Social Sciences and Humanities activities in Food, Bioeconomy, Natural Resources, Agriculture and Environment projects

The aim of this brokerage event is to provide a networking platform to facilitate the inclusion of Social Sciences and Humanities experts into Horizon Europe - Food, Bioeconomy, Natural Resources, Agriculture and Environment (Cluster 6) projects.

Queen's University Belfast prepared this informal document to introduce the European funding programme, Horizon Europe and the Cluster 6 ambition and objectives. It will also highlight in diagrams the specific areas requiring the involvement of Social Sciences and Humanities actors (non-exhaustive list). We expect this guide to help your networking activities on the platform.

Table of contents

What is Horizon Europe?

Horizon Europe is the EU's key funding programme for research and innovation with a budget of €95.5 billion. It tackles climate change, helps to achieve the UN's Sustainable Development Goals and boosts the EU's competitiveness and growth. The programme facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies while tackling global challenges. It supports creating and better dispersing of excellent knowledge and technologies. It creates jobs, fully engages the EU's talent pool, boosts economic growth, promotes industrial competitiveness and optimises investment impact within a strengthened European Research Area.

Organisations from the EU and associated countries can participate. The United Kingdom (including Northern Ireland) initiated the association process and is eligible to participate.

The programme fund research excellence, collaborative research aligned with Global Challenges and Innovation in Europe.

Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment

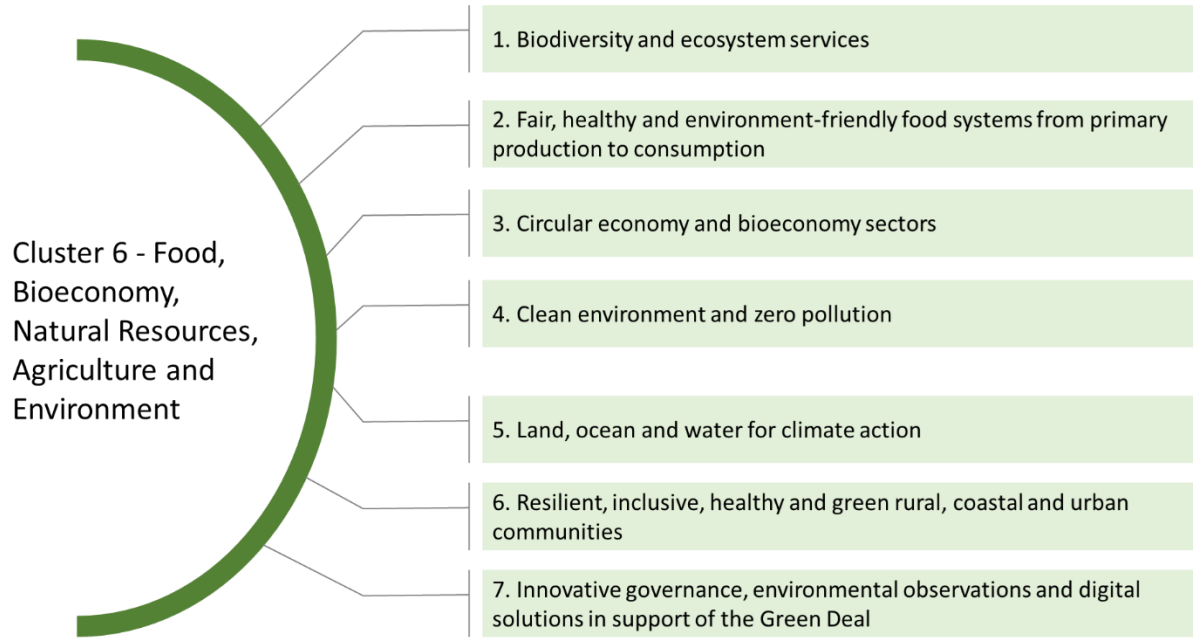
This cluster aims at reducing environmental degradation, halting and reversing the decline of biodiversity on land, inland waters and sea and better managing natural resources through transformative changes of the economy and society in both urban and rural areas.

It will ensure food and nutrition security for all within planetary boundaries through knowledge, innovation and digitalisation in agriculture, fisheries, aquaculture and food systems and steer and accelerate the transition to a low carbon, resource efficient circular economy and sustainable bioeconomy, including forestry.

This part of the programme funds collaborative research and innovation projects. These projects aim at involving a wide range of actors to resolve a complex problem.

Social Sciences and Humanities potential opportunities in the Food, Bioeconomy, Natural Resources, Agriculture and Environment programme

The Cluster 6 is organised in 7 destinations:



1. Biodiversity and ecosystem services

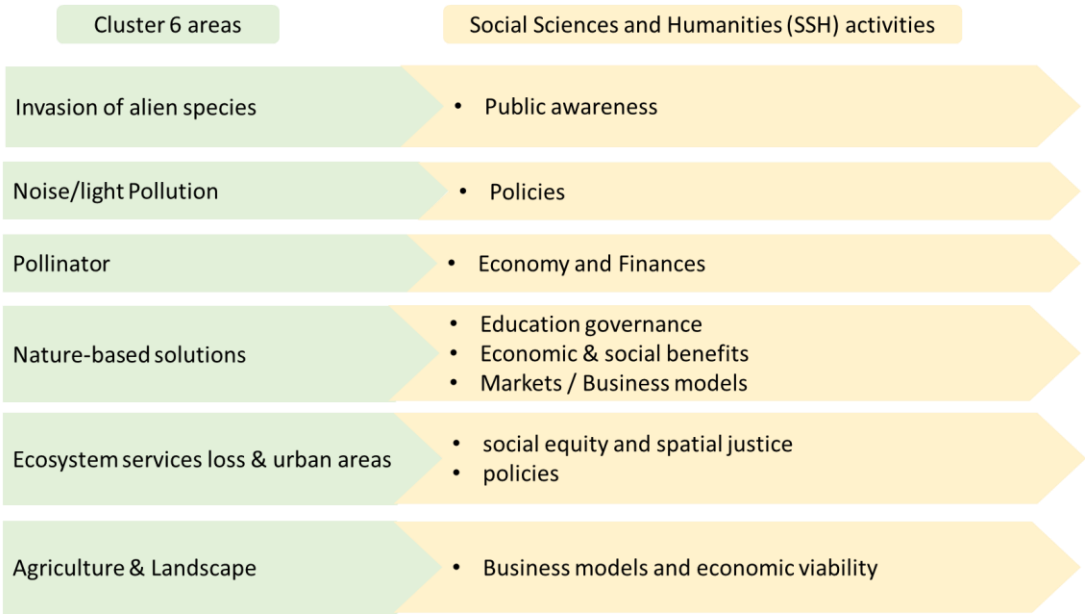
The biodiversity and ecosystem services destination will support research and innovation for the EU environment and biodiversity protection framework and the EU Green Deal. It is based on the vision developed in the EU biodiversity strategy 2030 and will support its implementation. It will also take into account new Green Deal initiatives, notably the EU forest strategy 2030, the EU action plan: 'towards zero pollution for air, water and soil', the EU climate adaptation strategy and the EU soil strategy for 2030.

Research and Innovation supported under this destination will ensure that mainstreaming biodiversity in society and the economy takes into account justice, fairness and global aspects in order to ensure the “just transition” emphasized in the European Green Deal.

Projects should contribute towards the Strategic Plan: "Biodiversity is back on a path to recovery, and ecosystems and their services are preserved and sustainably restored on land, inland water and at sea through improved knowledge and innovation", and more specifically to one or more of the following impacts:

- Understand and address direct drivers of biodiversity decline – land and sea use change, natural resource use and exploitation, climate change, pollution, invasive alien species – as well as indirect drivers – demographic, socio-economic, technological, etc.
- Plan, manage and expand protected areas and improve the status of species and habitats based on up-to-date knowledge and solutions.

- Mainstream biodiversity, ecosystem services and natural capital in the society and economy: integrate them into public and business decision-making; build approaches for enabling transformative changes to tackle societal challenges including through the deployment of nature-based solutions (NBS).
- Develop and improve practices in agriculture, forestry, fisheries and aquaculture to support and make sustainable the use of biodiversity and a wide range of ecosystems services.
- Interconnect biodiversity research and support policies and processes at EU and global levels, making use of advanced digital technologies where appropriate.



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

National, EU and global food systems are facing sustainability challenges, from primary production to consumption that could jeopardise food and nutrition security. The farm to fork strategy, and its follow-up initiatives, aim to address these challenges and supports transition to more resilient and environmentally, socially and economically sustainable food systems on land and at sea that provide healthy diets for all and respect planetary boundaries.

Sustainable, climate neutral and biodiversity friendly farming systems provide economic, social (including health), environmental and climate benefits, and are the main prerequisite for food and nutrition security.

Sustainable fisheries and aquaculture contribute directly to environment-friendly, resilient, inclusive, safe and healthy food production by providing highly nutritional proteins, lipids and micronutrients for a healthy diet. Following the farm to fork strategy, production methods should make the best use of nature-based, technological, digital and space-based solutions, optimising the use of inputs (e.g., nutrients and antimicrobials) and increasing climate-neutrality and resilience and safeguard aquatic biodiversity. This will contribute to the Food 2030 pathway for action 'food from oceans and freshwater resources'.

Sustainable, healthy and inclusive food systems rely on systemic, cross-sectoral and participatory, multi-actor approaches and the integration between policy areas at all levels of governance. Food systems are to be understood as covering, 'from farm to fork', all the sectors, actors and disciplines relevant to and connecting natural resources, primary production on land and at sea, food processing and packaging, food distribution and retail, food services, food consumption, food safety, nutrition and public health, and food waste streams. An important driving force of food systems transformation should be the integration of sectors, actors and policies in order to better understand the multiple interactions between the actors and components of current food systems.

Projects funded under this destination are expected to contribute towards the following impacts:

- Enable sustainable farming systems providing consumers with affordable, safe, healthy and sustainable food, increasing the provision of ecosystem services, restoring and enhancing biodiversity, minimising pollution and pressure on ecosystems and emissions of greenhouse gases, fostering plant, animal and public health, improving animal welfare, and generating fair economic returns for farmers;
- Enable sustainable fisheries and aquaculture, in marine and inland waters, increasing aquatic multi-trophic biomass production in a way compatible with the protection of aquatic ecosystems and biodiversity, diversification of fisheries and aquaculture products, for fair, healthy, climate-resilient and environment-friendly food systems with lower impact on aquatic ecosystems and enhanced animal welfare.
- Accelerate the transition to sustainable, healthy and inclusive food systems, delivering co-benefits for climate change mitigation and adaptation, environmental sustainability and circularity, sustainable healthy diets and nutrition, food poverty reduction, empowered citizens and communities, and flourishing food businesses, while ensuring food safety and the economic sustainability of EU food systems during the transition.

Organic food	• Farmers' and consumers' acceptability • New governance models/relations among food chain actors • Social and economic performance
Food systems	• Policies (resilience) • Business strategies (resilience) • Co-benefits for producers, climate and citizens • Citizens science (sustainability) • Social just fair trade food systems (Africa)
Novel/alternative food	• Societal acceptance • Socio-economic impacts
Livestock systems, seafood, aquaculture	• Social, economic and ethical considerations
Food waste	• Optimising marketing standards • Economic issues
Healthy nutrition	• Socio-economic analysis, policies (for vulnerable groups) • Tools to eat better at home, culinary culture dimension, financial impact

Organic farming	• Farmers' and consumers' acceptability; • New governance models/relations among food chain actors; • Social and economic performance.
Ecosystem services	• Improved quantification of the ecosystem services in environmental and economic terms;
Plant health	• Citizen science as a tool to monitor emerging plant pests • Social and economic implications for farmers
Animal feed	• Economic sustainability and environmental impact
Farming & wildlife	• Cost/benefit analysis of current and new adopted farming strategies • Stakeholders' perspectives and needs, reduce conflicts • Damages and compensation mechanisms
Geographical indications of food sources	• Sustainability impacts of GIs products in economic, social and environmental terms; • Policies

3. Circular economy and bioeconomy sectors

This destination and its topics target climate-neutrality, zero pollution, circular and bioeconomy transitions, safe, integrated circular solutions at territorial and sectoral levels, for important material flows and product value chains, such as the textiles, electronics, chemicals, packaging, tourism, plastics and construction, as well as key bioeconomy sectors such as sustainable bio-based systems, sustainable forestry, small-scale rural bio-based solutions, environmental services and aquatic (including marine and freshwater) value chains. As the previous destination, it supports the EU Green Deal.

Proposals under this destination should contribute towards developing circular economy and bioeconomy sectors, achieving sustainable and circular management and use of natural resources, as well as prevention and removal of pollution, unlocking the full potential and benefits of the circular economy and the bioeconomy, with clean secondary raw materials, ensuring competitiveness and guaranteeing healthy soil, air, fresh and marine water for all, through better understanding of planetary boundaries and wide deployment and market uptake of innovative technologies and other solutions, notably in primary production (forestry) and bio-based systems.

The expected impacts are as follows:

- Accelerate regional, rural, local/urban and consumer-based transitions towards a sustainable, regenerative, inclusive, just and clean circular economy and bioeconomy across all regions of Europe; with special attention to the most sensitive/vulnerable regions, based on enhanced knowledge and understanding of science, improved capacity to design, implement and monitor policies as well as by instruments for circular and bio-based transitions;
- Enhance European industrial sustainability, competitiveness and resource independence by lowering the use of primary non-renewable raw materials and reducing emissions of greenhouse gases and other pollutants, achieving an improved environmental footprint (including on biodiversity), enabling climate-neutrality, zero pollution and higher resource

efficiency. This will be also supported by increasing circular practices in textiles, plastics, electronics and construction, developing further on industrial symbiosis and circularity and sustainability by design, cascading use of biomass, clean secondary raw materials, along and across value chains;

- Develop innovative and sustainable value-chains in the bio-based sectors substituting fossil-based ones, increasing circular bio-based systems from sustainably sourced biological resources, replacing carbon-intensive and fossil-based systems. Such development will be supported via research and innovation on biotechnology and other enabling technologies, as a prerequisite and driver of future solutions for a circular economy and the bioeconomy transition, with inclusive engagement of all stakeholders, including policymakers;
- Improve on consumer and citizen benefits, including in the rural settings, by establishing circular and bio-based systems based on sustainability, inclusiveness, zero pollution104, health and safety; reaching a significantly higher level of involvement of all value chain actors (manufacturers, retailers, service industry, consumers, public administration, primary biomass producers etc.);
- Safeguard multi-functionality and management of forests in Europe based on the three pillars of sustainability (economic, environmental and social), in particular to optimise the contribution of forests and the forest-based sector to climate change mitigation and adaptation;
- Enlarge potential of marine and freshwater biological resources and blue biotechnology to deliver greener (climate-neutral and circular) industrial products and processes, and to help characterize, monitor and sustain the health of aquatic ecosystems for a healthy planet and people and propose accompanying changes in regulation where necessary.

4. Clean environment and zero pollution

This destination seeks to halt and prevent pollution by focusing on removing the pollution of fresh and marine waters, soils, air, including from nitrogen and phosphorus emissions, on substituting harmful chemicals, on improving the environmental sustainability and circularity of bio-based systems as well as on reducing environmental impacts and pollution from food systems.

Proposals should contribute to halt and eliminate pollution to guarantee clean and healthy soils, air, fresh and marine water for all and ensure a sustainable and circular management and use of natural

resources. To reach this objective, it will be paramount to advance the knowledge of pollution sources and pathways to enable preventive measures, improve sustainability and circularity, apply planetary boundaries in practice and introduce effective remediation methods:

- Move towards achieving clean, unpolluted surface water and groundwater bodies in the EU and Associated Countries by advancing the understanding of diffuse and point sources of water pollution in a global and climate change context, enabling novel solutions to avoid degradation and restore water bodies, aquatic ecosystems and soil functionality, and further enhancing water quality and its management for safe human and ecological use, while fostering the EU's and Associated Countries' positions and roles in the global water scene;
- Balance Nitrogen/Phosphorus flows within safe ecological boundaries at regional and local scale, thereby contributing to restoring ecosystems;
- Move towards achieving clean, unpolluted ocean and seas, including in the Arctic as a result of successful scientific, technological, behavioural, socio-economic, governance and green-blue transitions;
- Enhance circular bio-based systems to operate within planetary boundaries, replacing fossil-based systems and their carbon footprint, mitigating climate change, restoring biodiversity and protecting air, water and soil quality along the supply chain of biological feedstocks and industrial value chains within the EU and Associated Countries and across borders;
- Substitute harmful chemicals with safer and more sustainable alternatives, notably by boosting innovative biotechnology and other sustainable technologies to create zero-pollution bio-based solutions;
- Reduce the environmental impact of food systems, including by increasing knowledge of the environmental and climate impacts stemming from the food systems and reducing the pollution of plastic food packaging.

5. Land, ocean and water for climate action

Achieving sustainable ocean, water and land management, and an efficient use of natural resources that foster climate change mitigation implies finding the right balance between productivity, climate, biodiversity and environmental goals in the agriculture and forestry sectors, with a long-term perspective. Activities in this destination will support solutions for climate- and environmentally-

friendly practices, to reduce emissions of major greenhouse gases, other pollutants and the environmental impact of ocean and land use changes and agricultural activities.

Proposals under this destination should contribute towards climate action on land, including forestland, grassland, cropland and wetland, ocean and water and more specifically to one or several of the following impacts:

- Better understand and enhance the mitigation potential of ecosystems and sectors based on the sustainable management of natural resources;
- Advance science and technology to support adaptation and resilience of natural and managed ecosystems, on land, in the ocean, in water and soil systems and economic sectors in the context of the changing climate, including its interaction with drivers of biodiversity change and zero pollution;
- Efficient monitoring, assessment, modelling, data-driven decision-making support systems and projections related to climate change impacts, mitigation and adaptation potential in order to derive solutions for tackling emerging threats and support decision-making in climate change mitigation and adaptation policies at European and global levels, including the use of artificial intelligence and other digital solutions;
- Foster climate change mitigation in the primary sectors, including by the reduction of their GHG emissions and other pollutants, maintenance of natural and man-made carbon sinks and enhancement of uptake and storage of carbon in ecosystems, taking into account trade-offs with regard to ecosystems;
- Improve the adaptive capacity to climate change of the ocean, sea, water and soil systems and sectors, including by unlocking the potential of nature-based solutions;
- Sustainably manage scarce resources, in particular soils and water, thus mitigating climate related risks, in particular desertification and erosion, thanks based onto informed decision-makers and stakeholders and integration of adaptation measures in relevant EU policies.

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

Places and people matter to the achievement of a more sustainable Europe. The Sustainable Development Goals will differ for different places and people. Rural (including mountains and sparsely populated areas) and coastal areas, play a key role in protecting, managing, and using natural resources. The provision of both private and public goods from these areas depends on the resilience and attractiveness of rural and coastal communities, which should be guaranteed also by the access to good quality services. The COVID-19 pandemic has highlighted deficiencies in digital

infrastructures and economic opportunities that hamper resilience. It also highlighted the importance of high-quality and biodiverse green and blue spaces for the health and well-being of local communities. The New European Bauhaus initiative offers possibilities to redesign living spaces to improve sustainability, inclusiveness, and aesthetics, setting out a route to a more resilient, inclusive, healthy and green (built) environment.

Proposals under this destination should contribute towards resilient, inclusive, just, healthy and green rural, coastal and urban communities and more specifically one or several of the following expected impacts:

- Rural, coastal and urban areas are developed in a sustainable, balanced, equitable and inclusive manner thanks to a better understanding of the environmental, socio-economic, behavioural, cultural, architectural and demographic structures, needs and drivers of change and their interconnections, as well as deployment of digital, nature-based, social and community-led innovations;
- Rural, coastal and urban communities are empowered to act for change, be better prepared to achieve climate-neutrality and adapt to climate change, and turn digital and green transitions into increased resilience, and positive long-term prospects;
- Rural communities are equipped with upgraded innovation ecosystems and innovative and smarter circular solutions that increase access to services and job opportunities, including for women, youth and the most people in vulnerable situations, improve attractiveness and reduce the feeling of being left behind, even in the most remote locations like mountains and outermost regions;
- Sustainable development of coastal areas, including coastal protection and resilience, is enhanced, reaping the benefits of social, digital and community-led innovations, to deliver nature-based and scientifically validated solutions to existing coastal socio-economic and environmental threats;
- Urban and peri-urban communities – including people in vulnerable situations – can access, afford and choose healthy, nutritious and environmental-friendly food;
- Communities in natural and coastal areas can offer sustainable, quality, environmentally and socially friendly tourism, recreational and leisure activities.

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

Taking advantage of the use, uptake, deployment and exploitation of environmental observations as well as digital and data-based green solutions, assessed through the 'do not harm' principle of the Green Deal, is key for innovative governance models and a science-based policy design, implementation and monitoring. To maximise impacts of research and innovation on the ground and spark behavioural and socio-economic change, the knowledge and innovation produced throughout the whole cluster should be widely disseminated to and exchanged by the key stakeholders and end users.

Proposals under this destination should contribute towards innovative governance and sound decision making in policy for the green transition and more specifically to one or more of the following impacts:

- Innovative governance models enabling sustainability and resilience notably to achieve better informed decision-making processes, societal engagement and innovation;
- Green Deal related domains benefit from further deployment and exploitation of Environmental Observation data, products and 'green' solutions;
- Sustainability performance and competitiveness in the domains covered by Cluster 6 are enhanced through further deployment of digital and data technologies as key enablers;
- Better informed and engaged stakeholders and end users including primary producers and consumers thanks to effective platforms such as Agriculture Knowledge and Innovation Systems (AKIS);
- Strengthened EU and international science-policy interfaces to achieve the Sustainable Development Goals.

Sustainable farming	• Farmer behaviour
Food systems	• Innovative systems taking into account science, policy, industry, and society • Data: informed consumer choices, EU food law and policies
Healthy food consumption	• Role of media, social media and marketing; • Closing gaps across generations, socio-economic characteristics and countries • Behavioural economics
Bio-based solutions	• Business models & social innovation in rural communities • Inclusive, science-oriented mutual learning platform, for all actors (policy makers, societies)

Bioeconomy	• Assistance: access to finance and technical support • Assessment of land use and biomass demands • Policy-making, engagement and awareness, communication
Conversion of greenhouse gas economies	• Economic, social and environmental opportunities and challenges • Just and fair bioeconomy solutions
Digital transformation	• Citizens engagement for environment monitoring and data collection • Robotics in agriculture: business models and socio-economic conditions • Increase digital capacities in farming sector • Data spaces: legal, governance and business conditions • Digital infrastructure: transparency in the markets, lower risk, policies, tool for environmental and economic performance