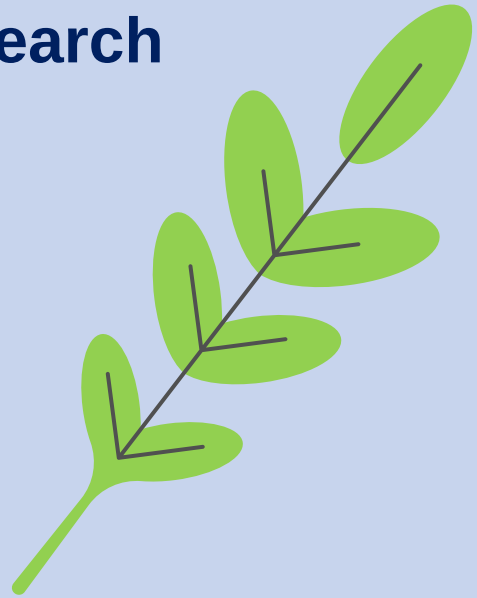
6th European Bioplastic Research Network (EBRN) Event

Insights from 10 Horizon projects:
EU policy for bio-based and biodegradable plastics

22nd of June 2022
10.00 – 12.00 CET



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

Insights from 10 Horizon projects: EU policy for bio-based and biodegradable plastics

ONLINE

22 June 2022

10 – 12 CET

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

Programme

10:00 -10:05 **Official welcome**
Dr. Jelena Barbir, BIO-PLASTICS EUROPE, Hamburg University of Applied Sciences, DE

10:05-10:25 **EU research and innovation policies on bio-based and biodegradable plastics**
Dr. Silvia Maltagliati, EU Policy Officer

10:25–10:50 **GROUP 1: Plastics pollution/microplastics**

Cluster: CUSP

Projects: LABPLAS, Limnoplast, PlasticFatE

10:50–11:30 **GROUP 2: Bio-based plastics**

Networks: EBRN and EuBioNet

Projects: BIO-PLASTICS EUROPE, SEALIVE, PAPILLONS, UPLIFT, upPE-T, GLAUKOS, BIONTOP

11:30–11:55 **Panel discussion: EU Policy Officers and Horizon projects**

11:55 –12:00 **Closure of the meeting**

Dr. Jelena Barbir, Hamburg University of Applied Sciences, DE

EU research and innovation policies on bio-based and biodegradable plastics

Dr. Silvia Maltagliati

Policy Officer at the European Commission, Directorate General Research & Innovation

Working in the unit “Circular Economy and Biobased Systems”

Horizon 2020

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

PLASTIC POLLUTION / MICROPLASTICS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

The European research cluster to understand health impacts of micro- and nanoplastics

CUSP

Dr. Alba Hernandez Bonilla

BIO PLASTICS EUROPE

Horizon 2020

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

HAW HAMBURG

CUSP

The European research cluster to understand the health impacts of micro- and nanoplastics

WHAT ARE THE IMPACTS OF MICRO- AND NANOPLASTICS ON THE HUMAN BODY ?

CUSP

The European research cluster to understand the health impacts of micro- and nanoplastics

We are here to find out!

AURORA IMPTOX plasticheal PlasticsFatE POLYRISK

These projects have received funding from the European Union's Horizon 2020 research and innovation program.

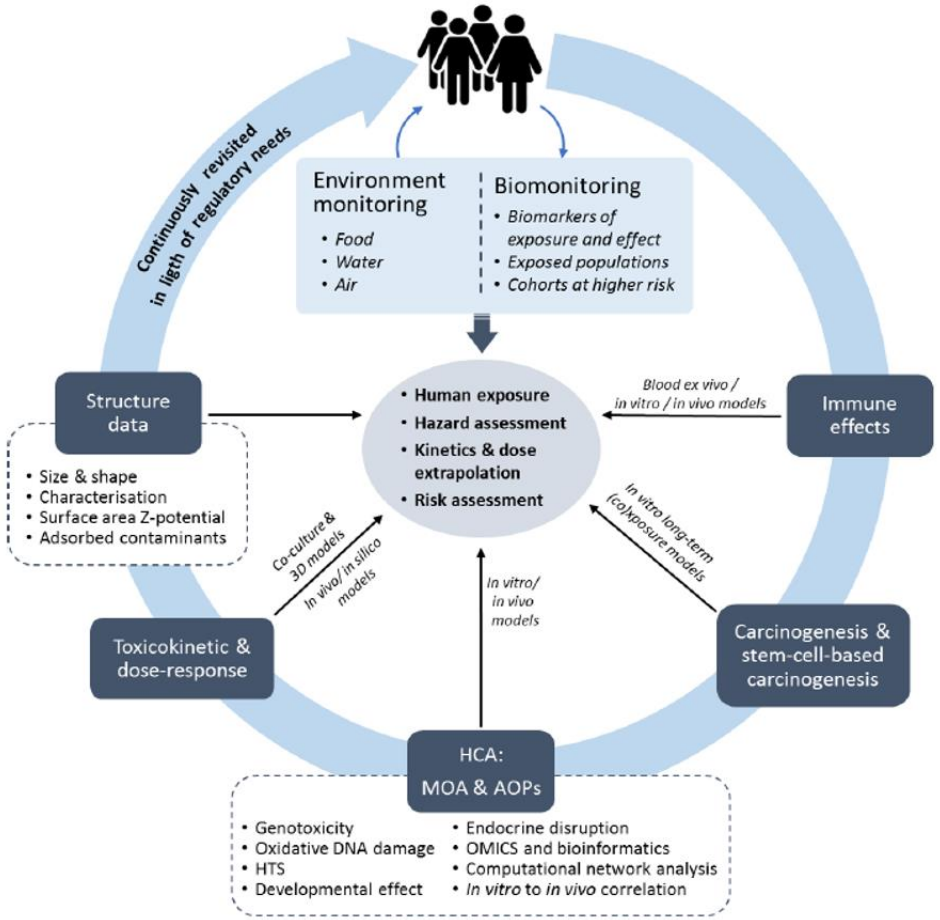
COLLABORATING IN RESEARCH ON MICRO- AND NANO PLASTICS & HEALTH

CUSP

CUSP is a consortium of five research initiatives bringing together 75 organizations from 21 countries.

Supported by the European Union, an interdisciplinary team of scientists, policymakers and civil society is collaborating in this large-scale effort to find out what effects micro- and nanoplastics may have on human health.

POLICY RELEVANT SCIENTIFIC DATA IN SUPPORT OF HUMAN HEALTH HAZARD AND RISK EVALUATION OF MNPS



CUSP WORKING GROUPS

Analytical methods & representative materials
Preparation and characterization of standardized samples, and analytical methods used in micro- and nanoplastics characterization.

Data-sharing
Managing data across CUSP projects to allow for efficient data findability, accessibility, interoperability and reusability.

Inter-laboratory comparisons
Harmonizing the process for accurate and comparable results on micro- and nanoplastics identification and quantification methods in an international framework.

Exposure assessment
Collaboration to advance external and internal exposure assessment of micro- and nanoplastics.

Hazard & Risk assessment
Generating scientific evidence on the hazards of micro- and nanoplastics for regulatory risk assessment purposes.

Communication & dissemination
Maximising and sustaining the visibility and impact of the CUSP projects among target audiences in support of the European Plastics and Bioeconomy Strategies at European and international levels.

CUSP

The European research cluster to understand the health impacts of micro- and nanoplastics

THANK YOU!

https://cusp-research.eu

hello@cusp-research.eu

These projects have received funding from the European Union's Horizon 2020 research and innovation program.

Land-based Solutions for Plastics in the Sea

LABPLAS

Dr. Ricardo Beiras

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

LABPLAS - 101003954

LABPLAS

LAND-BASED SOLUTIONS FOR PLASTICS IN THE SEA

June 2021-May 2025

https://cordis.europa.eu/project/id/101003954

Coord.: Prof. Ricardo Beiras *rbeiras@uvigo.gal*

LAND-BASED SOLUTIONS FOR PLASTICS IN THE SEA

"Excessive consumption of plastics, and the waste this generates, has a massive impact on the natural world and the marine environment in particular. […] ***if we are to avoid plastics ending up in the oceans, the solutions lie on land."***

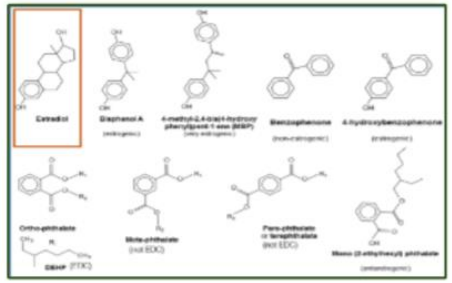
A. Abreu & M.L. Pedrotti
Field Action Science Reports 19, 2019

LABPLAS

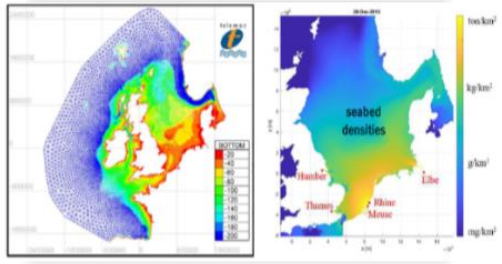
Horizon 2020
European Union Funding
for Research & Innovation

Project objectives

Develop **analytical technologies** for the quantification of SMNPs



Assess the aquatic and terrestrial environmental risk of plastics.



Promote truly biodegradable and non-toxic plastics.

Develop practical computational tools for mapping plastic-impacted hotspots.

Provide solid scientific grounds to current European policies intended for Plastics Governance

LABPLAS

Horizon 2020
European Union Funding
for Research & Innovation

Contribution to EU policies on biopolymers

Bio-based and biodegradable plastics are different concepts.

Biodegradable plastics will contribute to reduce plastics in the environment for those applications in which loss cannot be avoided, in combination with fighting littering.

BIOPLASTICS should be designed to minimize release of micro and nanoplastics.

BIOPASTICS should not carry toxic chemical additives.

KEY DELIVERABLE
related with the EU policy for bio-based and biodegradable plastics

D5.8. Recommendations concerning production, use and disposal of biodegradable polymers

(starts: 01.Nov.2023, estimated deliverable date: 30.Nov.2024, format: report)

LABPLAS

Horizon 2020
European Union Funding
for Research & Innovation

Insights

Certifications for biodegradable materials should be mandatory, and cover not only biodegradation but also non-toxicity.

Plastics should be included in initiatives for transparent communication on the composition of materials, e.g., the Digital Product Passport, Ecodesign for Sustainable Products Reg.

The presence of chemical additives should be regulated for specific applications (as already happening for food contact or toys).

Research should take into account size and chemical composition of plastics.

Plastic: a scientific 'non-concept', sensu Robert H. Peters (1991)
Try to test this proposition: "*animals are hazardous for humans*"

Research should take into account size and chemical composition of plastics.

Size: micro, macro, mega… (from nanoplastics to fishing gears…)

Composition: from innocuous virgin PE to highly estrogenic 30%-DEHP soft PVC

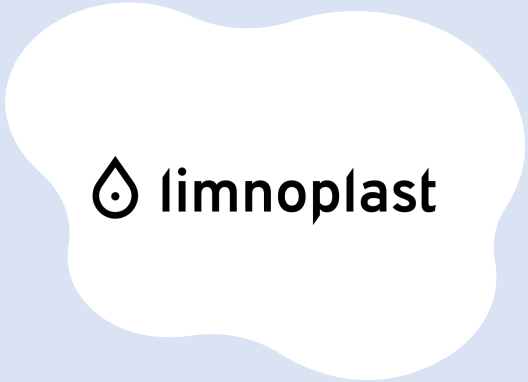
LABPLAS

Horizon 2020
European Union Funding
for Research & Innovation

Microplastics in Europe´s freshwater ecosystems: From sources to solutions

LimnoPlast

Dr. Elisabeth Rieger



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

LimnoPlast –

Microplastics in Europe's freshwater ecosystems: From sources to solutions

- DURATION: 01.11.2019 31.12.2023
- FUNDING: 4 Mio €
- COORDINATOR: University of Bayreuth, DE
- PARTNERS: 12 Beneficiaries (1 company /1 research /12 universities) – 15 PhD candidates, 13 Partner Organisations (4 companies / 6 agencies, NGOs, associations etc. / 3 universities)
- OBJECTIVES:
  - Train the next generation of scientists to tackle complex environmental issues
  - Provide the first comprehensive assessment of the sources, pathways and impacts of freshwater MP
  - Innovate technological solutions to the plastics issue
  - Evaluate the social and ecological impacts of freshwater MP, recommend intervention options
  - Transform the scientific knowledge generated by LimnoPlast into guidance on specific solutions
  - Enable and promote action on freshwater MP

DELIVERABLES

- **Legal framework of freshwater MP: 10’22**
  The **report** will provide an evaluation of the legal framework relevant for freshwater MP on an international and European level including global and regional instruments. This will include an analysis of the legal content, nature of legal force, and potential regulatory gaps.
- **Assessment report of freshwater MP: 10’22**
  The **report** will discuss and prioritize different methodologies to holistically assess socio-ecologic and economic impacts of freshwater MP. It will discuss the applicability of the approach to regions (in particular the case study areas), companies, products and consumer behavior. Based on these findings we will propose a **policy framework** how to achieve a wide implementation of MP-assessment (e. g. in norms, regulations, labels, webtools etc.).
- **Recommendation on political and legal intervention options: 04’23**
  This policy brief will – based on the key outputs of LimnoPlast – provide **recommendations** on specific policy and legal intervention options.

Plastics Fate and Effects in the human body

PlasticFatE

Dr. Rudolf Reuther

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

”PlasticsFatE”: Plastics Fate and Effects in the human body

Consortium: 28 partners from 11 European countries

- 7 private-public research organizations (ISTEC-CNR, CSIC, ITENE, UFZ, FHG, IGB, GAIKER),
- 4 national governmental agencies (STAMI, BAM, NRCWE, UBA),
- 2 medical research centers (UMCU, FAU),
- 9 universities (WFSR, ULEIDEN, UL, BOKU, UBT, UNITO, URTV, UP, NTUA),
- 5 SMEs (ENAS, ERS, INNOSIEVE DIAGNOSTICS, OPTIMAT, DECHEMA),
- and 1 large company (ECAMRICERT)

Management team

- Scientific coordination: Rudolf Reuther, ENAS (DE)
- Project coordination: Mark Morrison, OPTIMAT (UK)
- Project management: Nadine Bresch, ERS (DE)
- Dissemination management: Lesley Tobey, OPTIMAT (UK)
- Data management: Damjana Drobne, UL (SI)

Duration: 1 April 2021 – March 2025

Budget: 6 million EUR

Advisory Board:

- Philip Demokritou, Harvard School of Public Health, Boston (USA)
- Tobias Stöger, Helmholtz Zentrum (DE)
- Thava Palanisami, University of Newcastle (AUS)
- Chunying Chen, Chinese Academy of Science (CAS) (PRC)
- Antoine Ghanem, Solvay (BE)
- Peter Krüger, Covestro Deutschland AG (DE)
- Hans Schweisfurth, IPR Cottbus (DE) (ethical advisor)

Main objective:

- To improve our present understanding of fate and effects of micro- and nano-plastics (MNP) and associated additives/adsorbed contaminants (A/C) in the human body

Specific objectives:

- Develop a panel of well characterized MNP **test and reference materials**
- **Establish validated methods for measuring MNP + A/C in complex matrices**
- Assessing **exposure levels/sources** (food, drinking water, air, human tissue, blood, faeces, urine, mucus, personal care products) and the **fate** of MNP + A/C in the human body
- Develop in **vitro/in vivo models + biomarkers** to study **effects** of MNP + A/C in humans
- Generate **integrated human risk assessment and management strategy** for MNP
- **Demonstrate feasibility** of established methodologies (case studies)
- Contribute to relevant **EU policies, strategies** and **international method standardization and harmonization**

Policy relevant PlasticsFatE and joint CUSP deliverables

D6.3 Review of current regulation, and market and policy (UBA) (M6)

D6.4 Annual training workshops based on new knowledge generated within the project (DECHEMA) (M12, M24, M36, M48)

D6.5 Regular events to present and discuss project output and help shape future activities with external stakeholders (OTIMAT) (M45)

D6.6 Recommendations to policymakers for future strategy on Plastics and the Bioeconomy (DECHEMA) (M48)

D6.7 stakeholder roundtables (DECHEMA) (M46)

D6.8 Formulated recommendations for standards and regulations, and guidelines for their use

D7.7 Joint policy briefs 1 (OPTIMAT) (M18)

D7.8 Joint policy briefs 2 (OPTIMAT) (M36)

D7.9 Joint policy briefs 3 (OPTIMAT) (M48)

FINAL contribution of PlasticsFatE and CUSP to relevant EU policies:

Recommendations given to policy makers based on newly generated scientific human exposure, fate and effects data for micro- and nano-plastics (MNP) reduce, limit or ban production, application, consumption, disposal of harmful plastics and of MNP down to an absolutely necessary level!

PlasticsFatE / CUSP will provide new reliable scientific data on:

- current **exposure, sources/sinks and levels of MNP** in food, drinking water, air (indoor/outdoor, inhaled), PCP, human tissues and excretions, and biota relevant for human diet (fish, seafood, vegetables)
- **human health effects** (cyto-/geno-toxic and immunological effects) from a variety of occupational and environmental settings (plastics manufacturing, use and recycling, waste water treatment, FFF 3D printing)

PlasticsFatE / CUSP will contribute to the:

- **EU Strategy for Plastics** as part of the EU's Circular **Economy Action Plan**, in particular to (1) measures to restrict the use of microplastics in products and address and reduce the unintentional release of microplastics into the environment, (2) on bio-based, biodegradable and compostable plastics (see PLA), and to trace and remove hazardous substances and contaminants from recycled plastics
- **European Green Deal** and in particular the **zero pollution action plan**
- **Chemicals Strategy for Sustainability**
- **EU "Strategic Research and Innovation Plan** (SRIP) for safe and sustainable chemicals and materials" (in preparation with consultation open)
- EU **REACH** chemicals legislation
- Revision of relevant directives, such as the **EU drinking water directive**

… dedicated **stakeholder workshops**, **roundtables**, **policy briefs**, **peer-reviewed publications**, **conference presentations**, **social media** etc.

Thank you for your attention

PlasticsFatE

www.plasticsfate.eu

hello@plasticsfate.eu

@plasticsfate

www.linkedin.com/groups/12519441

BIO PLASTICS EUROPE

Horizon 2020

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

PlasticsFatE has received funding from the European Union's Horizon 2020 Research and Innovation programme, under the Grant Agreement number 965367

HAW HAMBURG

BIO-BASED PLASTICS

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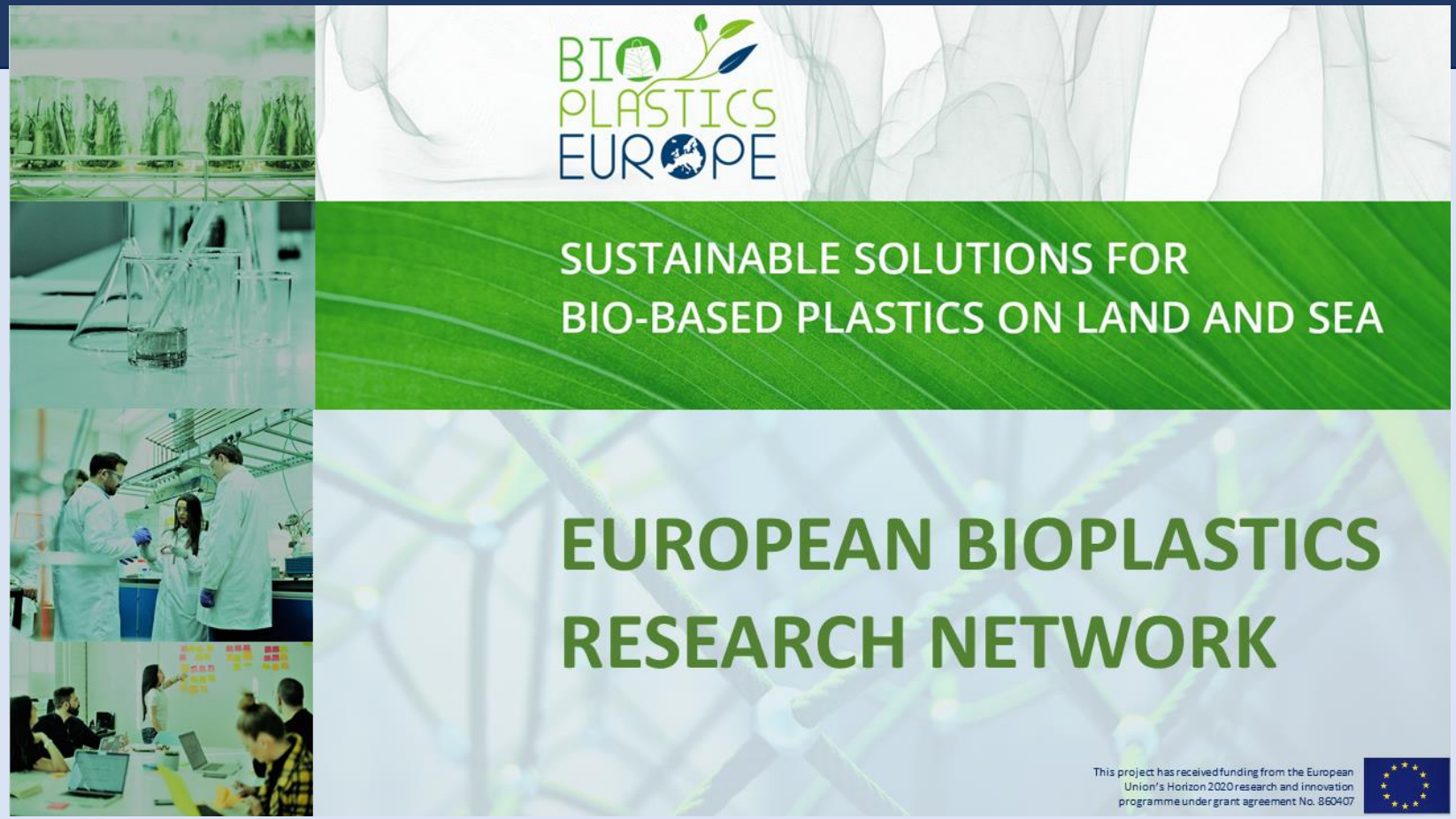
European Bioplastics Research Network

EBRN

Dr. Jelena Barbir

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.



Aim: foster and exchange information about bio-based plastics among stakeholders and researchers

5 events held!
6th EBRN event:
TODAY

TARGET MEMBERS

Scientific communities
Policy makers
Producers and Consumers
General public

LinkedIn: over 690 members
Preparing events
Foster communication
Share experience

Working in collaboration WITH OVER 30 projects!

European Bioeconomy Network

EuBioNet

Susanna Albertini

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

European Bioeconomy Network - EuBioNet

The EuBioNet is an alliance of 108 **EU funded projects and initiatives** dealing with Bioeconomy promotion, communication and support.
The main goal of the European Bioeconomy Network is to **maximise the efforts, increasing the knowledge sharing, networking, mutual learning, coordination of joint activities and events.**

THE EUROPEAN BIOECONOMY NETWORK
WWW.EUBIONET.EU

Contribution of the initiative to the EU policies

More than 400 collaborations among projects and initiatives were facilitated by EuBioNet form 2018.

All these activities generate positive **impacts for the projects and the innovation ecosystem for the bioeconomy.**

This **systemic approach** consolidated the **EuBioNet central role** in stimulating the debate and delivering contents to increase its effectiveness in contributing to the transition towards the circular bioeconomy in Europe.

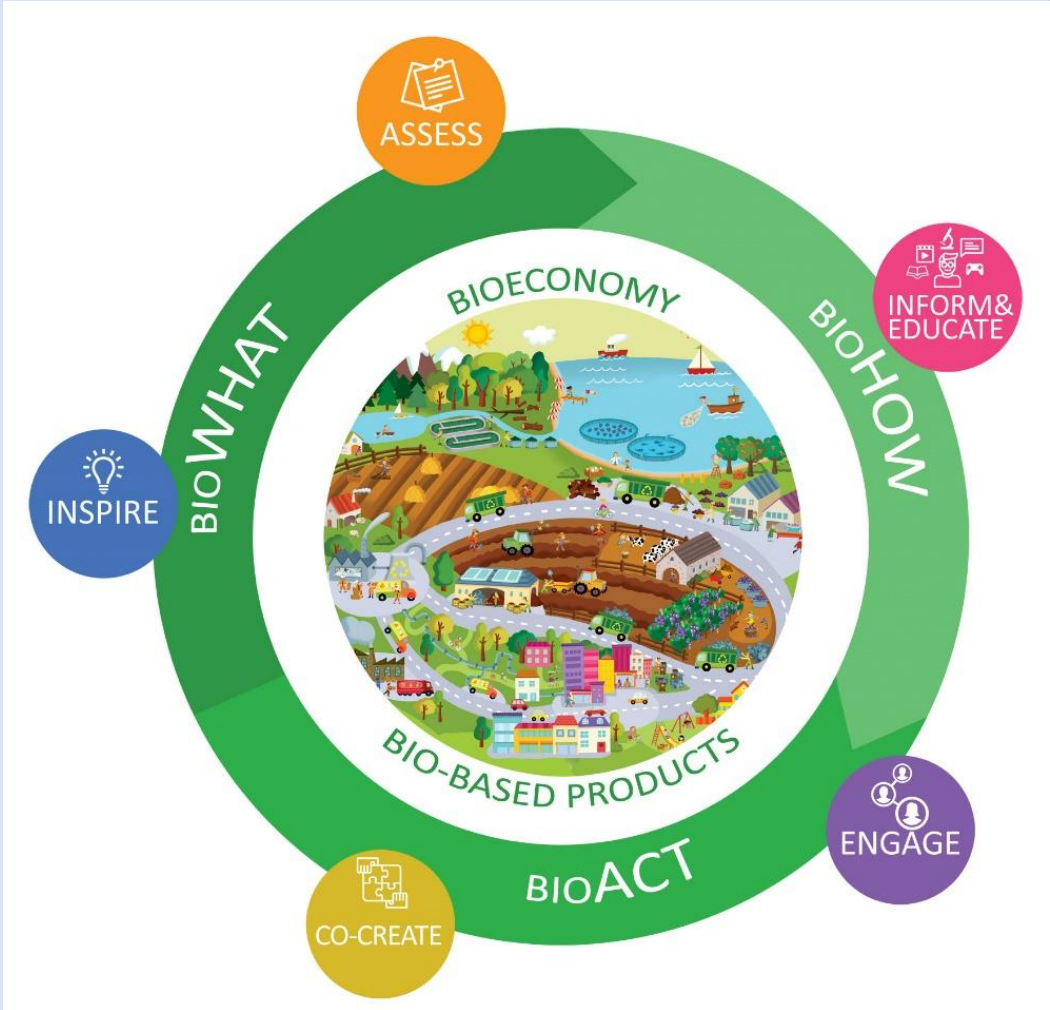
Contribution of the initiative to the EU policies

EuBioNet:

- Bridges EU funded **projects and their outcomes with the stakeholders**, including civil society and policymakers, **encouraging wide diffusion, exploitation and adoption**

- **Connects project and initiatives at multiple levels** (European, National and local level). Case study: Transition2Bio capacity building for regional actors “how to communicate the bioeconomy” deployed with GoDanubio, Be-Rural and BIOEAST initiatives, empowering around 50 regional bioeconomy ecosystem enablers.

- Facilitates **replication of good practices, methodologies, contents and tools about communication and stakeholders’ engagement**, with a special focus on the civil society (through projects like Transition2Bio, AllThings.BioPro, GenB, BioGov.net, BIOVOICES, etc.)



Developing and Implementing Sustainability-based Solutions for Bio-based Plastic Production and Use to Preserve Land and Sea Environmental Quality in Europe

BIO-PLASTICS EUROPE

Dr. Carly Fletcher

Horizon 2020

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

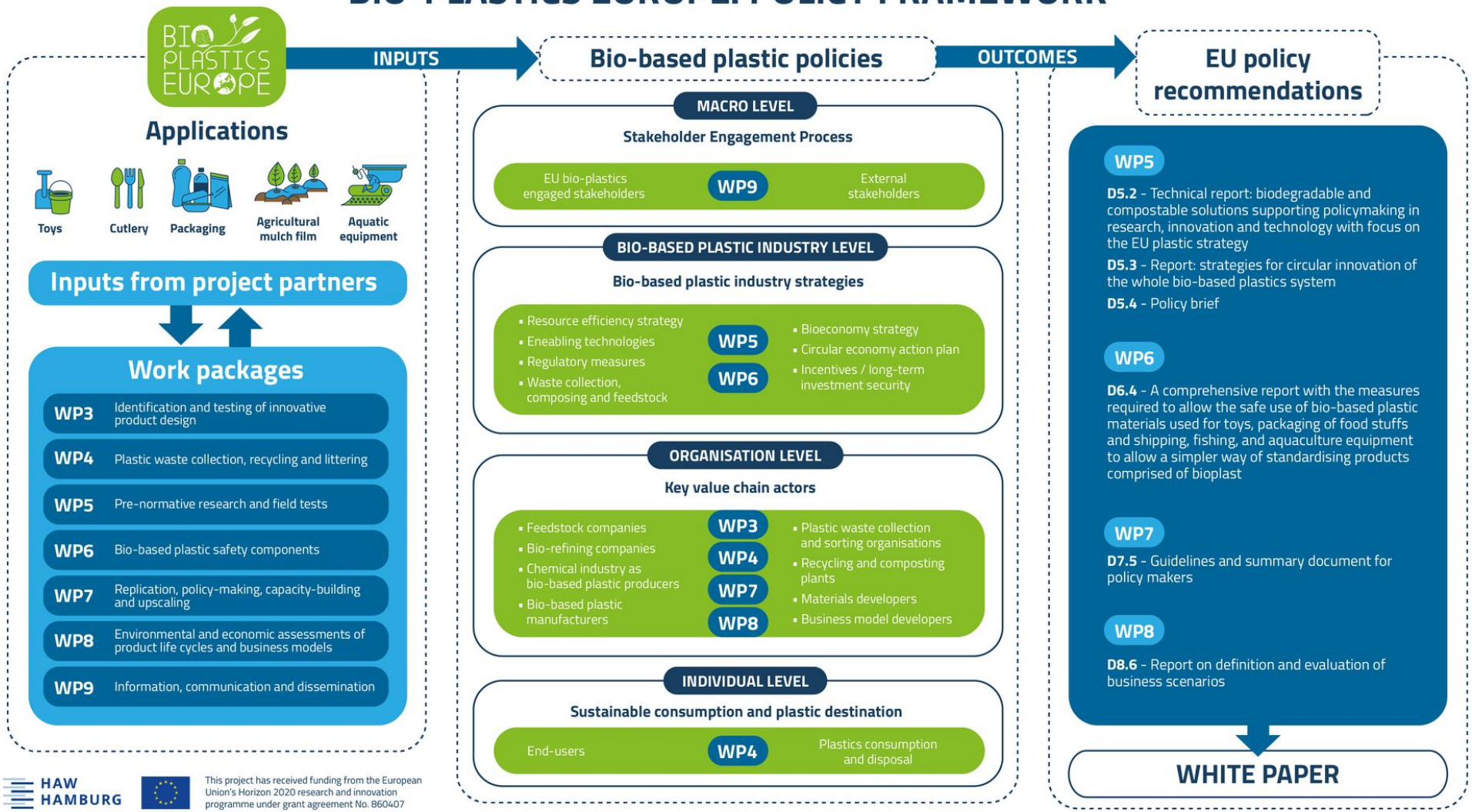
DEVELOPING AND IMPLEMENTING SUSTAINABILITY-BASED SOLUTIONS FOR BIO-BASED PLASTIC PRODUCTION AND USE TO PRESERVE LAND AND SEA ENVIRONMENTAL QUALITY IN EUROPE

- BIO-PLASTICS EUROPE (BPE)
- 48MONTHS: OCTOBER 2019 – SEPTEMBER 2023
- 8.5M Euros: European Union's Horizon 2020 research and innovation programme under grant agreement No.860407.
- HAMBURG UNIVERSITY OF APPLIED SCIENCES

  (Prof. Walter Leal, Dr. Jelena Barbir, and the HAW team)
- INTERNATIONAL CONSORTIUM of 22 partners from 13 countries (EU, UK and Malaysia). **3 companies: 10 research : 9 universities**

OUR VISION: Sustainable bio-based plastics for circular economy: turning knowledge into practice through technical, policy and business-model innovations.

BIO-PLASTICS EUROPE: POLICY FRAMEWORK



HAW HAMBURG

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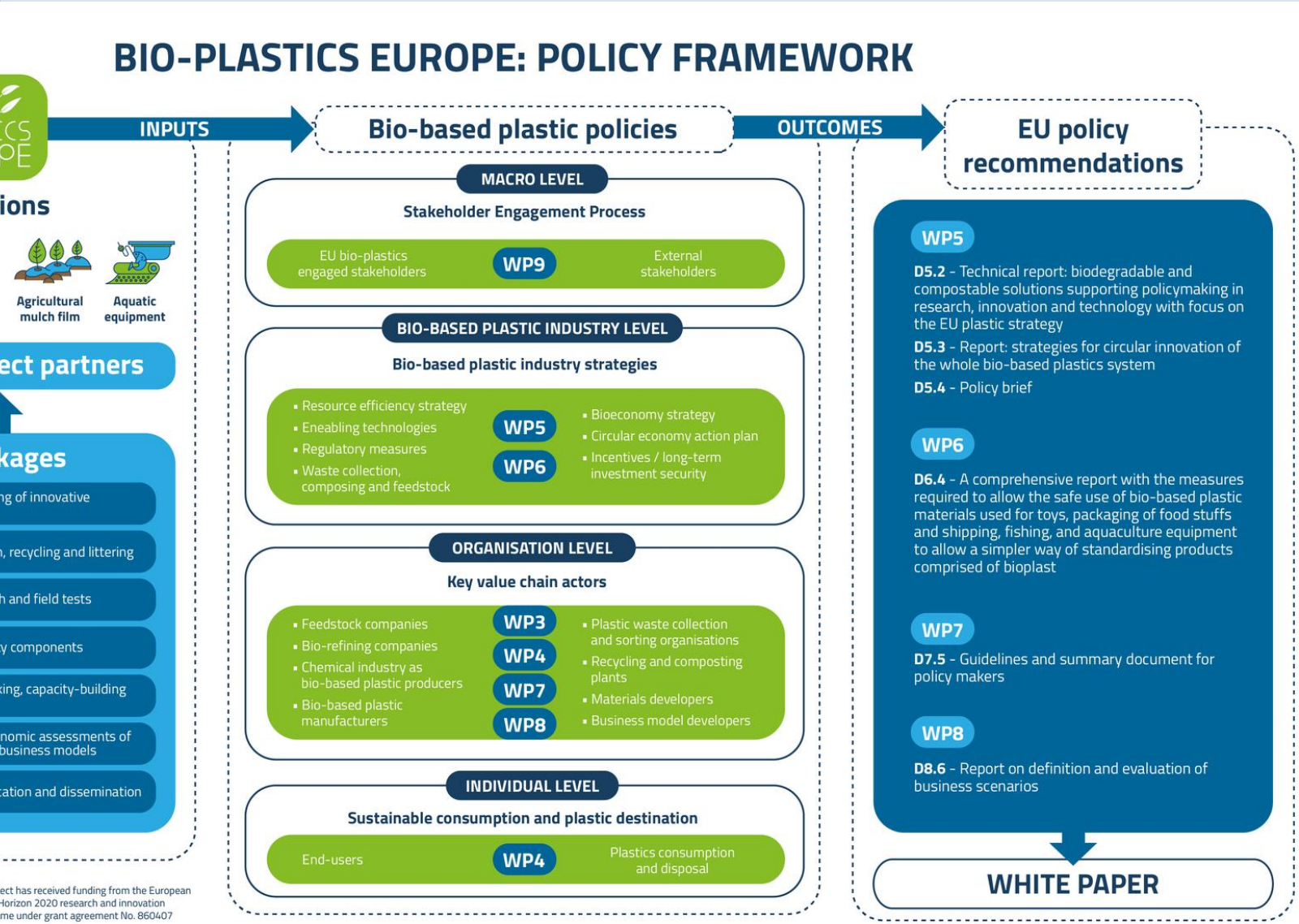


Final format and timeline of recommendations:

D5.2: Report - Due July 2023 - Confidential

D5.3: Report - Due July 2023 - Public

D5.4: Report - Due Sept. 2023 – Public

- Newsletters, webinars, press releases and workshops

D6.4: Report - Due January 2023 - Confidential

D7.5: Report - Due Sept. 2023 - Confidential

D8.6: Report - Due March 2023 - Confidential

White Paper - Due Sept. 2023 - Public

Strategies of circular Economy and Advanced bio-based solutions to keep our Lands and seas alive from plastics contamination

SEALIVE

Dr. Andrew Farmer

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

Strategies of circular Economy and Advanced bio-based solutions to keep our Lands and seas alIVE from plastics contamination

- Duration: Oct 2019 – Sept 2023 (possible extension to March 2024)
- Funding: H2020: Innovation Action
- Leader: Instituto Tecnologico Del Embalaje, Transporte Y Logistica (ITENE), Valencia
- 24 partners + 5 linked third parties in 13 countries (10 SMEs, 2 Universities, 4 Research and Technology Organizations, 3 Non-Profit Organization and 4 large companies)
- Aims to reduce plastic waste and contamination on land and in seas by boosting the use of biomaterials and contributing to the circular economy with cohesive bio-plastic strategies. Specific objectives:
  - Develop new bio-based plastics using sustainable biomass sources and efficient processing technologies.
  - Optimize sustainable business models and product design strategies.
  - Improve bioplastic sorting technologies and procedures at end-of-life.
  - Foster standardization of biodegradable solutions.
  - Promote the use of the new solutions by plastics industry, authorities and citizens.
  - Support the development of European and global policies.

DELIVERABLES

- Outputs on policy concern EU and international. Formal deliverables as public reports:
  - Conclusions on European and International Policies – February 2022
  - Recommendations on European policies – Sept 2023
  - Recommendations on international policies – Sept 2023

- Also briefings on policy issues as we go along. Coming soon to SEALIVE website:
  - Future proofing of EU policy for new materials
  - Taking a strategic approach to litter
  - The relationship between the bioeconomy and circular economy
  - More…

FINAL contribution of the project to the EU policies

- In reports and briefings.
- Aim for clear conclusions to help formulate policy, e.g:
  - Clear definitions are essential – for many reasons!
  - Standards for content, behaviour in the environment important.
  - While material circularity is a priority, to have the same aims for bio-based and non-biobased materials ignores the nature of the bioeconomy
  - If biodegradables do not meet a standard, policy should not ban their use, but set the standard – so innovation can occur AND policy does not become obsolete
  - Evidence-based policy is essential – e.g. some statements on tackling plastic litter seem to be based on faith rather than evidence
  - Consumer behaviour is often critical – real world use of materials can upset expectations!

Plastic in Agricultural Production: Impacts, Lifecycles, and Long-term Sustainability

PAPILLONS

Dr. Anne Deininger

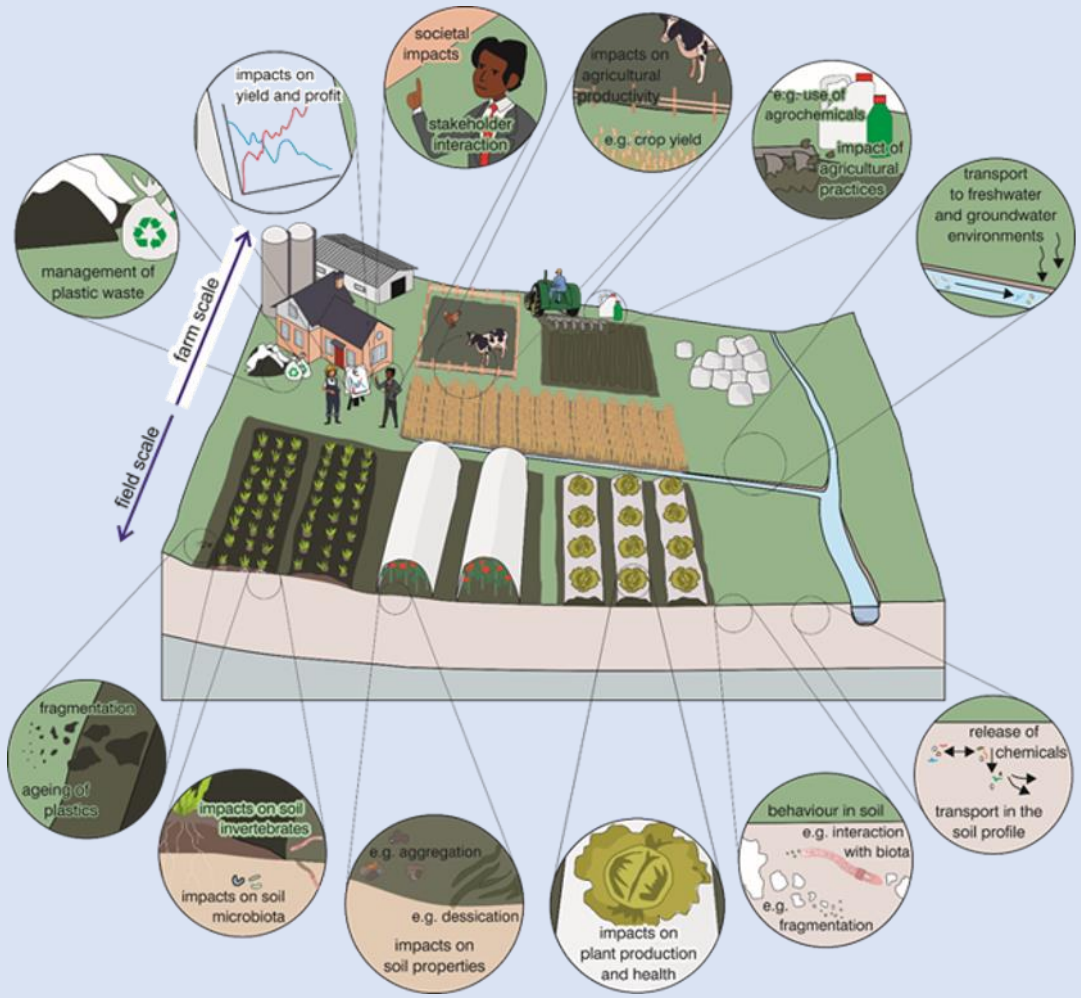
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

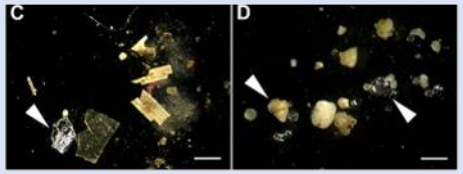
Plastic in Agricultural Production: Impacts, Lifecycles, and LONg-term Sustainability

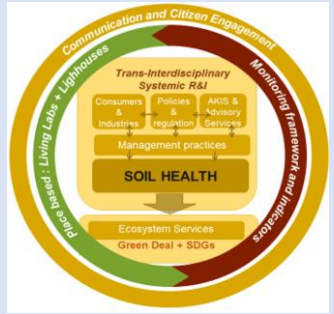
- H2020 Research and Innovation Action
- Funded under the topic: SFS-21-2020 Emerging challenges for soil management [B] Use of plastic in agriculture
- June 2021 – May 2025 (48 months)
- 20 partners from 12 countries
- Coordinated by Norwegian Institute for Water Research (NIVA)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 101000210.

DELIVERABLES







This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 101000210.

MULTI-Actor approach

Engagement / Communication via:

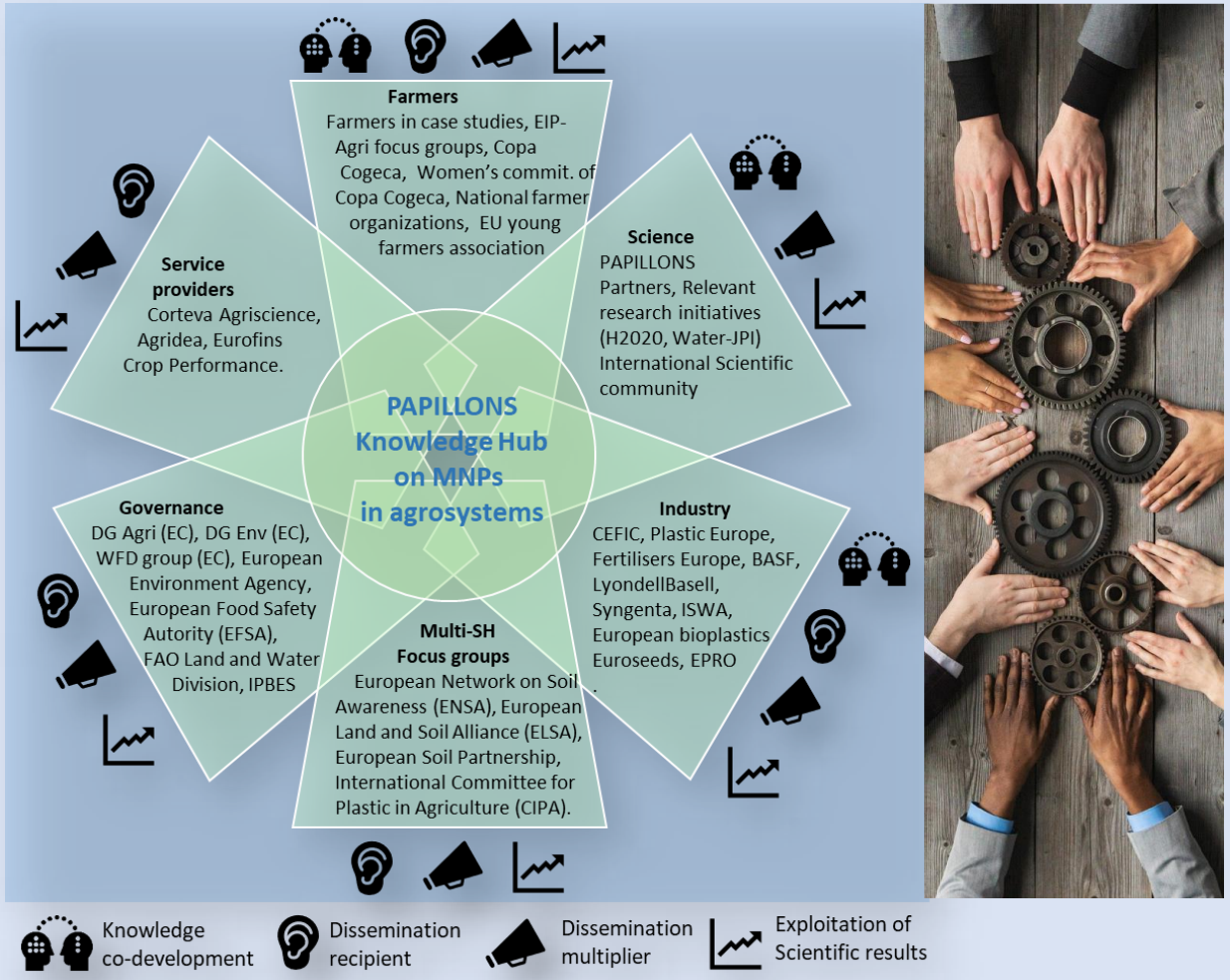
https://www.papillons-h2020.eu/

PAPILLONS | MINAGRIS Stakeholder forum (biannual)

Papillons Horizon 2020

@Papillons_Ue

Dr. Anne Deininger
Norwegian Institute for Water Research
Project Manager



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 101000210.

Upcycling Bio Plastics of food and drinks packaging

UpLift

Dr. Alberto Barranca Jiménez

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

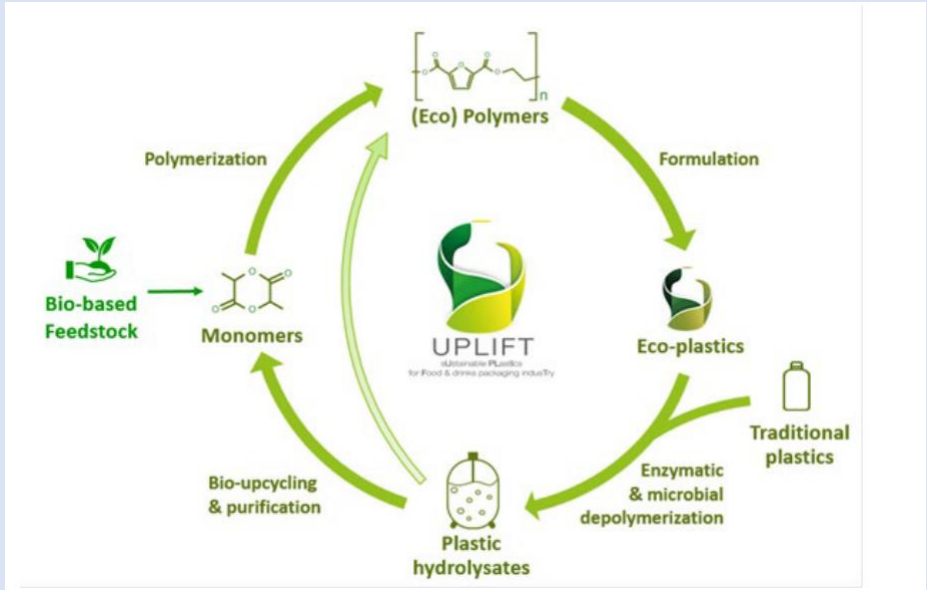
UpLift: Upcycling Bio Plastics of food and drinks packaging

Coordinator: Cristiano Varrone
Partners: 15 partners (4 universities, 2 research institutes and 9 companies)
Total duration: 48 months
Funding: European Union's Horizon 2020

The **main objective** of UPLIFT is the development of a circular plastic packaging value chain in the F&D sector by applying novel eco-design strategies and biochemical upcycling technology routes

1. To combine bio-depolymerization of plastics and bio-based building blocks to obtain smarter and renewable plastic materials, which will enable the effective upcycling of plastic packaging waste streams

2. To fully integrate the bio-chemical upcycling technologies within already existing and more mature recycling processes and fermentation processes. All these prototype materials and processes will be tested in a relevant operational scale close to expected performance (TRL 6)



DELIVERABLES

Deliverable 1. Analysis of plastic value chain

Deliverable 2. Market assessment report

Deliverable 3. A preliminary process design & economic evaluation with KPI's

Deliverable 4. Short list of main products & value chains as future options to apply the UPLIFT technologies and approach of cascading

Deliverable 5. Position paper with recommendations for policy makers

Deliverable 6. Proposals for standardization of UPLIFT processes and materials

FINAL contribution of the project to the EU policies

Challenges that UpLift can meet

- **Clarification** of **theoretical aspects**:

  i) **definition** of biological/microbiological/enzymatic recycling

  ii) **distinction** between **chemical and biological recycling**

- Characteristics of microorganism, genetic modifications…
- Minimum recycled content in biological recycling: **legislative action**
- Tax deduction in biological recycling: **legislative action**
- National government and Industrial support

FINAL contribution of the project to the EU policies

Importance of collaboration with other European Projects

FINAL contribution of the project to the EU policies

3 main actions

Action 1
Engaging companies

Action 2
Involve and initiate the work of the different committees

Action 3
Workshop agrement

Upcycling of PE and PET wastes to generate biodegradable bioplastics for food and drink packaging

upPE-T

Aleksandra Brankovic

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

Project “Upcycling of PE and PET wastes to generate biodegradable bioplastics for food and drink packaging - **upPE-T”**

- Duration 48 months (Nov-2020 until Oct-2024)
- EUR 7.8 million
- Coordinated by CETEC (Spain)
- 20 partners from 10 countries, including 5 universities, 4 RTOs, 7 SMEs, 1 standardisation organisation, 1 large enterprise, 1 municipality, 1 consumers organisation
- Main objective is to demonstrate the technical feasibility of the enzymatic depolymerisation of PET and PE wastes, and of the subsequent use of resulting products for the production of PHBV products

DELIVERABLES - related to policy work

- Overview of the EU regulatory framework related to the upPE-T solutions. Two reports envisaged (Oct 2022 and Oct 2023), public dissemination.
- LCA is being used for assessing environmental impacts associated with all the stages of the life-cycle of upPE-T end products and processes. Four reports on analysis and impact assessment (Oct 2021, Oct 2022, Oct 2023, Oct 2024), not publicly disseminated.
- Analysis of policies related to the recycling of food and beverage plastic packaging in selected EU Member and candidate countries. Four deliverables, not publicly disseminated: country reports (Oct 2021, Oct 2022, Oct 2023) and a comparative report (Oct 2024).
- Policy recommendations (Oct 2024) will be created based on the results of the analysis of EU regulatory framework and country-specific policies, coupled with LCSA based assessments; public dissemination.
- Standardization reports (public, Apr 2021, Oct 2021, Oct 2022, Oct 2023, Oct 2024). They provide overview of published standards and standards that are being developed; in later phases it is expected that the project outcomes would contribute to the development of new standards.

upPE-T

FINAL contribution of the project to the EU policies

- It is planned to provide evidence-based recommendations to enhance regulatory framework for upPE-T solutions and tools at the EU level (policy recommendations, to be delivered in Oct 2024). Participation of partners from sister projects in drawing final recommendations could be considered.
- It is expected that the project results would contribute to the development of new standards at the EU level, by providing evidence-based recommendations to standard development organisations.
- Recommendations resulting from the comparative study (to be delivered by Oct 2024), could inform and influence policies at the country level, in particular to enhance the separate collection of post-consumer food and beverage plastic packaging.

  In addition to this, the identification and assessment of possible gender-related and distributive effects would inform the public debate in these areas.

Circular Solutions for the textile Industry

GLAUKOS

Dr. Zsófia Kádár

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

Glaukos project

- Circular solutions for the textile industry
- Glaukos

- 01/06/2020 – 31/05/2024
- BBI JU (H2020) No 887711
- Bio Base Europe Pilot Plant (Belgium)
- 14 partners: 3 RTOs, 9 SMEs, 2 Large Companies
- Glaukos aims to develop eco-friendly textiles for the fishing gear and clothing industry. The ambition is to redesign the complete life cycle of bio-based fibers and coatings to significantly reduce the carbon and plastic footprint and to mitigate microplastic pollution.

This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 887711. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

DELIVERABLES

- Engage stakeholders across the textile industry by:
  - Setting up Stakeholder Labs for the clothing and fishing gear industry in order to facilitate the interaction between consortium and all relevant stakeholders as regards to end-user requirements, **policy**, etc.

D2.4 Report on Stakeholder Labs set-up/operation 1 – available on Glaukos web page

D2.5 Report on Stakeholder Labs set-up/operation 2 – due to August 2022

D2.6 Report on Stakeholder Labs set-up/operation 3 – due to April 2024

D6.1 Standardized methods – Public

D2.3 Report on market studies – Public (on potential application of bio-based yarns for Fishing Ropes/nets and Agricultural application & on Materials Used in the Textile and Sport Industry)

Contribution of the project to the EU policies

Glaukos **Stakeholders Labs Workshop** aiming at

- **Stimulating multistakeholder debate** with regards to unintentionally released microplastics in 2 specific applications: **textiles and coating**, with a special focus on the **fishing gears and clothing sectors**.
- Identify **what challenges should be addressed**, facilitating **systemic approach** involving all the responsible stakeholders
- Discuss **how biodegradable and bio-based solutions can address microplastic pollution** along the lifecycle stages of textiles and coatings.
- Promote **knowledge and solutions awareness and transfer** to relevant actors in society (including policy makers and ecosystem facilitators)

Contribution of the project to the EU policies

Glaukos Stakeholders Labs Workshop approach:

- Introductory talks to **set the scene from different perspectives**:
  - Framing the problem
  - Framing the political scene
  - Framing the business perspective
  - Framing the market scene
  - The role of awareness and education
- **Thematic sessions** (inspirational talks + multistakeholder facilitated debate) **along the life cycles**:
  - **Safe and sustainable by design** (feedstock, chemical design, type of yarn, garment production, pre-wash cycles after production, coating)
  - **Purchase and Usage** (wear and tear, washing and drying, eco-labelling, traceability and transparency)
  - **End-of-Life** (biodegradability in different environments, eco-toxicity, recyclability of bio-based solutions, unintentional and mismanaged disposal of plastics, measurements and metrics, standardisation)

The results will be consolidated in a report and delivered to inform parallel projects, stakeholder and policies

Agenda, recording and report are available here

Novel packaging films and textiles with tailored end of life and performance based on bio-based copolymers and coatings

BIONTOP

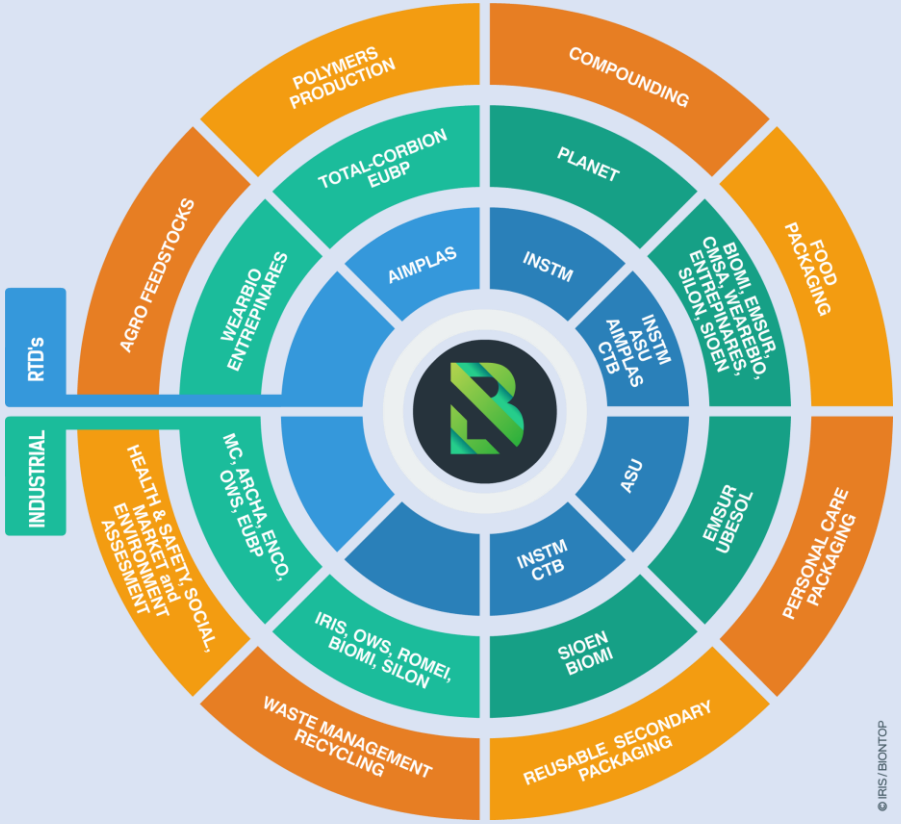
Dr. Maria Beatrice Coltelli

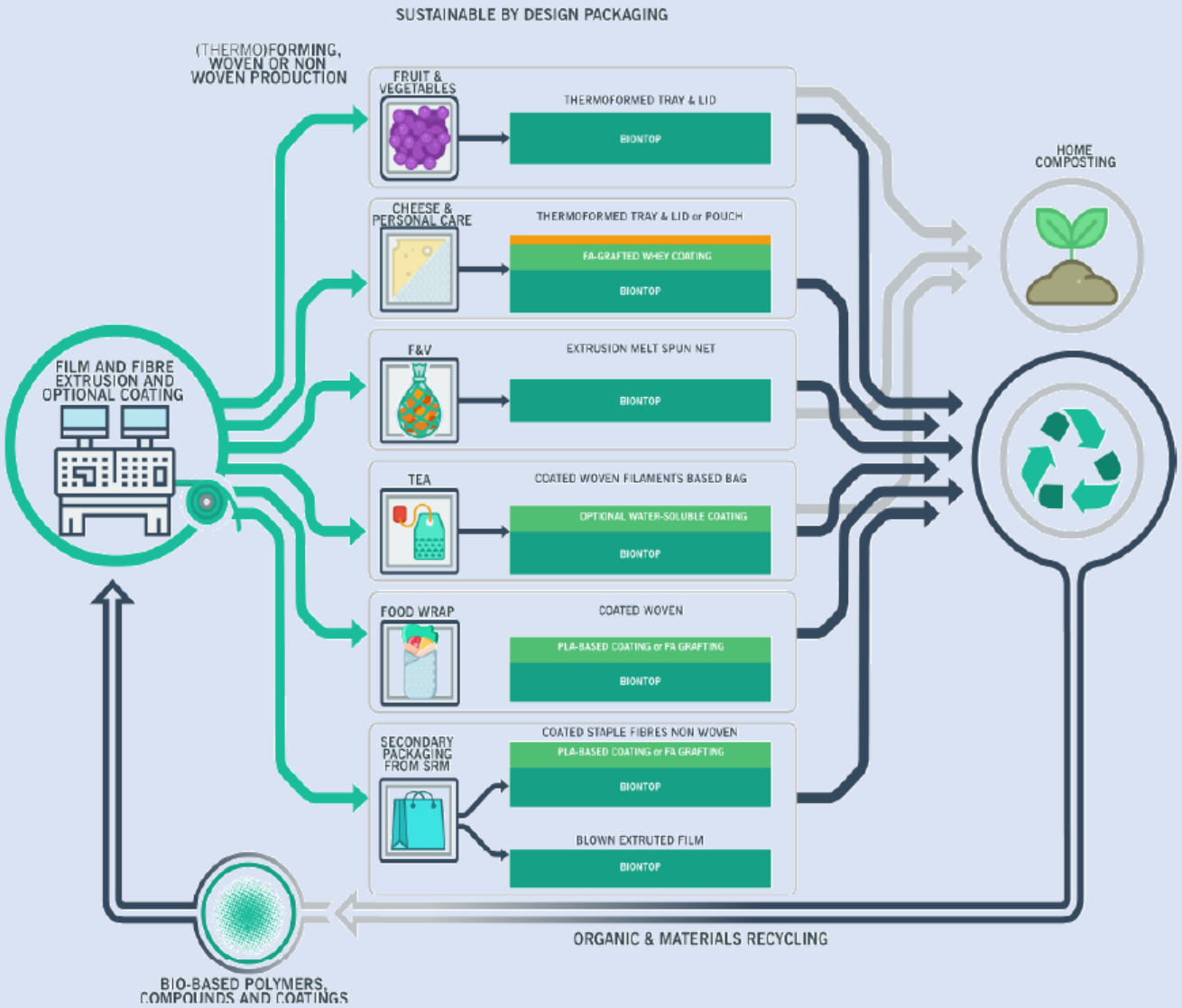
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

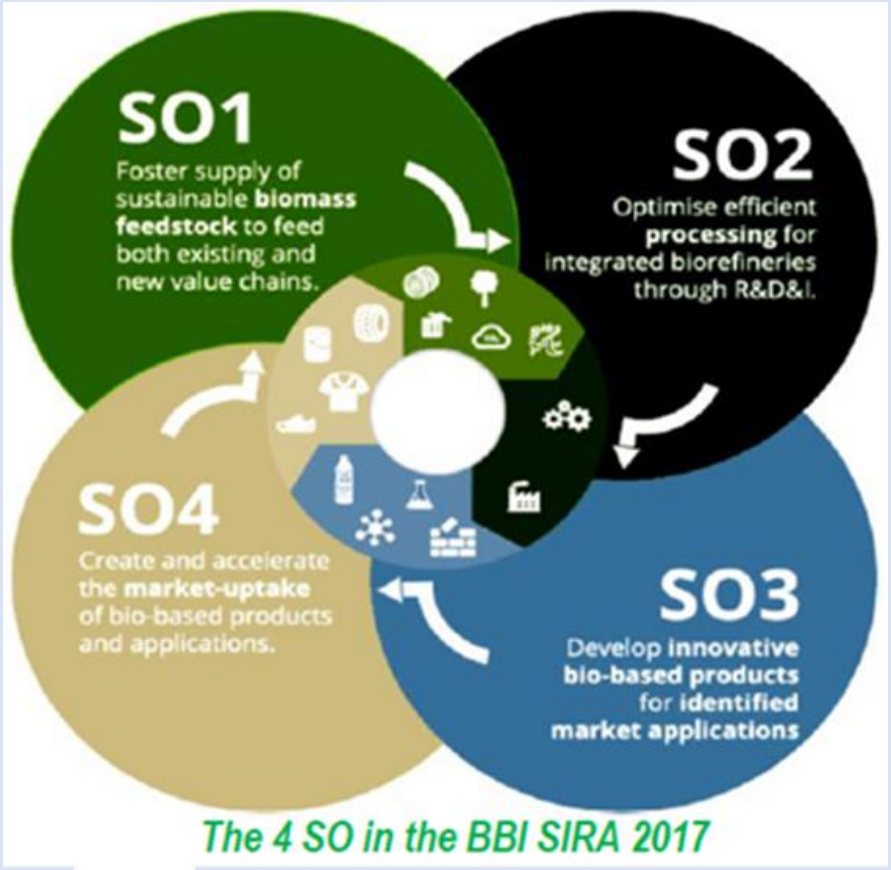
Novel packaging films and textiles with tailored end of life and performance based on bio-based copolymers and coatings

Maria-Beatrice Coltelli, INSTM c/o University of Pisa:
maria.beatrice.coltelli@unipi.it

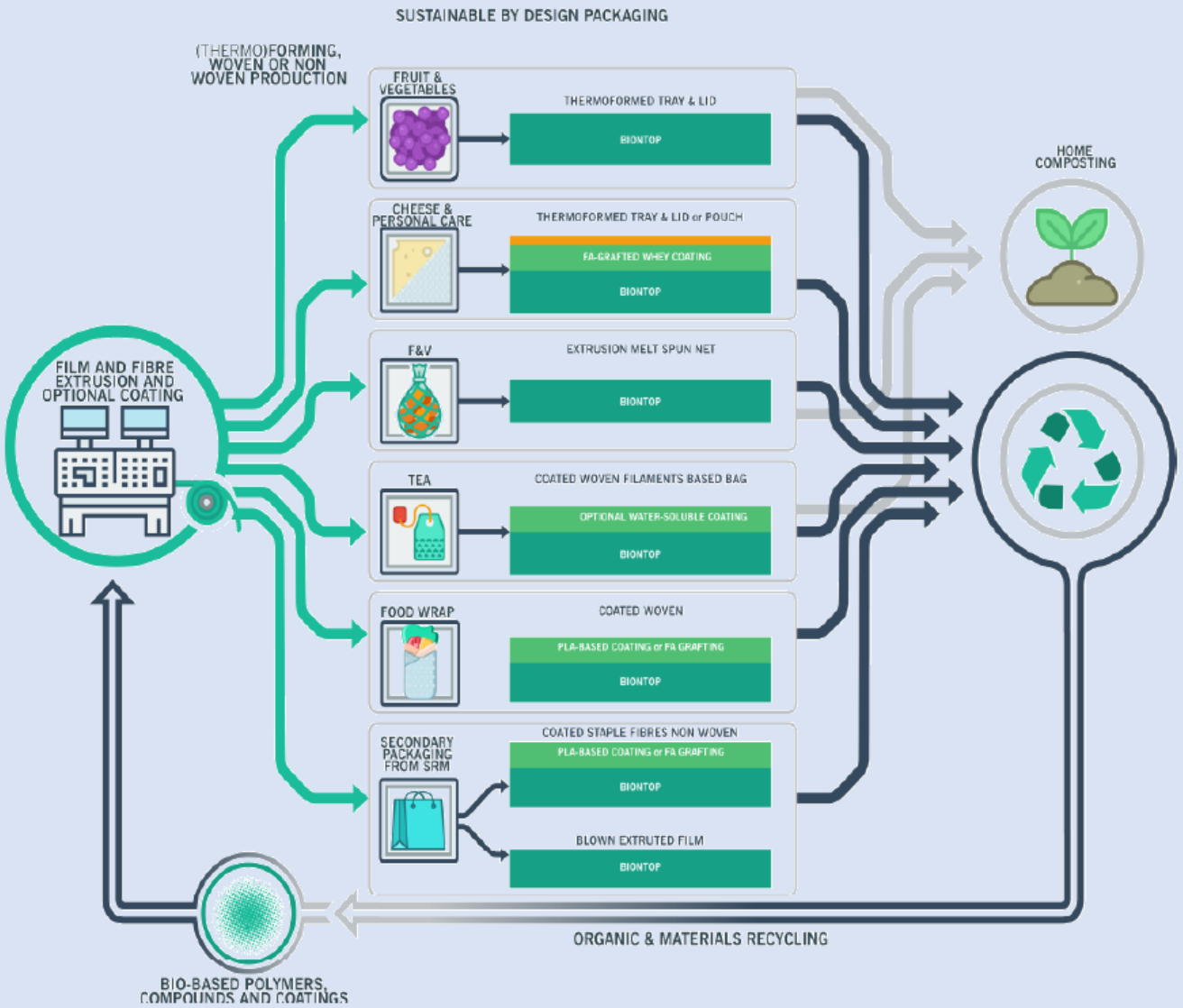
- DURATION of the project: 48 months; currently at M36
- FUNDING: **H2020-BBI-JTI-2018, GA 837761**
- COORDINATOR : AIMPLAS
- PARTNERS – 21 from 8 countries: 4RTO, 9SME, 6 large companies and 1 pan EU industry association (**European Bioplastics**)




SUSTAINABLE BY DESIGN PACKAGING
(THERMO)FORMING, WOVEN OR NON WOVEN PRODUCTION
FILM AND FIBRE EXTRUSION AND OPTIONAL COATING
FRUIT & VEGETABLES
THERMOFORMED TRAY & LID
BIONTOP
CHEESE & PERSONAL CARE
THERMOFORMED TRAY & LID or POUCH
FA-GRAFTED WHEY COATING
BIONTOP
F&V
EXTRUSION MELT SPUN NET
BIONTOP
TEA
COATED WOVEN FILAMENTS BASED BAG
OPTIONAL WATER-SOLUBLE COATING
BIONTOP
FOOD WRAP
COATED WOVEN
PLA-BASED COATING or FA GRAFTING
BIONTOP
SECONDARY PACKAGING FROM SRM
COATED STAPLE FIBRES NON WOVEN
PLA-BASED COATING or FA GRAFTING
BIONTOP
BLOWN EXTRUTED FILM
BIONTOP
HOME COMPOSTING
ORGANIC & MATERIALS RECYCLING
BIO-BASED POLYMERS, COMPOUNDS AND COATINGS

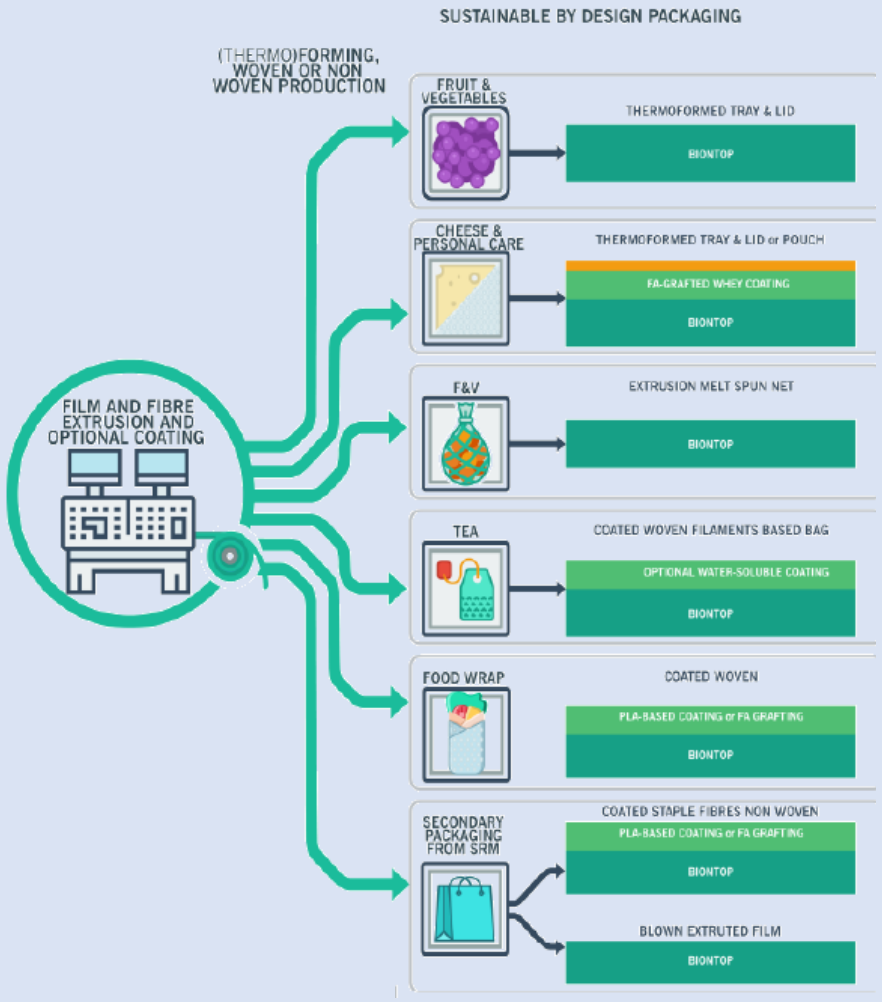

SO1
Foster supply of sustainable biomass feedstock to feed both existing and new value chains.
SO2
Optimise efficient processing for integrated biorefineries through R&D&I.
SO3
Develop innovative bio-based products for identified market applications
SO4
Create and accelerate the market-uptake of bio-based products and applications.
The 4 SO in the BBI SIRA 2017

IMPROVE BIOBASED AND BIODEGRADABLE PLA BASED MATERIALS POTENTIALITIES



- **Formulation:** sustainably sourced comonomers, additives, agricultural fillers to speed up disintegration
- **Synthesis:** direct polycondensation and batch synthesis followed by **reactive extrusion** or batch copolymerization
- **Conversion:** Extrusion, lamination, thermoforming, melt spinning (nets, textiles and nonwovens), blown extrusion of recycled and virgin copolymers.

ADDRESS AN IMPROVED END OF LIFE



Recyclable (material & organically) home-compostable monomaterial **trays & films** for F&V

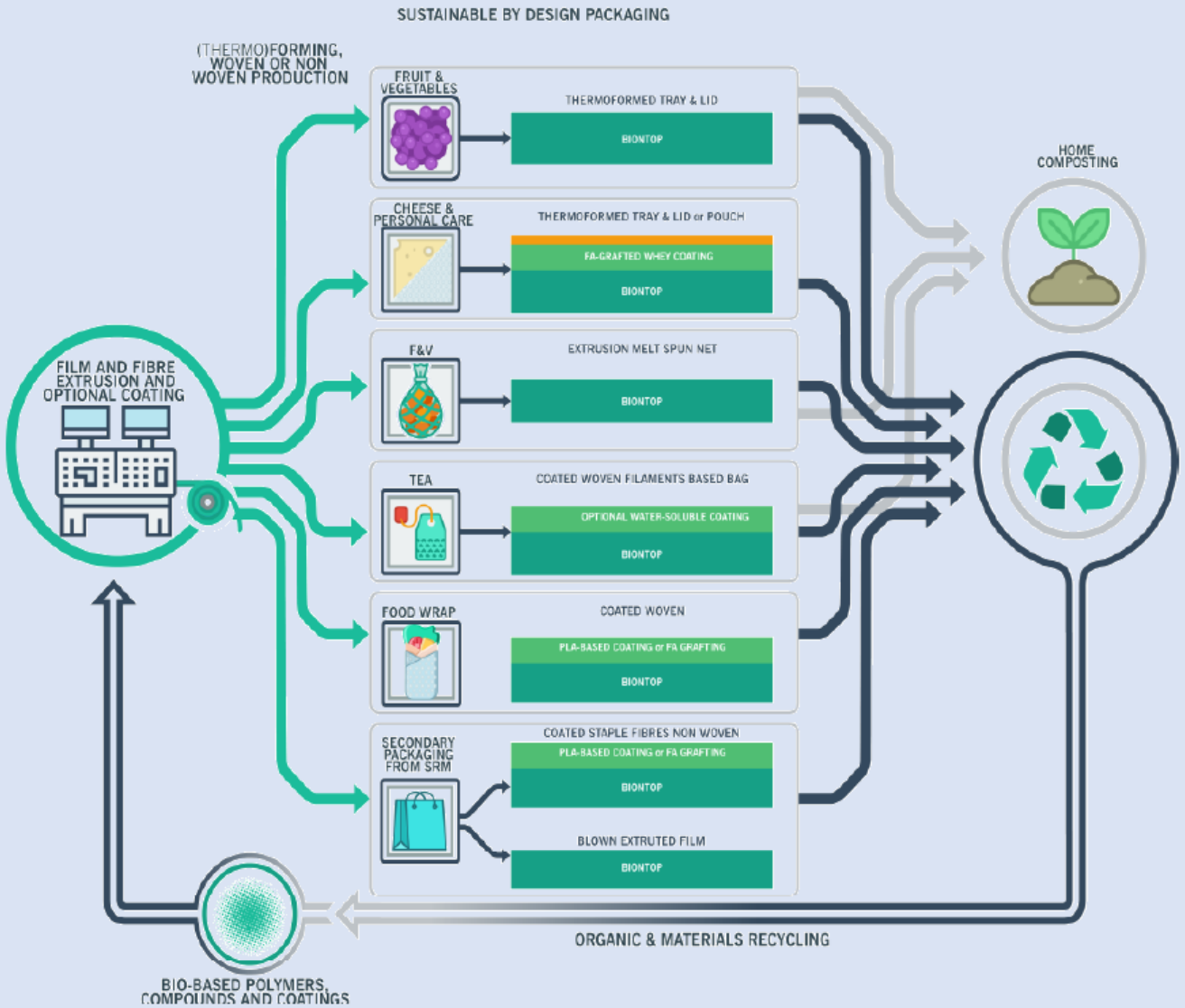
Recyclable (mat. & org.) **multilayer trays & films** compatible with MAP e.g. for **dairy** & **personal care**.

Home compostable and org. recyclable **nets for F&V.**

Home compostable and org. recyclable **coated textiles**, e.g. monofilament woven fabric tea bags.

Recyclable (mat. & org.) reusable **coated woven fabrics** e.g. food wraps.

Recyclable (mat. & org.) reusable **secondary packaging** from secondary raw materials: extruded blown bags & non-woven bags.



- **Material sorting: PLA determination.**

- **Multilayer recycling:** effect of proteins
- **Material reprocessing**: mechanical properties, (re)processability of blends, films and trays
- **PLA degradation in mild conditions:** biodegradation under home composting (28°C).
- **Biodegradation in soil** (25°C) and in **home composting**

DELIVERABLES

Public deliverables will be available at the end of the project:

D7.8: Industry, stakeholders and policy guidelines regarding BIOnTOP waste management (M48)- responsible: ENCO-

Public

D7.5: Final report on sustainable business models and value chains including consumer perception aspects (M48)- responsible:ENCO-

Public

D7.9: Reports on results of REACH assessment (M48)- responsible: ARCHA)

Public

Up to now the partner European Bioplastics prepared a draft document that circulated in the BIONTOP consortium entitled: «Overview of relevant EU regulatory frameworks, Legislation and standards for bioplastics», useful to inform partners regarding the latest updates.

Contribution of the ongoing BIONTOP project to the EU policies

- Only provisory recommendations for EU, to be confirmed at the end of the project (June 2023), can be provided.
- Home compostable materials were successfully developed in the project
- Recyclability of materials was assessed at lab scale and some of the home-compostable materials resulted also recyclable, **giving a wide spectrum of end of life options** for their waste management
- Bioplastics should be distinguished by fossil plastics, avoiding confusion. This aspect ***is negatively affecting bioplastics companies***. A network of large industries and small companies was developed, thanks to EU programs and favorable market, helping in fighting against climate change replacing fossil with biobased in market products. This richness can not be dispersed, but potentiated as a strategic tool for accelerating the green change that is needed.
- The word “Bioplastics” can result in misunderstanding. **Renewable, recyclable and/or biodegradable plastics should be distinguished. Materials summing all these characteristics can be a real opportunity for environment in the present and in the future**.
- The different approaches considered by the EU countries to collect biodegradable plastics (in plastics or in humid fraction?) create impossibilities for researchers in studying the effect of contamination in post-consumer biodegradable streams. Citizens are also requesting to get instruments for “selecting the right bin”

PANEL DISCUSSION

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.

6th European Bioplastic Research Network (EBRN) Event

Insights from 10 Horizon projects:
EU policy for bio-based and biodegradable plastics

Thank you very much!

Horizon 2020

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement BIOPLASTICS EUROPE No. 860407.