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DESIGN CONFERENCE

FACTSHEET

SUSTRACK is a three-year project aimed at supporting policymakers in their efforts to develop sustainable pathways to replace fossil and carbon-intensive systems with sustainable circular biobased systems at the EU and regional scale, contributing to achieving the European Green Deal's objectives.

In the context of its activities, SUSTRACK organised the **"Pathway to DESIGN the circular bio-based transition" series of workshops**, to:

- present an overview on the selected SUSTRACK chemical, construction, textile and plastics value chains, providing a process description, market information, and relevant policy instruments as a starting point for the debate;
- be inspired by specific case studies directly from experts' voices, who shared their perspectives, good practices and challenges/barriers they are facing in the transition towards a circular bio-based economy;
- discuss and provide recommendations for the transition towards a circular bio-based economy, along policy, environmental, societal and economic dimensions.

These workshops culminated in the **DESIGN conference: "Pathway to DESIGN the circular bio-based transition" closing event**, aimed at transforming the workshops' outcomes into policy recommendations for industrial and political stakeholders to support their transition towards a circular bio-based economy.

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FINAL GOAL

Provide policy recommendations to inform the revision of the European Bioeconomy strategy and pave the way for future policy developments.

FORMAT

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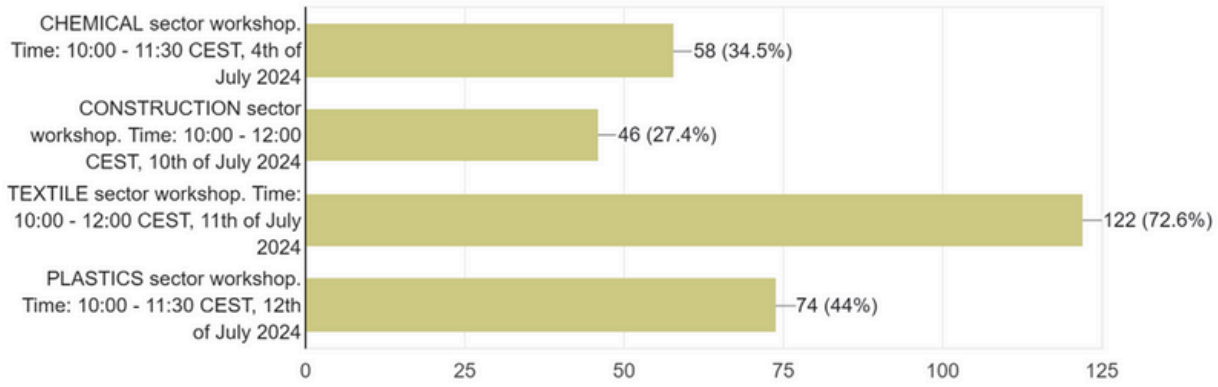
299 Registered stakeholders 302 participants

Pathway to DESIGN the circular bio-based transition series of workshops: 168 Registered stakeholders, 300 Preferences expressed (179 participants)

SECTORS

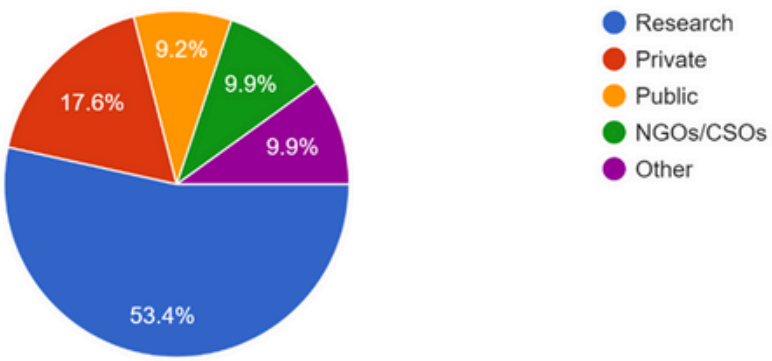
168 responses



Pathway to DESIGN the circular bio-based transition closing event: 131 Registered stakeholders (123 participants)

FIELD

131 responses



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Results from "Pathway to DESIGN the circular bio-based transition" series of workshops

During the series of sectorial workshops, SUSTRACK experts presented SUSTRACK selected sectorial case studies, while 179 stakeholders contributed with 20 inspirational pitches and nurtured rich interactive discussions exploring policy, environmental, social, and economic dimensions of the circular bio-based economy, capturing valuable challenges, good practices, and recommendations.

CHEMICAL

Policy dimension

Sector	Challenges	Examples of good practices
Whole sector	Lack of specific regulatory support for bio-based products	Ensure policy coherence. Create an enabling environment to provide security (i.e., safeguard investments). Penalize the use of virgin fossil inputs. Implement transparent carbon tracking along the value chain. Foster sustainable carbon cycles
	General lack of stability and harmonisation in policymaking. Need for international collaboration for regulatory alignment to safeguard competitiveness.	
	Focus of policies on decarbonization. Foreseen challenge: adequate carbon accounting.	
	Lack of support for upscaling (vis-à-vis needed timescales, risks, and cost)	
Methanol from waste	Incentivised methanol for energy application, non-level playing field for chemical application	Incentivize also the chemical application of methanol from waste
	Lack of incentive/benefits from utilisation of waste	Acknowledging the value of recycled carbon

Sector	Challenges	Examples of good practices
Bio-MEG	Recycling of textile products	Harmonize policy framework for bio-based, biodegradable and compostable plastics
	Recycling of PET packaging materials	Enforce Packaging and Packaging Waste Regulation, and Chemicals Strategy for Sustainability Towards a Toxic-Free Environment

Sustainability dimension (Environmental and social)

Sector	Challenges	Examples of good practices
Whole sector	Reliance on virgin fossil feedstocks	Identify the levers that will have the most positive effect (e.g., feedstocks, energy use, etc.). Ensure good communication on best case solutions from the field. Introduce education to foster awareness about the benefits of the sustainable bioeconomy vs. the risks of the fossil economy. Harmonize evaluation along the value chain (e.g., in the variety of systems, scopes and methods). Apply EC's Product Environmental Footprint (PEF) in the (voluntary) Safe and Sustainable-by-Design (SSbD) framework.
	Feedstock availability towards 2050, for fuels vs. bio-based products	
	Difficulty of upskilling workers and keeping high quality jobs	
	Lack of common sustainability criteria at EU level for specialty bio-based chemicals	
	Lack of data and knowledge needed for (social) sustainability assessment	
	Absence of a proper LCA system and homologation to provide orientation	
Methanol from waste	Accumulation of waste	Develop a consistent, harmonized methodology in terms of assessment of environmental benefits (e.g., consideration of diversion of waste)
	Reliance on virgin feedstock	
Bio-MEG	Health and safety risks associated with production	Data on additives applications and quantities used in the products
	Sustainable sourcing of feedstocks, residual streams from agriculture, food and wood industries	Establish regional supply chains, adopt certification schemes

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Market dimension

Sector	Challenges	Examples of good practices
Whole sector	Securing long-term off-take agreements for investors	Voice a clear statement of which problem needs to be solved. Conduct a reality check of ambitions. Collaborate with the sustainable finance sector to create market incentives. Creation of an after-use economy
	Different industries require different volumes and different pathways	
	Lack of regulatory support for market entry and growth (e.g., premiums, mandates, etc.)	
	Difficult access to financing for high-risk technologies and securing CAPEX of first-of-a-kind plants	
	Cost-competitiveness with conventional products while reaching net zero goal	
	Differences in cost between producing bio-based vs. fossil-based chemicals	
	Operating in a not (yet) mature field with a difficult evolution of niches	
	Lack of supply chain for bio-based materials, resulting in the first mover risk	
	Coupling sectors that have not been connected before	
	Raw materials cost fluctuations	

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TEXTILE

Policy dimension

Sector	Challenges	Examples of good practices
Whole sector	Gaps in policy guidance on sustainability claims such as recyclability, footprints and microplastics	Set up collaboration structures (e.g. labelling and certification) and policy that ensure the sustainability claims in EU are credible
	High additional cost for recycling and the use of new biobased materials which are not rewarded in the market	Increase extended producer responsibility (EPR) fees for unsustainable fibers to encourage more sustainable production and consumption
	Overconsumption stimulated by fast fashion and low prices increase strongly the footprint of the textile sector	More policies needed to stimulate the education and information sharing in relation to (un)sustainable consumer and production practices (including digital product passports)
Lyocell	There is no equal level playing field for Man-Made cellulosic fibers (MMCFs) as compared to synthetic fibres	Policy instruments that facilitate MMCFs entering the market more easily
	There is lack of certifications systems for biomass converted to Lyocell	Further develop existing or new certification systems that take better account of Lyocell process
Wool	A lot of wool produced in the EU is remains unused (wasted). The reason is lack of facilities available to treat wool (e.g. washing, processing). This is related to technical and pollution challenges which remain unsolved.	Establish aid policies for industrial washing facilities and technology developments. First and also urgent, the protection and support of existing laundry facilities
	Need for a clear framework stimulating recycling above the use of virgin materials	Introduction of carbon tax on the products: EPR, certifications and labelling, digital product passport, etc.

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Sustainability dimension (Environmental and social)

Sector	Challenges	Example of good practices
Whole sector	Transparency and traceability is lacking for sustainability challenges	Digital product passport DPP and certifications
	Research and innovation gabs in relation to sustainable practices	Horizon EU (funding). Speed up investments support for all levels of developments
Lyocell	Sustainable Sourcing of Raw Materials.	More companies manage to also use residual/waste streams as feedstock e.g. Spinova, Saxcell, Lenzing
	Fiber blends challenge recycling e.g. blends of MMCF with elastin is most challenging to recycle, even at very low shares	Investments and technology is developing to tackle the recycling challenges (although not fast enough)
Wool	Wool washing is a difficult step and requires much water and chemicals	United efforts needed from several EU countries to find out where the European washing of the wool can best be done. (networking among stakeholders)
	Need for a clear framework of recyclability, including LCA	LCA, LCC, S-LCA, eco-design evaluation

Market dimension

Sector	Challenges	Examples of good practice
Whole sector	Repairing will increase the cost of the garments and cannot compete with fast-fashion garments	Tax on ultra-fast fashion brands
	Higher production costs of biobased fibres compared to standard plastics	Green VAT, lowering the VAT to 10%, both for sustainable businesses and sustainable products

Sector	Challenges	Examples of good practice
Lyocell	No market rewards for lower environmental impact	Need for awareness raising among consumer about the lower environmental impact of MMCFs
	The recycle cost of MMCFs is higher than for synthetic fibres	Policy needed to support MMCFs recycling process to overcome cost differences until the market share of MMCFs is large enough
Wool	Lack of industry to process the wool in EU	Collaboration needed between different stakeholders to improve the technology and facilitate wool washing in EU
	Collecting of Wool in EU with classification skills seems to be a bottleneck to have a commercially successful wool washing and subsequent industry	Networking among textile stakeholders

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CONSTRUCTION

Policy dimension

Sector	Challenges	Examples of good practices
Whole sector	Lack of regulatory frameworks tailored to bio-based construction products	Revise and update building codes and standards
	Current regulations are primarily designed for traditional geo-based materials	Clearer governmental guidelines for assessing embodied carbon in construction materials
	Existing building norms and standards are disadvantageous for bio-based construction products	Encouraging collaboration among stakeholders to share insights and expertise
Cross Laminated Timber	Current fire safety regulations impose limitations on timber-based constructions	
Biochar in Concrete	Lack of standards that support the diffusion of innovative concrete products	Shift from recipe-based to performance-based standards
Hemp insulation	Regulatory uncertainties and restrictions in certain regions regarding the use of industrial hemp	Revising thermal performance testing for bio-based materials to incorporate hygrothermal and hygroscopic behaviour

Sustainability dimension (Environmental and social)

Sector	Challenges	Examples of good practices
Whole sector	Lack of expertise in bio-based materials and sustainable construction methods	Promoting a shift towards a bio-based mindset
	Current LCA standards fail to address details that are specifically relevant to bio-based materials	Establishing European-wide recognized EPDs with CE marking for standardized sustainability assessment. Providing support across the entire bio-based supply chain, from raw material production to end-product development.

Sector	Challenges	Examples of good practices
Cross Laminated Timber	Misconceptions related to Durability, performance, fire safety, environmental impact and sustainability of wood harvesting practices	Implementing dynamic Life Cycle Assessments (LCAs) and adjusting the land use indicator to better reflect the impact of bio-based products. Encouraging further research on bio-based adhesives to improve sustainability
Biochar in Concrete		
Hemp insulation	Negative stigma associated with hemp products	Carbon accounting

Market dimension

Sector	Challenges	Examples of good practices
Whole sector	Designing durable buildings with a focus on circularity and recyclability	Creating a unified certification system for assessing circular economy practices in construction
	Weak lobbying for bio-based products vs. strong lobbying for fossil-based products	Using systems thinking in design to ensure products are safe, sustainable, and optimized for their entire life cycle
	Lack of uniform European standards, with varying national interpretations and features	Introducing carbon credits for bio-based materials to incentivize their use and recognize their role in carbon sequestration and reducing emissions
Cross Laminated Timber	Insurance and financing public timber projects	Shifting focus from fire resistance to fire reaction in promoting safer building practices (CLT)
	Fire resistance and rating	
Biochar in Concrete		Update current recipe based standards
Hemp insulation	Limited availability of (local) industrial-scale hemp processing facilities	

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PLASTICS

Policy dimension

Sector	Challenges	Examples of good practices
Whole sector	Lack of a harmonized definition for bio-based plastics and polymers	Provide a coherent and fact-based definition of bio-based polymers across all policy frameworks and switch from political definitions for plastics (e.g. definition in SUPD) to ones that differentiate between different types of polymers
	Higher costs for producing biopolymers Missing strategy valorizing bio-based versus fossil based plastics Lack of favourable regulatory framework for bioplastics (e.g. no bonus for renewable carbon)	Mandatory bio-based content to complement mandatory recycled content (PPWL, ELV). Financial support (e.g. incentives for bio-based, support for scaling up TRL >5) from the government. Improve coherence and clarity of policy frameworks, including their interconnections
	Existing biodegradability tests lack methods to comprehensively assess environmental impacts (e.g. release of microplastics)	Improve bioeconomy strategy by removing the limitations and constraints like marine biodegradable only materials
	Circularity to be developed based on market sector, but market entries challenged by regulations	Create a legally binding framework with clear sustainability criteria and incentives for labels and externally audited third-party certification systems
PLA	Insufficient support for the use of compostable plastics for food/soil applications	Support the use of compostable plastics for food/soil applications Improve fertilizers legislation, Improve microplastics legislation
PP cook oil	Inefficient collection of used cooking oils from households (specific to PP from used cooking oils)	Improve Oil waste regulations
Cellulose acetate	Insufficient coherence of policy frameworks: different regulatory frameworks governing same bio-based materials	Support integration of policy frameworks

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Sustainability dimension (Environmental and social)

Sector	Challenges	Examples of good practices
Whole sector	Lack of understanding of the environmental impact of biodegradation processes due to lack of adequate test methods	Improve energy efficiency and process optimization
	Lack of end-of-life possibilities and infrastructures to properly treat bio-based and biodegradable plastic waste	Support for development of circular economy and cascading uses for biopolymers. Promote the development of biobased/biodegradable polymer materials with unique properties (e.g. high softening point)
	Lack of transparent chain of custody and sustainable sources for bio-based feedstock (e.g. no competition with food)	Promote transparency and consumers awareness of bio-based products. Promote a comprehensive sustainability assessment of products across the entire life-cycle. Collaboration with certification providers on existing processes and best practices.
PLA	Current biodegradability certifications mostly focus on full degradation and amount of CO2 formed. Lack of certification for “readily biodegradable”	
PP cook oil	Used oil is an environmental pollutant when improperly disposed of. Lack of research on the use of used cooking oils for PP (specific to PP)	Improve Oil waste regulations
Cellulose acetate	Energy intensive production (electricity and heat). Production process too complex for some existing sustainability certification	Addressing plastic pollution, specifically microplastics, by biodegradability and non-persistency. Provision of heat to surrounding industrial partners and residential households

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Market dimension

Sector	Challenges	Examples of good practices
Whole sector	Bioplastics more expensive than fossil counterparts, due to the lack of monetarization of environmental costs	Setup of incentive schemes that enhance the use of biomass for materials including minimum bio-based plastics content targets for key plastics applications to create a market pull
	Market-related bottle necks, including investments, time to market, availability of well-equipped specialized tech parks and plants open to (small) third parties	
	Lack of involvement of end-of-life stakeholders to guarantee proper treatment of bioplastic waste	Enhance the quality and quantity of collected biowaste suitable as feedstock for plastics production and implement mandatory separate collection of organic household waste for organics recycling in all EU Member States
	Lack of market pull measures to promote willingness to use products containing circular materials	
PLA	Difficulty in up scaling the production capacity due to challenging bureaucracy and inadequate land for production site. High initial cost, followed by lengthy process to reach the market (long time-to-market)	Increase production capacity. Improve the understanding of the chemical and physical characteristics of PLA in order to focus research efforts on feasible applications (e.g. PLA is not suitable for textiles)

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Results from DESIGN conference: “Pathway to DESIGN the circular bio-based transition” closing event

At the closing event, 123 experts gathered to discuss and DESIGN a sustainable future. After a warm welcome from SUSTRACK’s coordinator, Università degli Studi di Roma UnitelmaSapienza, presentations were delivered by Rosalinda Scalia, Deputy Head of the Bioeconomy & Food Systems Unit at the European Commission, and Virginia Puzzolo, Head of Programme at the Circular Bio-based Europe Joint Undertaking (CBE JU). Dr. Scalia highlighted the importance of monitoring the transition and engaging stakeholders in the context of the revision of the European Bioeconomy Strategy. Dr. Puzzolo emphasized the need for public-private collaboration, especially in sectors where SUSTRACK research is key to overcoming barriers.

SUSTRACK experts from Deutsches Biomasseforschungszentrum, Universiteit Gent, Wageningen University & Research, and Bundesanstalt für Materialforschung und -prüfung shared key challenges and best practices gathered during the sectorial workshops. TECNALIA Research & Innovation launched the SUSTRACK Monitoring Tool, which provides access to indicators, data, and methods, and facilitates understanding of good management practices for the transition to a circular bio-based economy (CBBE). Participants actively contributed to shaping the tool’s future features through an interactive session.

KnowlEdge Srl also introduced the SUSTRACK GEM model, which supports decision-making by linking population, energy, and emissions data to industry-specific scenarios. Participants provided valuable feedback on sector-specific targets and assumptions.

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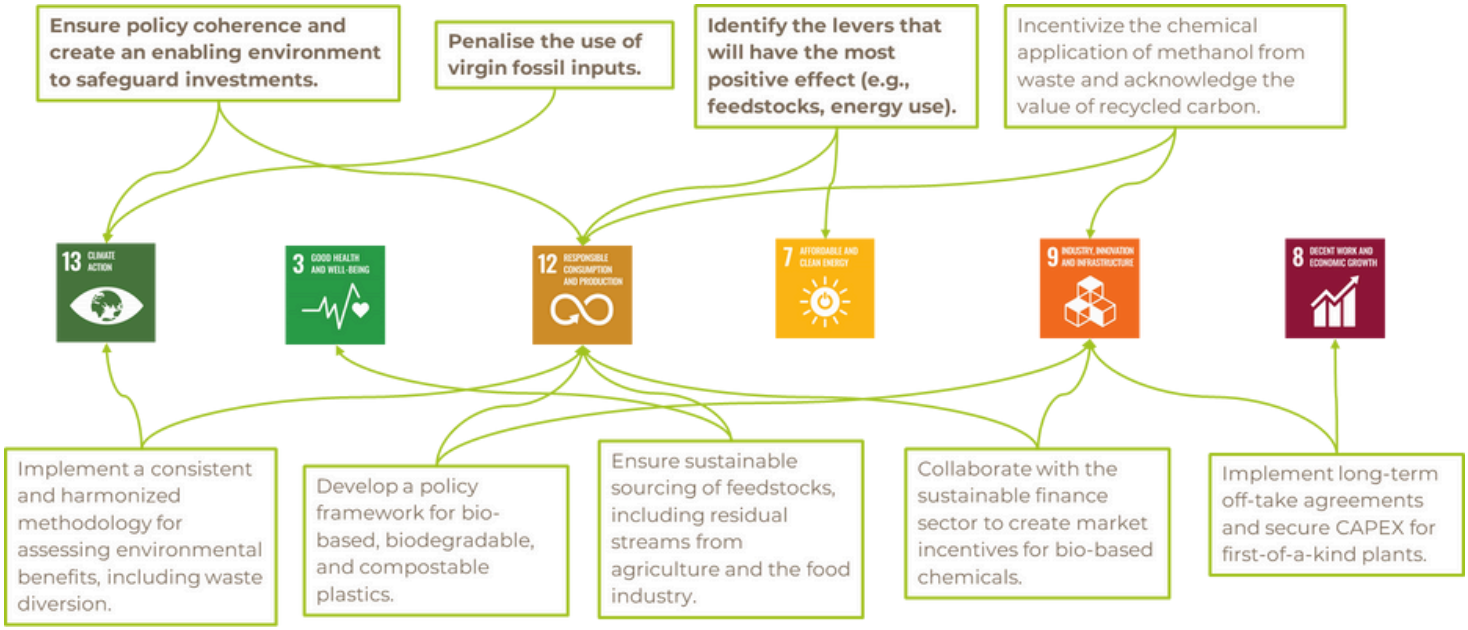
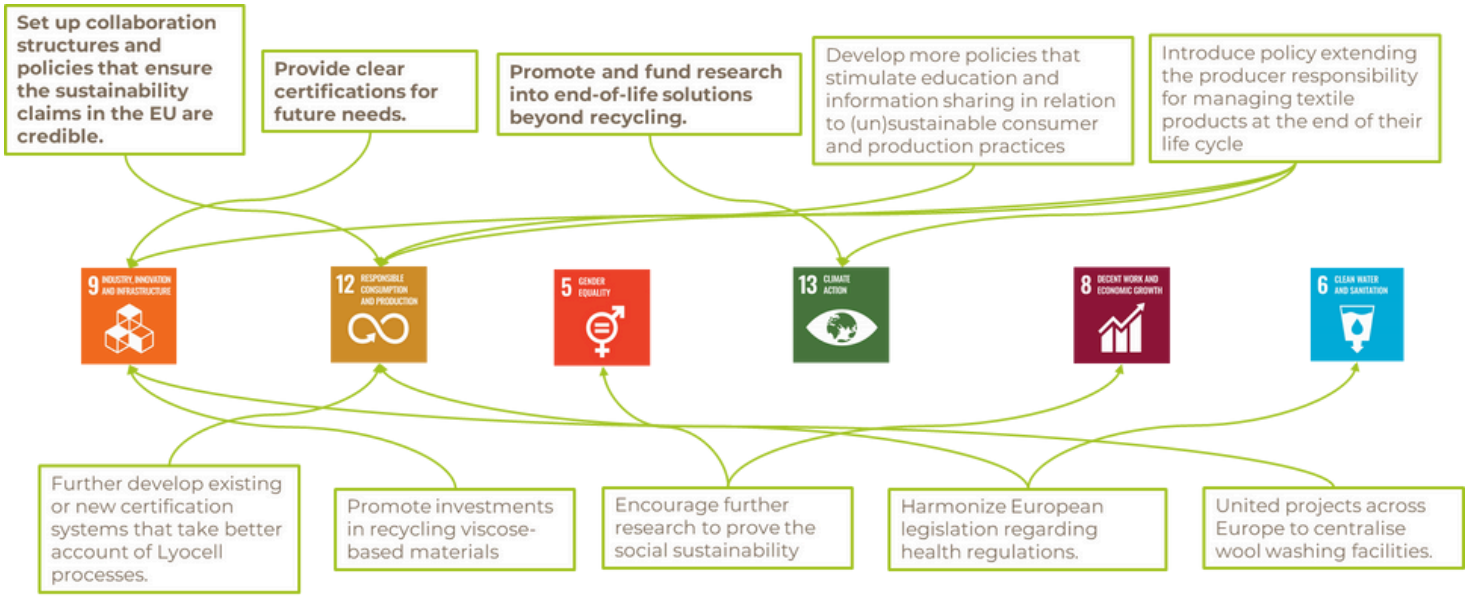
Finally, SUSTRACK's contributions to policy recommendations were presented, which will inform the revision of the EU Bioeconomy Strategy.

RECOMMENDATIONS IN THE CHEMICALS SECTOR



RECOMMENDATIONS IN THE TEXTILE SECTOR



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RECOMMENDATIONS IN THE CONSTRUCTION SECTOR

Facilitate knowledge exchange and mutual learning within projects

Develop a common certification system for evaluating circular economy practices within the construction industry.

Revise building norms and regulations to promote the use of bio-based materials.

Incorporate the assessment of biogenic carbon in bio-based materials.

Update current recipe-based standards to performance-based standards.

Implement carbon accounting frameworks such as the Carbon Removal Certification Framework.

Reduce barriers to the production and processing of industrial hemp in Europe.

Promote the use of industrial hemp in crop rotation to enhance soil health and diversify agricultural systems.

RECOMMENDATIONS IN THE PLASTICS SECTOR

Provide a coherent and fact-based definition of bio-based polymers across all policy frameworks.

Implement financial support (e.g., incentives for scaling up biopolymers production) and improve policy coherence.

Support the use of compostable plastics (PLA specific) for food/soil applications.

Develop comprehensive biodegradability certifications that go beyond just CO2 measurements.

Improve oil waste regulations and collection systems for household waste oil.

Increase research funding for used cooking oil as a feedstock for polypropylene.

Set up incentive schemes to increase the use of biomass for plastics production.

Enhance the collection and recycling systems for bioplastic waste and improve biowaste feedstock quality.