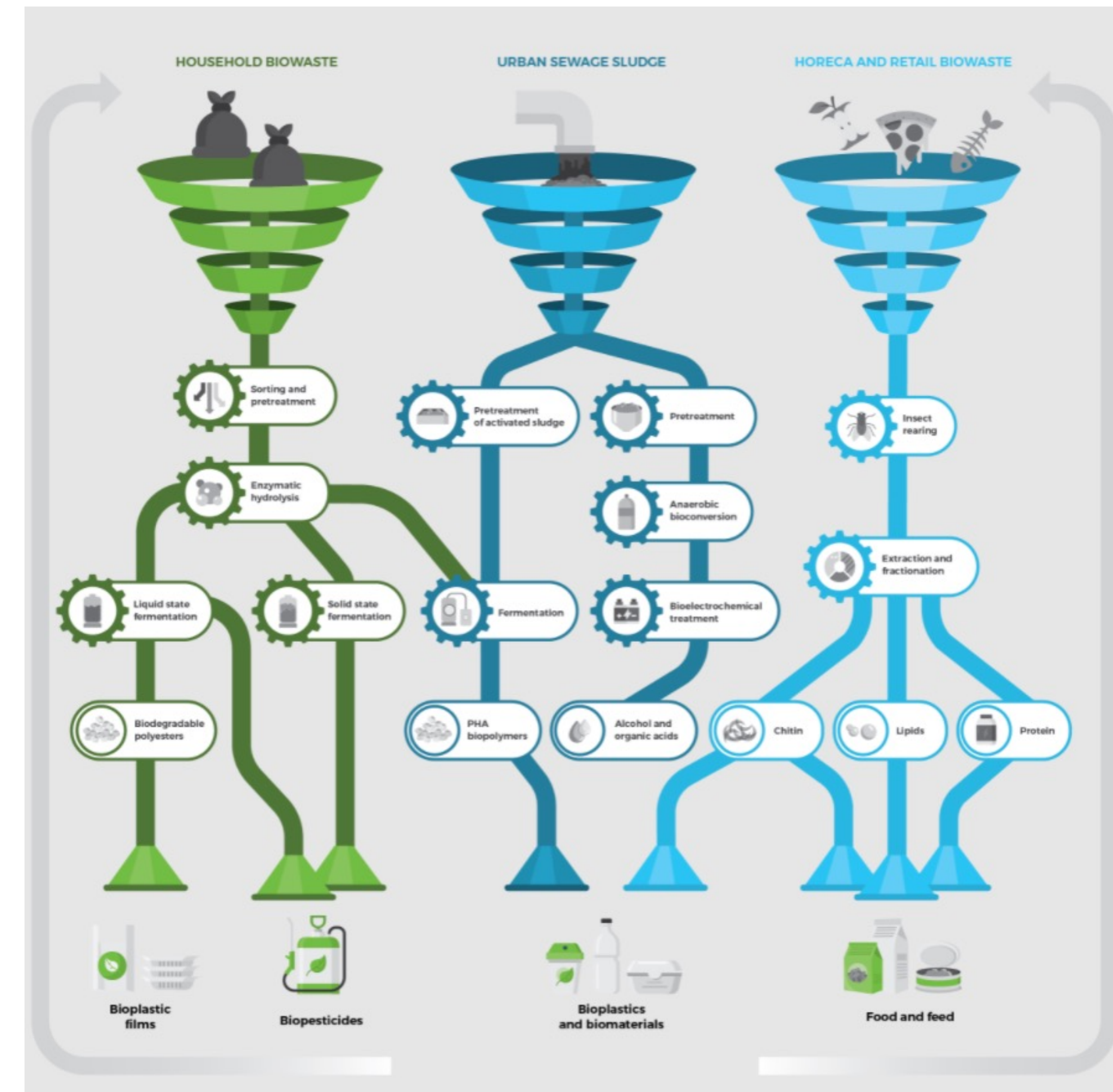


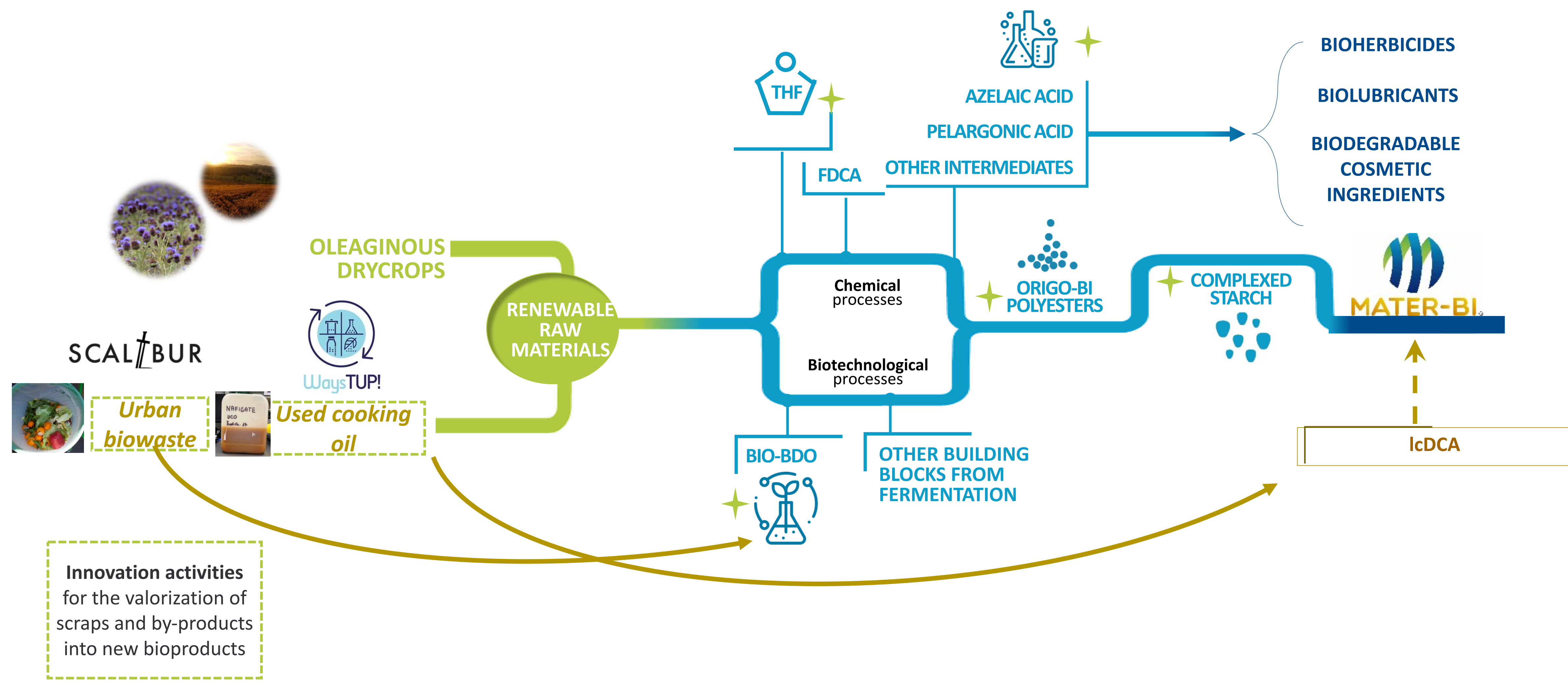
The overall **objective** of WaysTUP! is to demonstrate the establishment of new value chains for **urban biowaste** utilisation for the production of **higher value purpose products** (i.e. biobased products, including food and feed ingredients), through a multi-stakeholder approach in line with circular economy.





In the SCALIBUR project, leading waste management companies, technology developers and research organisations have teamed up with four European cities to demonstrate **innovative solutions** to transform **urban food waste and sewage sludge** into **high value-added products**, helping cities to increase their recycling rate and creating new circular economy business opportunities.







COMPOSTABLE PACKAGING

OPTIMIZATION OF WASTE COLLECTION STREAMS

7



Within WaysTUP! Novamont will validate these innovative building block in the production of biobased polyesters and in secondary packaging.

Use of compostable solutions, instead of traditional multilayer film packaging which cannot be recycled, contributes to the optimization of waste collection streams

Compostable packaging can help to improve the quality of separate collection of organic /plastics/ papers materials, reducing disposal of organic waste through landfill or incineration.

The replacement of some types of food packaging with compostable solutions brings a benefit in terms of better management of food waste both within large-scale distribution and in the domestic environment.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 818308.



WaysTUP!

VALUE CHAINS FOR DISRUPTIVE TRANSFORMATION OF URBAN BIOWASTE INTO BIOBASED PRODUCTS IN THE CITY CONTEXT



COMPOSTABLE CARRIER BAGS AND WASTE BAGS

OPTIMIZATION OF WASTE COLLECTION STREAMS



Within Scalibur Novamont will validate these innovative building block in the production of biodegradable and compostable waste bags.

Biodegradable and compostable carrier bags and waste bags have allowed different municipalities to reach among the highest levels of separate waste collection in Europe



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817788





Novamont believes that the interaction with all the partner of the value chain is essential to change the paradigm. Our vision does not consider only the development of sustainable products but also aims to promote good practices and culture of innovation in the local area.





ORGANIC WASTE COLLECTION





ORGANIC WASTE SEPARATE COLLECTION IN MILAN

MILAN IS WASTE RECYCLING CHAMPION, THANKS ALSO TO MATER-BI

11



Milan first European city, with over 1,500,000 inhabitants, **for separate collection**



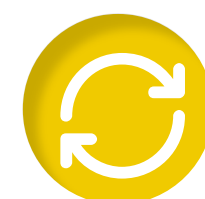
2012: beginning of door to door collection of organic waste



Use of fully **biodegradable** and **compostable bags** that are suitable for processing in composting and anaerobic digestion facilities



130.000 tons of organic waste per year = **100 kg/year per capita with 95% purity**



Milan as a **case study** of success internationally and **replicable in other contexts**, for size and location





AERATED BIN

- Optimal oxygenation
- Reduction of odors and liquids

DISTRIBUTION OF MATER-BI BAGS FOR DOMESTIC USE

Biodegradable and compostable according to European standard EN 13432

BIN WITH WHEELS

For residential units





EXPERIMENTAL PROJECT IN THE MILAN OUTDOOR MARKETS

HELD FROM 20TH FEBRUARY TO 30TH JULY 2016 IN 15 OPEN MARKETS IN MILAN

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- The experimentation involved **1194** food product dealers. **285 tons of organic waste were collected**, equal to **16% of the total produced by the market operators**.
- The experimentation showed how the separate collection contributes to improving the post-sale conditions of the areas, thus allowing **AMSA** (the public-owned company responsible for MSW management in Milan) to **optimize cleaning times and to give back the area to the citizens even faster**.
- For this initiative, AMSA and Novamont won the **Sodalitas Social Award 2017**, category 'Sustainable consumption and lifestyles'.
- Given the extremely positive results, the project was extended to all 94 open markets.



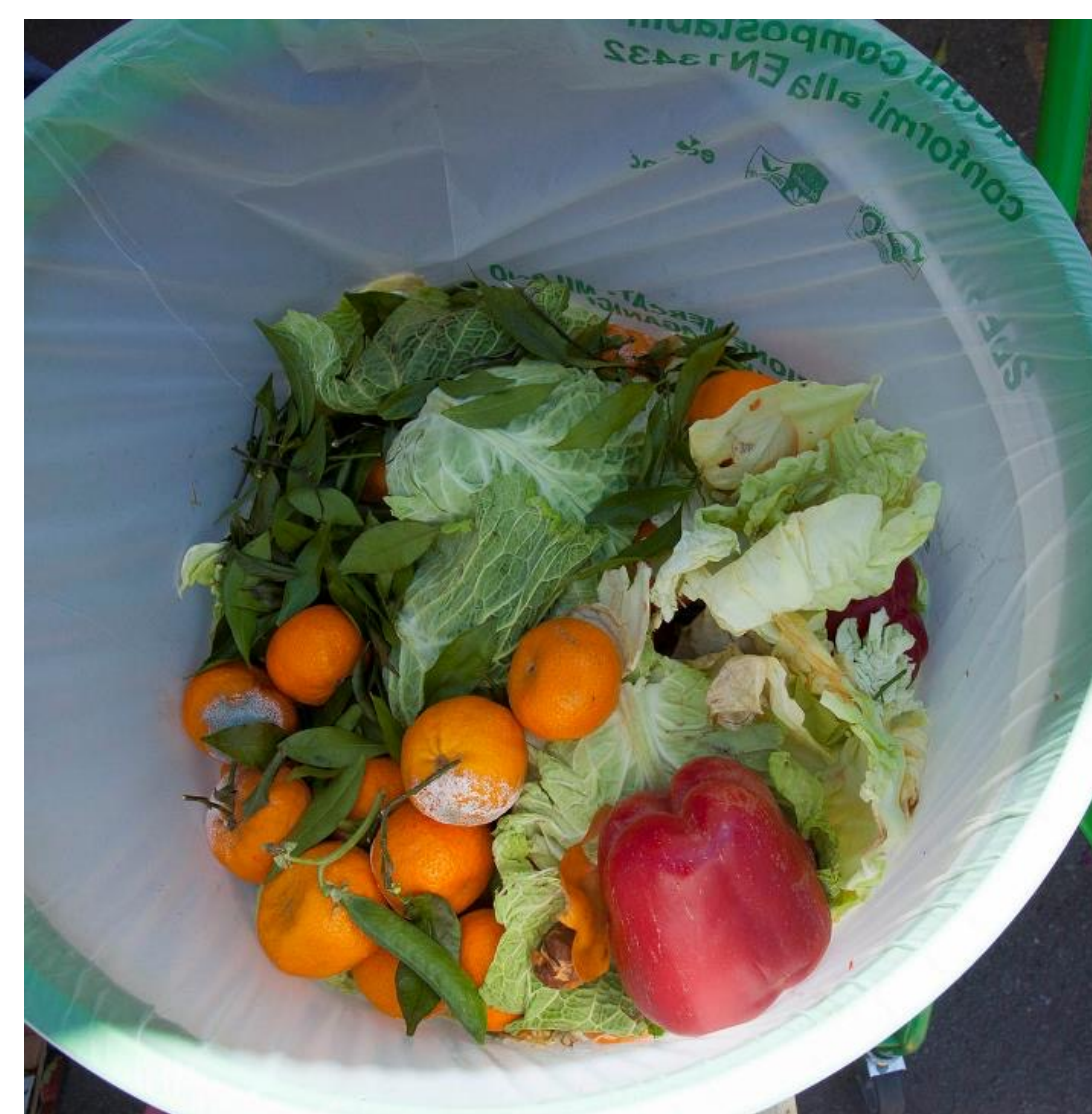
FREE DISTRIBUTION OF THE KIT FOR AN OPTIMAL ORGANIC WASTE COLLECTION

- **Steel testles**
- supply of **70-liter Mater-Bi bags, biodegradable and compostable** according to the European standard EN13432
- **instructions** for a proper separate waste collection in five languages (Italian, English, French, Spanish and Arabic)



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«ORGANIC PROJECT PORTA PALAZZO» – PoPP

THANKS TO THE COLLABORATION OF ECO DALLE CITTÀ, NOVAMONT, CITY OF TURIN AND AMIAT

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- **Nov 2016: PoPP aimed at increase the separate collection,** especially that of the organic fraction in the Porta Palazzo Open Market (Turin)
- Introduction of **Mater-Bi bags** at the fruit and vegetable area
- Creation of an on-site collection and distribution network of unsold fruit and vegetables
- **The organic waste collection is doubled in a year.**
- About **60 tons per year of fruit and vegetable surplus were collected** and on-site redistributed to disadvantaged people (involving also asylum seekers and refugees).



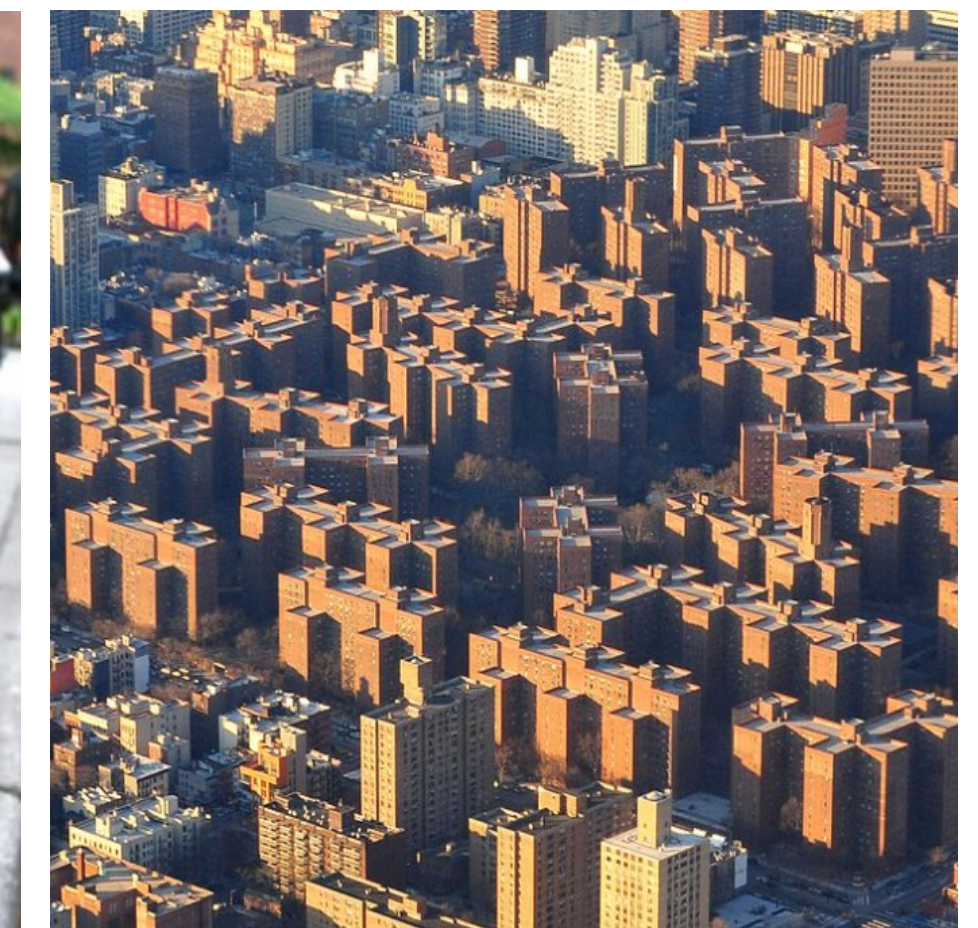
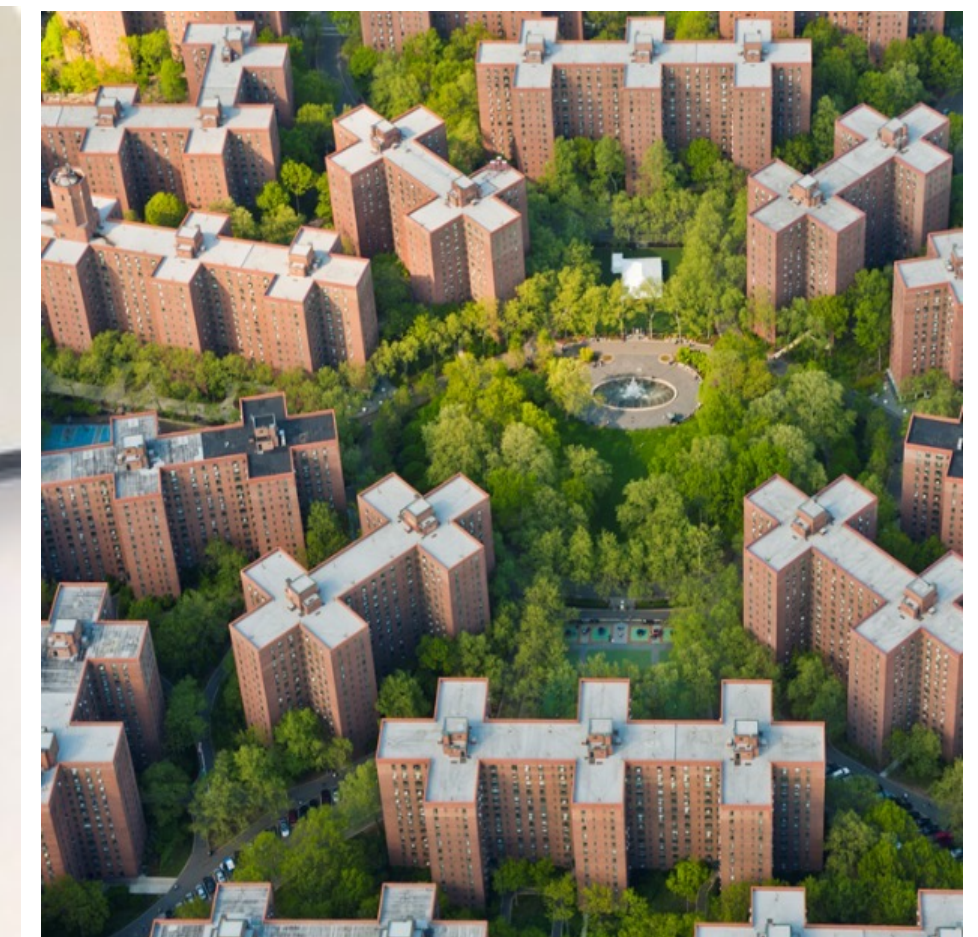


THE CASE STUDY OF STUY TOWN

NYC 2018: SEPARATE ORGANIC WASTE TRIALS IN THE LARGEST RESIDENTIAL BUILDINGS IN MANHATTAN

17

- **6 buildings** selected for the trial
- **4 weeks** data was gathered on the weight and character of organic waste being collected and also the level and type of contamination.
- **Compostable bags** were found to be the most effective tool for reducing contamination of the organic waste, with those buildings provided with a continuous supply, achieving on average the lowest contamination rates
- Increase the capture of organic waste from multi-family buildings by over **400%**



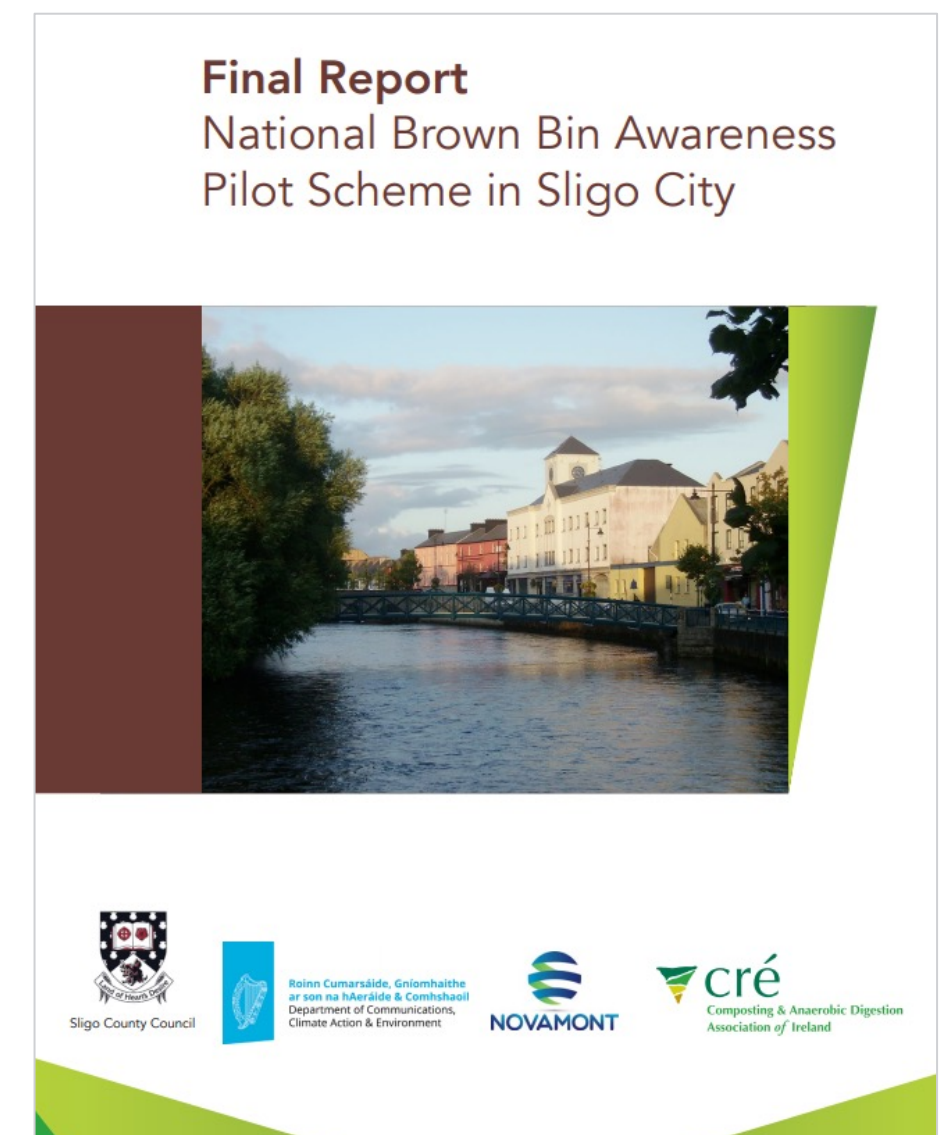


THE IRISH CASE STUDY

THE PILOT PROJECT FOR THE RECYCLING OF THE ORGANIC WASTE CARRIED OUT FROM 2014 TO 2015 IN SLIGO CITY

18

- **2019:** Richard Bruton, Irish former Minister of Communications, Climate Action and Environment, launched the Final Report Brown Bin Awareness National Pilot Program in Sligo City
- According to the Report, the **organic waste separate collection model through the use of bioplastics**, made possible
 - an increase of **25%** in citizens' participation
 - an increase of **59%** in the collection of organic waste
 - Reduction of the contamination by **89%**





“MILANO RISTORAZIONE” CASE HISTORY





THE CASE STUDY OF “MILANO RISTORAZIONE”

COMPANY CREATED BY THE MUNICIPALITY OF MILAN IN 2001 TO GUARANTEE THE CATERING SERVICE IN PUBLIC OFFICES

20

- **2012:** thanks to “**Milano Ristorazione**”, in the schools of Milan, dishes and glasses are made of compostable materials.
- **2016:** the schools of Milan started to use compostable tableware made of **Mater-Bi**.
- **Mater-Bi** showed to be environmentally preferable allowing to obtain **homogeneous waste streams**, ready for recovery by organic recycling, without contamination.
- According to the LCA analysis, replacing the traditional plastic tableware with the compostable ones, the carbon footprint of the **compostable** set is **<10%** (incineration scenarios with energy recovery); this percentage rise replacing the fossil BDO with bio-BDO: **carbon footprint <30-45%**.



- **“Milano Ristorazione”**: manager of the catering service in
 - nursery schools
 - public primary and secondary schools
 - retirement homes / home delivery service
 - preliminary reception centers
- From 2015 the Municipality of Milan promotes the **Food Policy initiative** with the objectives of:
 - guarantee healthy food and water for all citizens
 - promoting the sustainability of the food system
 - promoting food education
 - fighting food waste
 - supporting scientific research in the agri-food sector
- Starting from 2014, **Milano Ristorazione** has tried to evaluate various alternatives to make its service more sustainable





After different analysis, **Milano Ristorazione** identifies the most sustainable solution in the use of dishes made of compostable and biodegradable material.

- **2015** → use of cellulose pulp: the material presented problems related to the temperature of meals, in particular when the meal was very "hot" the dish tended to dissolve and deform.
- **2016** → complete replacement with **Mater-Bi** products: able to satisfy all the service needs.



"The challenge of our millennium is in the balance between the technical means that humanity possesses and the wisdom in how we will make use of them".

UMBERTO COLOMBO



SPEAKER



E-MAIL

THANK YOU FOR YOUR ATTENTION

www.novamont.com

