

Horisont Europa

Att delta i en Horisont ansökan innebär att man initierar eller ansluter till ett projektkonsortium. Precis som det finns många programdelar i Horisont, så finns det också många olika roller en aktör/organisation kan ta i ett konsortium (lead-partner, anslutande partner, skugg-partner).

Brysselkontoret, genom ERRIN, strävar efter att ingången till Horisont-projekt och andra interregionala innovationssamarbeten ska vara tillgänglig för så många regionala aktörer som har ambition och kapacitet att delta. Matchmaking-seminarier är därför en av många aktiviteter som ERRIN årligen anordnar.

Fokus på ERRIN:s horisont dagar kommer att vara på första omgångens utlysningar i Horisont Europa, andra pelaren, kluster 5 och 6.

- [Cluster 5 - Climate, Energy and Mobility](#)
- [Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment](#)

I detta underlag har vi tagit ut exempel från kluster 5 och kluster 6 på utlysningar (som förväntas publiceras 2021) som kan vara av intresse för aktörer i SBHSS - men det kan finnas fler som är intressanta, så kolla gärna igenom arbetsprogrammen!

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Kluster 5 – Klimat, energi och mobilitet

Kluster 5 syftar till att främja ett klimatsmart energi- och transportnät i Europa. Du hittar det senaste utkastet till [kluster 5 arbetsprogram här](#). Aktiviteter inom följande områden planeras:

- Klimatforskning
- Energiförsörjning
- Energisystem
- Energiomställning byggnader/industri
- Smarta samhällen/städer
- Industriell konkurrenskraft inom transport
- Ren, säker och tillgänglig transport/mobilitet
- Smart mobilitet
- Energiförvaring

I [Horisont Europas strategiska plan](#) hittar du förväntade resultat/effekter av satsningar för områdena inom kluster 5. Du hittar även övergripande information om hur EU stöttar forskning och innovationsutveckling för [klimatåtgärder](#), [energi](#) och [transport](#)

Aktiviteter och forskningsanslag för klimat, energi och mobilitet kommer även att distribueras genom [europeiska partnerskap](#), [mission för klimatneutrala städer](#) och [mission för klimatanpassning](#).

Utlysningar 2021

Arbetsprogrammet för 2021 – 2022 publicerar utlysningar inom kluster 5. Nedan lista är inte heltäckande men ger några exempel på utlysningar som kan vara intressant för SBHSS (*på urval från Brysselkontorets länsspecifika dokument*)

ERRIN:s Horisont-dagar, kluster 5, kommer fokusera på följande destinationer (underrubriker med flera utlysningar);

2 Cross-sectoral solutions for the climate transition

3 Sustainable, secure and competitive energy supply 2021 – 2024

4 Efficient, sustainable and inclusive energy use

5 Clean and competitive solutions for all transport modes

6 Safe, Resilient Transport and Smart Mobility services for passengers and goods

Destination 2 (Cross-sectoral solutions for the climate transition)

C5-D2-BAT-16-2021: Sustainable, safe and efficient recycling processes

Scope: In order to effectively exploit the vast amounts of EV and stationary battery waste emerging in the next decades, as well as the increasing amounts of production scrap resulting from larger manufacturing, it is important to create innovative feasible and holistic recycling processes in Europe.

Technology or societal readiness level Activities are expected to achieve TRL 5-6

Expected outcomes: Projects are expected to contribute to the following outcomes:

- Improved access to battery materials and strengthened European raw material independency by increased circularity of material flows and use of the secondary raw materials in new batteries produced in Europe;
- Increased European competitiveness offering sustainable, safe, energy efficient and low carbon footprint battery recycling technologies and upscaleable solutions.
- Reduced recycling cost and environmental impacts through new and disruptive concepts for very high efficiency recycling;
- Improved health and safety aspects of recycling;
- The industry is prepared to meet the new regulatory targets for the recycling

Expected EU contribution per project: The EU estimates that an EU contribution of 3 million EUR would allow these outcomes to be addressed appropriately.

C5-D2-CS-16-2021: Co-Funded Partnership: Driving Urban Transitions to a sustainable future (DUT)

Scope: Today, more than 70% of EU citizens live in urban areas and it is expected that more than two thirds of the global population will be living in cities by 2030. Cities are also the engines of the European economy generating about 85% of the EU's GDP and hubs of technological and social innovation. As such, they are key players in shaping and providing solutions to these challenges and must urgently engage in unprecedented systemic transformational and bold transition towards sustainability and climate neutrality.

Expected impacts:

- Strengthen Europe as a role model for R&I on sustainable urban development through a European urban R&I reference platform supporting cities in their systemic transformation towards sustainability and climate neutrality;
- Enhanced multi-level cooperation and alignment on R&I on sustainable urban development across and within cities, regions and countries, including international outreach and cooperation with other networks and initiatives
- Innovative, cross-sectoral and inclusive governance, policy and decision-making harnessing the full potential of social science and citizens' engagement in city making process;
- Sustainable, safe, resilient, socially inclusive, liveable and attractive neighbourhoods, towns and cities with reduced environmental footprint and enhanced well-being and quality of life for citizens;
- Participatory and multi-stakeholder policy and decision-making engaging local authorities, municipalities, business, civil society, knowledge institutions and citizens empowered with necessary knowledge, skills and tools to actively engage in sustainability and climate-neutrality transitions

...

Type of action: Programme Co-fund action (co-funded European Partnerships)

Destination 3 (Sustainable, secure and competitive energy supply)

C5-D3-RES-11-2021: Carbon-negative sustainable biofuel production

Scope: Proposals should develop cost-effective solutions to minimize carbon waste in sustainable biofuel production processes by incorporating biological and/or chemical capture of the biogenic effluent gas emissions from the process and use it as appropriate either for separate in-situ downstream synthesis of renewable fuels of biological origin, or integrate it in the sustainable biofuel production through recycling...

Expected outcomes: Reusing biogenic effluent gases from biofuel production in the same process, increases the biomass conversion efficiency and sustainability potential and the overall resource and energy efficiency of the biomass utilization. Improving such integration will contribute to advance the EU leadership and global role in the area of sustainable biofuels, increase the biofuel technology competitiveness and acceptance and allow high penetration of biofuels in the energy system, in particular for hard to electrify sectors, while supporting the EU goals for climate change mitigation, energy independence and economic growth. Project results are expected to contribute to all of the following expected outcomes:

- Increase bioenergy efficiency and sustainability.
- Increase sustainable biomass resource utilization.
- Generate negative emissions from biofuel production

Activities are expected to achieve TRL 4-5 by the end of the project

Expected EU contribution per project: The EU estimates that an EU contribution of 5 million EUR would allow these outcomes to be addressed appropriately.

C5-D3-RES-19-2021: Demonstration of cost-effective advanced biofuel technologies utilizing existing industrial plants

Scope: Proposals should demonstrate cost-efficient advanced biofuel technologies which improve the economic viability of the advanced biofuel production. This should be done through innovative transformation of existing plants to incorporate production of advanced biofuels from non food/feed sustainable biomass feedstock into existing processes, e.g., first generation biofuel plants, paper mill industry, waste treatment plants, oil-refineries, petrochemical industry, etc.

Expected outcomes:

- Reduce capital and operational expenses (CAPEX and OPEX) of advanced biofuel production facilities.
- De-risk technology, boost scale-up of advanced biofuels and contribute to their market uptake.
- Contribute to the priorities of the SET Plan Action 8.
- Respond to short and medium term needs for renewable fuels in transport.
- Create win-win solutions for advanced biofuel production and conventional industrial phasing out plants, e.g., first generation biofuels, associated with socio-economic benefits.

Activities are expected to achieve TR 6-7 by the end of the project

Expected EU contribution per project: The EU estimates that an EU contribution of 10 million EUR would allow these outcomes to be addressed appropriately.

Destination 4 (Efficient, sustainable and inclusive energy use)

C5-D4-BEE-02-2021: Industrialisation of deep renovation workflows for energy efficient buildings

Scope: Several recent projects & calls have focused on prefabrication for deep renovation, but more work is needed to innovate seamless workflows from design through to offsite manufacture, installation, and compliance checking on site, also ensuring due consideration of life cycle performance. There is also a need for more demonstrations across the EU.

Expected outcomes: Project results are expected to contribute to some of the following expected outcomes:

- Significant improvement in productivity of construction and renovation processes for energy-efficient buildings, supporting an increase in scale in the renovation process and streamlining resource efficient nearly zero-energy performance renovation: 30 % waste reduction; improved quality of renovation; 40 % time spent on site and 25% costs reduction;
- More affordable renovation projects for owners, for all building types but with a specific focus on residential buildings;
- Enhanced quality of construction, backed up by post-occupancy evaluations, also supporting a better integration of design and construction activities, streamlining commissioning of buildings, in particular in relation to energy management but also taking into account cross-cutting issues such as accessibility of buildings;
- Reduced performance gap between as-built and as-designed (difference between theoretic
- Increased trust towards construction and renovation processes, by allowing tracking energy performance across the life-cycle;
- Upskilled workforce for industrialised renovation workflows, including automated and robotised construction / renovation, relying on interoperable digital modelling data;
- Enhanced safety of the construction workforce and increased acceptance of robotic support for deep renovation;
- Innovative, tailored business models for deep renovation allowing increased scale of renovation, generating economies of scale and increasing the potential for attractive and affordable packages for end users including financing;
- Tailored access to building information across the life cycle for relevant stakeholders (owners, facility managers, contractors, public authorities);
- Integration with distributed renewable energy sources in neighbourhoods and districts, favouring the emergence of related initiatives (e.g. renewable energy communities);
- Enhanced synergies of renovation with local resources, e.g. district heating & cooling networks;

Activities are expected to achieve TRL 8 by the end of the project

Expected EU contribution per project: The EU estimates that an EU contribution of between EUR 5 and 8 million would allow these outcomes to be addressed appropriately.

C5-D4-B4P-07-2021: Demonstrating integrated technology solutions for buildings with performance guarantees

Scope: Design and demonstrate innovative integrated technology solutions based on state-of-the-art components (envelope, heating, ventilation and air-conditioning, cooling, automation and control, renewable energy, etc.) solutions for cost-effective buildings' overall performance enhancement with performance guarantees;

Expected outcomes: Project results are expected to contribute to all of the following expected outcomes:

- Demonstrated viability of, and proven integrated technology solutions for, performance guarantees and performance-based contracts to increase buildings energy performance but including aspects going beyond energy towards a broader range of climate- and environment-relevant matters (e.g. resource efficiency, whole life carbon, etc.);
- Enhanced consumer trust in guarantees of performance and related contracts;
- Increased number of market actors, especially SMEs, offering performance-based business models;
- Enhanced awareness of end users and capacity building of businesses on performance based contracts.

Activities are expected to achieve TRL 6-7 by the end of the project

Expected EU contribution per project: The EU estimates that an EU contribution of between EUR 5 and 7,5 million would allow these outcomes to be addressed appropriately.

C5-D4-B4P-08-2021 : More sustainable buildings with reduced embodied energy / carbon, high life-cycle performance and reduced life-cycle costs

Scope: Demonstrate innovative design, construction and renovation methods, design and technology solutions to reduce energy consumption and carbon footprint of the built environment across the life cycle, from construction to end of life thanks to, inter alia, applying circularity principles throughout the design and construction process, flexible use and lifecycle extension by design, design for deconstruction, disassembly and reassembly, integration of waste, reused, recycled, upcycled and bio-based materials and components, optimisation of design, construction and operation by means of digital tools (...)

Expected outcomes: Project results are expected to contribute to all of the following expected outcomes:

- Increased and more traceable reduction of the GHG emissions of buildings in design, construction, renovation, operation and end of life;
- Faster market uptake of design solutions, materials, products, techniques and business models that are demonstrated to reduce significantly building related life-cycle costs and impacts, including whole life emissions, compared to current building completions;

- Mainstreamed affordable high life-cycle performance, and improved circularity of buildings in construction and renovation

Activities are expected to achieve TRL 6-7 by the end of the project

Expected EU contribution per project: The EU estimates that an EU contribution of between EUR 5 and 7,5 million would allow these outcomes to be addressed appropriately.

Destination 5 (Clean and competitive solutions for all transport modes)

C5-D5-BAT-ZERT-20-2021: LCA and design for sustainable circularity - holistic approach for zero-emission mobility solutions and the related battery value chain

Scope: In order to make the best, most informed choices in terms of sustainability, it is of utmost importance for zero emission road transport to have the right tools to assess technologies, non-technical measures and product life cycle processes in a holistic way. In selecting the right technologies for clean and sustainable mobility at a system, vehicle and component level, the ecological footprint and the impact of technologies upon society have to be assessed, based on highly reliable data at an early stage of development and planning in a harmonised and comparable way.

Expected outcomes:

- A consensus concept for a harmonised, robust, transparent and real-data based LCA approach and tools (also with consideration for extension to social Life Cycle Assessments, S-LCA), with an emphasis on light-duty and heavy-duty zero-emission vehicles (ZEV) and batteries; enabling the assessment of the sustainability performance and evaluation of optimal designs along the value chain and over the full life-cycle (cradle-to-cradle), also taking into account the need of comparing with conventional solutions;
- New, holistic and applicable quantitative tools to drive an approach to the design of ZEV, their components and batteries;
- Take into account in particular uptake of the Renewable Energy both for manufacturing processes and for information to the end users;
- A harmonised strategy for sustainability by design, describing requirements and specifications of tools for all life-cycle phases required to improve the environmental performance of ZEV and batteries, including their components and sub-systems;
- A commonly accepted ontology for a European-wide LCI database for zero emission vehicles and batteries, including all sub-systems and components, and using real data for the present and short-term future, whilst using provisional data, based on trajectories for the reduction of GHG emissions in the Power, Industry and Transport sectors, and use cases, including pre-defined data quality indicators;
- Greater environmental sustainability and lower TCO (total cost of ownership) through consistent and frontloaded real-data based assessment of technologies and solutions, with extension to other sectors using the same cells and technologies;

- Alignment of on-going harmonisation and standardisation activities relevant for a road transport-specific LCA approach, with emphasis on ZEV and the related battery value chain;
- In line with existing or upcoming legislation, and based on guidance from the EC, agree on the common access to the database, including, where this could be necessary for the Member States to inform their policies;
- Increased awareness and acceptance of a European-wide, battery and road transport specific LCA approach and LCI database.

Expected EU contribution per project: The EU estimates that an EU contribution of 4 million would allow these outcomes to be addressed appropriately.

Destination 6 (Safe, Resilient Transport and Smart Mobility services for passengers and goods)

C5-D6-MSTS-05-2021: New delivery methods and business/operating models to green the last mile and optimise road transport

Scope: The large scale introduction and application of cargo bikes, in urban and peri-urban areas has shown to be a game changer for cities: the image of cycling improves; general levels of cycling increase (both for freight and passengers); urban space is used more efficiently; air quality, noise and safety levels as well as quality of life improve. However, this innovative solution is present in only a few cities and at best in the starting phase in other European cities. Its full potential has not been achieved in any European city. The aim would be addressing both methodological and vehicles aspects to help optimising last mile deliveries, where the benefits and how it can be replicated across several cities

Expected outcomes: Project results are expected to contribute to [all/some] of the following expected outcomes:

- Take up and upscaling of innovative, best practice and replicable safe and sustainable last mile solutions in the living labs⁹⁵ involved in the proposals, while facilitating the common lesson drawing and learning at European level, in order to contribute to the priorities of the European Green Deal, which stresses that ‘transport should become drastically less polluting, especially in cities
- Develop solutions for logistic hubs and micro consolidation centers and space management in cities. During the assessment process of possible locations for micro consolidation centres and micro hubs cooperation with local authorities is required. . Locations should be checked against the sustainable mobility plans of the concerning city.
- Test and deploy micro-consolidation centres as well as new delivery methods (including but not limited to e-cargo bikes) in at least 3 cities/project. The establishment of energy savings objectives (e.g electricity) regarding micro consolidation centres in relation other traditional strategies could also be included.
- Optimise loads and reduce empty miles through dynamic routing, load policies, multi/single-brand parcel lockers and boxes.
- Demonstration of cleaner modes of last mile transport for urban and peri-urban deliveries in the living labs involved in the projects (as listed in the scope part below).

- Increased quality and liveability of urban and metropolitan areas by reducing road risk, congestion, air and noise pollution.
- Improve knowledge of user needs, habits and preferences in terms of deliveries by collecting and sharing information amongst public authorities and private companies aiming at clustering users while respecting GPDR.

Expected EU contribution per project: The EU estimates that an EU contribution of between EUR 7 and 8 million would allow these outcomes to be addressed appropriately.

Kluster 6 – Livsmedel, bioekonomi, naturresurser, jordbruk och miljö

Kluster 6 syftar till att minska klimatpåverkan och främja hållbar tillväxt inom områden där naturens resurser och avfall nyttjas. Du hittar det senaste utkastet till [kluster 6 arbetsprogram här](#).

Aktiviteter inom följande områden planeras:

- Miljöobservationer
- Biologisk mångfald och naturresurser
- Jordbruk, skog och landsbygd
- Hav och inlandsvatten
- Livsmedelskedjor
- Bioekonomi, och biobaserade innovationssystem
- Cirkulära processer

I [Horisont Europas strategiska plan](#) hittar du förväntade resultat/effekter av satsningar för områdena inom kluster 6. Du hittar även övergripande information om hur EU stöttar forskning och innovationsutveckling för [miljöobservation](#), [jordbruk-skog-landsbygd](#), [hav och inlandsvatten](#), [livsmedelskedjor](#) och [miljö](#). Aktiviteter och forskningsanslag för livsmedel, bioekonomi, naturresurser, jordbruk och miljö kommer även att distribueras genom [europeiska partnerskap](#), [mission för klimatanpassning](#), [mission för hälsosamma hav och inlandsvatten](#) och [mission för hållbart jordbruk](#).

Utlysningar 2021

Arbetsprogrammet för 2021 – 2022 publicerar utlysningar inom kluster 6. Nedan lista är inte heltäckande men ger några exempel på utlysningar som kan vara intressant för SBHSS (på urval från Brysselkontorets länsspecifika dokument)

ERRIN:s Horisont-dagar kommer fokusera på följande destinationer (underrubriker med flera utlysningar);

2 Fair, healthy and environmentally-friendly food systems from primary production to consumption

3 Circular economy and bioeconomy sectors

4 Clean environment and zero pollution

5 Land, oceans, and water for climate action

6 Resilient, inclusive, healthy and green rural, coastal and urban communities

7 Innovative governance, environmental observations, and digital solutions in support of the Green Deal

[Destination 2: Fair, healthy and environmentally-friendly food systems from primary production to consumption](#)

HORIZON-CL6-2021-FARM2FORK-01-11: Filling knowledge gaps on nutritional, safety, allergenicity and environmental assessment of alternative proteins and dietary shift

Scope: In line with the European Green Deal priorities and the Farm to Fork Strategy for a fair healthy and environmentally friendly food system, as well as with the EU's Climate ambition for 2030 and 2050, the successful proposal will support R&I to promote both the production, provision and consumption of alternative sources of proteins as well as dietary shifts towards sustainable healthy nutrition, contributing to the transformation of food systems to deliver co-benefits for climate (mitigation and adaptation), environmental sustainability and circularity, dietary shift, sustainable healthy nutrition and safe food, food poverty reduction and empowerment of communities, and thriving businesses

Expected outcomes:

- Informing a systemic approach to integrated food policy development as well as informing individual policies, such as those for consumer protection, public health, agriculture, aquaculture and the environment, through additional information and knowledge on what we still do not know about all alternative sources of proteins and dietary shift, including latest developments.
- Providing solutions and assessing their appropriateness to fight climate change (through climate change adaptation and mitigation), halt biodiversity loss and improve the state of ecosystem services, promote the circularity of the food system and improve people's health and wellbeing through more nutritious, healthier and more sustainable food systems and food choices.

Activities are expected to achieve TRL 5 by the end of the project

The total indicative budget for the topic is EUR 11.00 million.

Destination 3: Circular economy and bioeconomy sectors

HORIZON-CL6-2021-CircBio-01-01: Circular Cities and Regions Initiative (CCRI)'s circular systemic solutions

Scope: Proposals are expected to implement and demonstrate circular systemic solutions for the deployment of the circular economy (including the circular bioeconomy) in cities, regions or their groupings. The circular systemic solutions implemented should address economic, social and environmental dimensions of the transition towards a circular economy and include science, technology and governance components. They should demonstrate circular governance models and support the active participation of all relevant actors in cities, regions or their groupings.

Expected outcomes:

- improved circularity and reduced GHG emissions in economic sectors, natural ecosystems, and efficient valorisation of local resources in cities, regions or their groupings;
- creation of business opportunities in the circular economy at urban and/or regional scale;
- increased circular and climate-neutral practices among citizens and their participation in circular systemic solutions;

- enhanced knowledge transfer between the cities, regions or their groupings involved in the proposals financed under this topic and other cities and regions across EU member states and associated countries;
- creation of jobs in the short to medium-term perspective;
- more effective widespread uptake and easier replication, scalability and visibility of circular systemic solutions and hence multiplication of their economic, social and environmental benefits to achieve the policy targets of the European Green Deal, Circular Economy Action Plan, EU Bioeconomy Strategy and the European Industrial Strategy at local, regional, national, European and international levels.

Activities are expected to achieve TRL 6-8

The EU estimates that an EU contribution of between EUR 5.00 and 10.00 million would allow these outcomes to be addressed appropriately.

HORIZON-CL6-2021-CircBio-01-04: Novel, non-plant biomass feedstocks for industrial applications

Scope: The innovative bioeconomy sectors need to diversify and to deliver technological and industrial solutions based on available and sustainably accessible biomass. In particular, current plant-based biorefining may need upgrading to leave more land available for biodiversity protection and food production, while allowing the substitution of fossil-based resources with bio-based ones. The scope covers production of key bio-based products such as food and feed ingredients, including proteins, lipids and fibres, antioxidants and other substances with biological activities, as well as important bio-based materials (e.g. bio-based plastics, composites, fibres) or chemicals in a resource-efficient approach

Expected outcomes:

- More effective prospecting and greater use of the biological diversity to generate verifiably more sustainable biomass feedstocks, including through improved harvesting, and processing, and commercially valuable climate-neutral circular bio-based, materials and products. This covers more robust verification of sustainability via life-cycle assessment approaches.
- Greater resource efficiency of production pathways, by applying upcycling and cascading use of biomass residues or side-streams (e.g. as growing substrates), leading to lower land dependence for biomass, and thus reducing any conflict with food/feed production.
- Higher capacity and engagement of SMEs, contributing to skilled job creation and economic benefits, with an improvement of industrial competitiveness due to expanded range of natural ingredients for the new applications in industrial sectors. Higher functional performance of the pursued value chains and products, and more sustainable industrial practices and resource independence of the EU and Associated Countries.
- Better public understanding across Europe, of biotechnology, and of the biodiversity conservation and enhancement objectives enshrined in the EU Biodiversity Strategy and respect to the principles of Access and Benefit Sharing (UN Biodiversity Convention), via clear, inclusive and transparent communication strategies.

Activities are expected to achieve TRL 7 by the end of the project

Expected EU contribution per project: The EU estimates that an EU contribution of around EUR 6.00 million would allow these outcomes to be addressed appropriately.

HORIZON-CL6-2021-CircBio-01-07: Mainstreaming inclusive small-scale bio-based solutions in European rural areas

Scope: Europe's future economic growth and jobs will increasingly have to come from innovation in products, services and business models. This is why considerable investments in research and innovation are currently taking place. However, barriers to adoption and implementation of research results exist and cooperation between research, advisory services, farmers, foresters and other actors in the supply chain is not sufficiently facilitated. Regional platforms for innovation support services are needed to assist European regions in developing their bio-based economies and to increase the awareness and knowledge about emerging opportunities as well as the environmental and socio-economic impacts relating to the valorisation of locally or regionally available biomass.

Expected outcome:

- Enhanced cooperation of key players and knowledge holders resulting in sustainable business model pathways for bio-based innovations in rural areas.
- Provision of tailored and independent support to innovators in order to accelerate the development of marketable products and services and to improve the market penetration of bio-based solutions in Europe.
- Successful deployment of existing scientific and practical knowledge and increased number of implemented bio-based solutions in rural areas in line with relevant policy initiatives (e.g. Bioeconomy Strategy, European Green Deal, Common Agricultural Policy, Long-Term Vision for Rural Areas, etc.).

Expected EU contribution per project: The EU estimates that an EU contribution of around EUR 3 million would allow these outcomes to be addressed appropriately.

Destination 4: Clean environment and zero pollution

HORIZON-CL6-2021-ZEROPOLLUTION-01-01: Regional nitrogen and phosphorus load reduction approach within safe ecological boundaries

Scope: Successful proposals will support local administrations and policy makers to apply a systemic approach preventing pollution from nitrogen and phosphorus, in line with the Zero Pollution Ambition. Project outcomes will contribute to maintaining nitrogen and phosphorus flows well within safe ecological boundaries at EU, regional and local scale and to restoring ecosystems. Project results are expected to contribute to all of the following expected outcomes:

Expected outcome:

- Harmonised environmental protection policies and implementation actions delivered by local administrations and policy makers to achieve nitrogen and phosphorus load reduction targets at regional/river basin level.

- Best practices shared in EU and Associated Countries to prevent pollution from nitrogen and phosphorus emissions to air/soil/water including the design of inter-sectorial governance models and policy implementation tools to deploy the concept of nitrogen and phosphorus load reduction targets.
- Improved knowledge on the physical science of climate change.

Expected EU contribution per project: The EU estimates that an EU contribution of around EUR 2.00 million would allow these outcomes to be addressed appropriately.

HORIZON-CL6-2021-ZEROPOLLUTION-01-06: Increasing the environmental performance of industrial processes in bio-based sectors: construction, woodworking, textiles, pulp and paper and bio-chemicals

Scope: Proposals under this topic should focus on all of the following industrial bio-based sectors: construction, woodworking, textiles, pulp and paper, and bio-chemicals. Proposals will identify and analyse case studies for each aforementioned industrial bio-based sector at the local (regional, rural, urban or coastal) or international scale within the EU and Associated Countries, and collect data and figures on the environmental performance of industrial processes in these sectors and improve existing and/or develop new methodologies to assess the environmental impacts of these processes.

Expected Outcome: The successful proposal will support circular bio-based systems in industrial sectors in line with the European Green Deal and its Zero Pollution ambition and 2030 Climate Target Plan by increasing the environmental performance and sustainability of processes, and their ability to reverse climate change, restore biodiversity and protect air, water and soil quality along industrial value chains, within EU and across borders. Project results are expected to contribute to the following expected outcome:

- Improvement of the environmental performance of industrial processes in the following bio-based sectors: construction, woodworking, textiles, pulp and paper, and bio-chemicals.

Activities are expected to achieve TRL 5 by the end of the project

Expected EU contribution per project The EU estimates that an EU contribution of around EUR 3.50 million would allow these outcomes to be addressed appropriately

Destination 5 – Land, oceans and water for climate action

HORIZON-CL6-2021-CLIMATE-01-08: Agroforestry to meet climate, biodiversity and farming sustainability goals

Scope: Achieving sustainable agricultural production that fosters both climate change mitigation and adaptation and biodiversity preservation and enhancement is a policy objective that implies finding a balance with farm productivity, socio-economic viability and wider sustainability goals. Agroforestry systems include both traditional and modern land-use

systems where trees are managed together with crops and/or animal production systems in agricultural settings. These systems have the potential to increase ecosystem services - including soil carbon sequestration, water retention, erosion control, soil nutrients, pollination, pest- and disease-control - and biodiversity, while improving farming productivity, profitability and sustainability of farmers' incomes. Implementation of agroforestry in Europe needs to be boosted in order to maximise this potential.

Expected outcome: Project results are expected to contribute to some of the following expected outcomes (depending on the activities covered):

- Improved qualitative and quantitative data availability of the contribution of agroforestry to climate change (mitigation and adaptation), soil conservation and (agro-)biodiversity (including genetic diversity within species) and to greater economic, environmental and social sustainability of farming
- Improved configuration and management of agroforestry systems, including systems involving animal production, through models and tools
- Enhanced capacities of various actors to measure the economic, environmental and social performance of agroforestry, in particular at farm level and in relation with the support scheme designed under the Common Agricultural Policy as regards environment and climate objectives, through appropriate methods and indicators
- A strengthened and more robust European agroforestry innovation ecosystem and increased end user acceptance and implementation of agroforestry in Europe
- Dependable and transparent knowledge base for EU policy design and implementation (Common Agricultural Policy, European Green Deal objectives, Farm to Fork and Biodiversity strategies, etc.).

Expected EU contribution per project The EU estimates that an EU contribution of around EUR 4.00 million would allow these outcomes to be addressed appropriately

[HORIZON-CL6-2021-CLIMATE-01-09: Enhancing science-based knowledge on EU forests', including old-growth forests, capacities to mitigate climate change](#)

Scope: Carbon sequestration by forest ecosystems has attracted much interest as a mitigation approach, as it can be considered as a relatively inexpensive option to address climate change in the short- medium- and long term. Forest lands, covered by the regulation on land use, land-use changes and forestry, are expected to contribute to the achievement of Europe's climate ambition for 2030. As shown in the in-depth analysis in support of the "Clean Planet for all" communication, this contribution needs to be increasing to achieve climate neutrality by 2050. This topic aims to increase the science-based knowledge for an efficient implementation of good management practices that ensure the multiple functions of various forest types in Europe and to increase forest carbon stocks in the short-, medium-, and long-term.

Expected outcome: Project results are expected to contribute to all of the following expected outcomes:

- Forest managers adapting to sustainable management practices in view of climate change, bioeconomy and biodiversity objectives

- Improved knowledge on scenarios and sustainable pathways for forestry and the forest based sector including measures and management strategies taking into account regional differences in Europe and changes in species composition.
- Increased forest-based carbon removals through forest management practices and uses of long-lived wood products
- Better understanding on how forest management impacts carbon sequestration in comparison to non-managed forests
- Pathways to achieve the ambition of the Paris Agreement ambition to limit climate warming
- Transfer of knowledge from science to practice (good practice)

Expected EU contribution per project The EU estimates that an EU contribution of around EUR 5.00 million would allow these outcomes to be addressed appropriately.

Destination 6 – Resilient, inclusive, healthy and green rural, coastal and urban communities

HORIZON-CL6-2021-COMMUNITIES-01-01: Grasping rural diversity and strengthening evidence for tailored policies enhancing the contribution of rural communities to ecological, digital and social transitions

Scope: The EU aims to lead just digital, economic and ecological transitions that will leave no one behind. One quarter of EU citizens live in rural areas, which represent 76% of the EU territory and supply the whole of society with essential goods and services. These broad figures hide a variety of situations, challenges and opportunities regarding the aforementioned transitions that the current evidence base insufficiently captures. The design of positive governance frameworks and policy interventions for rural communities is hampered by i) the lack of conceptual frameworks that properly grasp the role of rural areas and communities in sustainable development and sustainability transitions; ii) a lack of data on several aspects at the right geographic scale, in particular on climate and environment performance and on social challenges, quality of life and well-being.

Expected outcome: Projects results are expected to contribute to all of the following expected outcomes:

- more evidence-based, place-based, integrated and tailored policies, strategies and governance frameworks at local, regional, national and EU levels to drive the sustainable transition of rural areas and communities, building on the specific outcomes below;
- a refined understanding by policy-makers and rural actors of the diversity of rural situations, and of the challenges and opportunities associated with megatrends, potential major shocks and upcoming transitions, in particular climate, environmental and social challenges, to tailor policy interventions to local realities;
- a refined understanding by policy-makers and rural actors of functional characteristics of territories, functional relations between rural places and other rural and/or urban places within

a territorial continuum and the importance of these relations for sustainable development, to design synergistic approaches favouring a networked and interlinked development; and

- a refined assessment by policy-makers of the impact of all current and upcoming policies on rural communities (rural proofing³⁶⁴), including sectoral or thematic policies (such as climate, energy, mobility, digitalisation, health and social inclusion), or policy frameworks designed to accompany sustainability transitions in general, to tailor interventions to maximise possibilities for rural communities to contribute to and benefit from these transitions.

Activities are expected to achieve TRL 3-5 by the end of the project

Expected EU contribution per project The EU estimates that an EU contribution of between EUR 7.00 and 7.50 million would allow these outcomes to be addressed appropriately.

HORIZON-CL6-2021-COMMUNITIES-01-02: Expertise and training centre on rural innovation

Scope: Proposals should provide capacity building on rural innovation towards rural communities and actors in the EU and beyond, seeking to valorise the outcomes of projects funded under various programmes. The latter may include Horizon 2020, Horizon Europe, the common agricultural policy (LEADER, EIP-AGRI operational groups), regional policy (community-led local development, INTERREG, smart specialisation strategies), preparatory actions such as the Smart rural project or SMARTA380 and other EU or non-EU relevant actions. Projects from these programmes should be considered as relevant if they produced practical tools to develop and/or implement strategies and roadmaps in various domains (energy, digital, climate adaptation and mitigation, mobility, environment, social, education and care, food etc.), innovation approaches such as living labs, activities related to smart villages; training packages, videos etc. innovation activities in general and innovative solutions.

Expected outcome: Project results are expected to contribute to all of the following expected outcomes:

- enhanced capacity of rural communities and rural people to innovate for change thanks to the specific outcomes below;
- improved skills and knowledge of rural citizens, entrepreneurs, organisations, local action groups³⁷⁸ and community leaders of existing tools to develop and implement rural innovation (including social innovation) strategies and innovative actions to implement these strategies in rural communities, in all domains of relevance to rural life and economy;
- shortening of the innovation cycle in rural communities and businesses leading to quicker results and transitions in rural communities, strengthened human capital, including more lively networks and improved attractiveness of rural communities, in particular for women and young people;
- enhanced valorisation by rural communities of the results of rural innovation projects funded under various programmes; and
- enhanced dialogue and cooperation on rural innovation worldwide, with sharing of learning resources.

Expected EU contribution per project The EU estimates that an EU contribution of around EUR 5.00 million would allow these outcomes to be addressed appropriately

HORIZON-CL6-2021-COMMUNITIES-01-06: Inside and outside: educational innovation with nature-based solutions

Scope: Citizens and experts have identified better awareness of the opportunities, benefits, and limitations of nature-based solutions (NBS) as one of the main factors that could facilitate the transition to more sustainable cities and territories and help build physical and mental resilience. Examples of NBS include green roofs and green walls that cool down cities in the summer; parks that mitigate air pollution and provide leisure and exercise opportunities to citizens; green corridors connecting natural areas; urban food gardens, etc. The scope of the present topic is to upscale that pilot, broaden its geographical and educational reach, and increase its impact. The successful proposal should set up a multidisciplinary, pan-European network of education professionals, researchers, public authorities, multipliers and civil society to integrate and help create awareness and mainstream NBS-related EU research and innovation into primary and secondary schools, vocational training and higher education centres (e.g. architecture and engineering), influencers, mass media and other multipliers.

Expected outcome: Project results are expected to contribute to all following expected outcomes:

- Increased awareness of the value of NBS to educate children and young people in an innovative and holistic way, developing 21st century competencies, values and attitudes through an active and engaging pedagogy.
- NBS teaching programmes and materials are more widely available across the EU.
- Local communities across the EU are stimulated to co-create NBS , thus contributing to greater upscaling and impact of these solutions.
- Increase awareness and long-term public engagement on NBS and their benefits, enhancing citizens' capacity to act as responsible and participative actors in a knowledge-based society.

Expected EU contribution per project The EU estimates that an EU contribution of around EUR 5.00 million would allow these outcomes to be addressed appropriately. N

Destination 7 – Innovative governance, environmental observations and digital solutions in support of the Green Deal

HORIZON-CL6-2021-GOVERNANCE-01-04: Strengthening bioeconomy innovation and deployment across sectors and all governance levels

Scope: Innovation today and the initiatives and structures that are part of it at EU, national, regional, and local level already contribute to the uptake and deployment of innovative solutions for example by supporting testing, demonstration, and training, and by investing in the infrastructure that enables these activities. However, more action is needed to (1) address the fragmentation of this innovation ecosystem across food systems and bio-based sectors, (2) to create linkages between the different levels of governance, and (3) to improve the interfacing between the research communities, the innovation communities, investors and

citizens. Actions that address these areas of improvement across the bioeconomy are to be preferred because their crosscutting nature and trans-disciplinarity might be a further source of innovation, and because they enable sharing of best practices across sectors and actors.

Expected outcome: It will contribute to improved governance for innovation ecosystems and enable advances in sustainability and resilience. Project results are expected to contribute to all following expected outcomes:

- Improved understanding about which measures should be taken, by EU, Member States, and others to strengthen the innovation ecosystem within and across food systems and bio-based sectors, based on a detailed mapping exercise and on a comprehensive view on issues related to deployment
- Improved impact and efficiency of bioeconomy innovation and innovation systems These outcomes will also support the Farm to Fork Strategy for fair, healthy and environmentally friendly food systems, the EU Green Deal policy priorities and the EU's Climate ambition for 2030 and 2050.

Expected EU contribution per project The EU estimates that an EU contribution of around EUR 4.00 million would allow these outcomes to be addressed appropriately.

[HORIZON-CL6-2021-GOVERNANCE-01-07: Regional governance models in the bioeconomy](#)

Scope: Improved and informed governance including social innovation contributes to reducing resource consumption and results in an increased innovation capacity of all actors, and reducing the risk of leaving anyone behind. This should take into account the regional and local peculiarities, including feedstock availability, industrial development, consumption patterns, market measures and available investment streams (financial models), while ensuring effective sharing of best practices across European regions. This also helps to advance innovation at local scale and engage all actors. This action shall support the implementation of sustainable bio-based value chains, in regional settings (toolbox of instruments including strategies, plans and programmes, including the social dimension).

Expected outcome: Projects results are expected to contribute to all of the following expected outcomes: • Creation of a supporting governance structure and related capacities for regional authorities, contributing to the Circular Cities and Regions Initiative (CCRI) 447 and aiming at developing comprehensive and innovation- and sustainability-driven bioeconomy strategies.

- Support to local economic and implementing authorities, including at bioeconomy clusters' level, to improve engagement of regional and local actors, considering hierarchy of use, trade-offs, synergies, business models, participatory approaches etc. with improved environmental, social and economic impacts.
- Support to the development of regional/local strategies, aiming at exploiting and developing balanced local potentials and innovation (in terms of feedstock, infrastructures (e.g. biorefineries) for logistics, services and production, investments) within the framework of local development and investment as well as environmental protection plans.
- Integration of the opportunities created by the local bio-based economy within broader bioeconomy transition, e.g. by linking ecosystem/nature services' valorisation with

sustainable biomass production, processing, product design and manufacture, circular use and upcycling to new applications.

- Development of the best practice guidelines for local operators and innovation developers, supporting climate-neutrality and low environmental footprint improvements of bio-based products and services;
- Development of novel business models and related social measures to enable consumers, industry and public bodies to switch to socially and environmentally responsible behaviour within their choices (e.g. regulatory measures, corporate responsibility initiatives, education); ensuring synergies, transparency and inclusiveness of all actors;

Expected EU contribution per project The EU estimates that an EU contribution of around EUR 2.50 million would allow these outcomes to be addressed appropriately.

Regional governance models in the bioeconomy

Improving understanding of and engagement in bio-based systems with training and skills development