WORK PROGRAMME 2021-2022

FOOD, BIOECONOMY, NATURAL RESOURCES, AGRICULTURE AND ENVIRONMENT

GREEN TRANSITION-BIODIVERSITY AND ECOSYSTEM

CALL: Biodiversity and ecosystem services (HORIZON-CL6-2021-BIODIV-01)

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

1. **QUANTIFY IMPACTS OF THE TRADE IN RAW AND PROCESSED BIOMASS ON ECOSYSTEMS, FOR OFFERING NEW LEVERAGE POINTS FOR BIODIVERSITY CONSERVATION, ALONG SUPPLY CHAINS, TO REDUCE LEAKAGE EFFECTS**

SUBMISSION:6 October 2021

BUDGET: 3 MILLION Euro

TYPE OF ACTION: Research and Innovation

Scope: In addition to focusing on limiting the impacts from biomass production and consumption on biodiversity, proposals should look at the whole trade-related value chain, at the scale needed to have a greater effect on protecting and restoring biodiversity. Proposals should analyse how the biomass sector could increase its positive impact on biodiversity. They should support biodiversity to deliver a wide range of ecosystem services, including on mitigating and adapting to climate change.

Proposals should increase the volume of evidence available by taking systematic approaches that take account of links between activities and leakage effects at different stages in the value chain or link production and consumption explicitly, including with institutions, businesses, retailers and investors, civil society, and should cover more than one product at a time. The knowledge gained should help establish an 'ecological footprint' of biomass and the manufactured goods based on biomass, within planetary boundaries as stipulated in the EU bioeconomy strategy67. The knowledge should be usable for science-industry cooperation on the bioeconomy 68 , and should follow the pollution and climate neutrality targets and commitments, due diligence and human rights requirements, and the policy on just transition, for the service industry and the financial sector.

Proposals should take into account the role of governments as major consumers of goods and services (and the leverage in procurement processes), and of manufacturers and retailers as consumers of primary resources.

The projects should give explicit values and accounting of these benefits for biodiversity. Proposals should look at how to further mainstream biodiversity into socio-economic and environmental agendas, from the transformative aspect of minimising the impacts of trade in raw and processed biomass for protecting, sustainably managing and restoring biodiversity and the wide range of ecosystem services it can deliver, in order to nudge pathways towards fair and equitable development and just transitions (1) across the EU Member States and associated countries, and (2) globally. Proposals should build their analysis on the synergies between multiple Sustainable Development Goals, to deliver directly and indirectly biodiversity benefits. They should highlight the role of biodiversity in attaining the set of Sustainable Development Goals relating to the trade in raw and processed biomass. Proposals should

provide case studies and collect good and failed examples that can serve as useful inputs to these transformations. They should inform and inspire transformative change through learning, co-creation and dialogue. Proposals should include specific tasks and allocate sufficient resources for coordination measures, to develop joint deliverables (e.g. activities, workshops, joint communication and outreach measures) with all projects on transformative change related to biodiversity funded under this destination. This applies to projects funded under this destination that aim to deliver multiple co-benefits, including on the reduction of biodiversity loss 69 . Proposals should use existing platforms and information sharing mechanisms relevant to promoting transformational change and sharing biodiversity knowledge.

2. UNDERSTANDING THE IMPACTS OF AND THE OPPORTUNITIES OFFERED BY DIGITAL TRANSFORMATION, NEW EMERGING TECHNOLOGIES AND SOCIAL INNOVATION WITH RESPECT TO BIODIVERSITY

SUBMISSION:6 October 2021

BUDGET: 3 MILLION Euro

TYPE OF ACTION: Research and Innovation

Scope: • Proposals should generate, collect and distribute knowledge on how to tackle the indirect drivers of biodiversity loss linked to technological and social innovation, which includes digitalisation. They should also assess the impacts on biodiversity of the digital divide between urban, peri-urban and rural areas.

Proposals should explain how changes in our societies are fostered by technological and social innovation impacting biodiversity – for example by bringing in new and emerging technologies, new production processes, consumer products, regulations, incentives, or participatory processes, which change how socio-technical and socio-ecological systems operate.

• Proposals are expected to contribute to informing stakeholders and users on the social and technological impacts of new and emerging technologies that are not covered by existing procedures for biodiversity-related risk assessments. This includes the wider positive and negative impacts on societal values, behaviour, institutional, financial and business frameworks, which in turn are having an impact on biodiversity and the capacity of ecosystems to provide a wide range of services.

• Proposals should assess which tools further mainstream biodiversity into policy making, and governance (including financing, the promotion of innovation, and bringing in new and emerging technologies) to achieve transformative action that benefits biodiversity, to avoid, mitigate or manage conflicts linked to these transformational changes80. In doing this, proposals should engage with civil society, policy makers, finance and business leaders, to create a toolbox for transformative change via action on biodiversity.

• Proposals should build their analysis on the synergies between multiple Sustainable Development Goals to deliver both direct and indirect biodiversity benefits, staying within planetary boundaries, and on the role of biodiversity in reaching the set of Sustainable Development Goals. Proposals should factor in impacts and opportunities of digital transformation, new emerging technologies and social innovation on biodiversity. This explicitly includes the interdependence of biodiversity loss and climate change, and

the impacts on biodiversity of digital, technological or social approaches on action to mitigate and adapt to climate change – and vice versa. • Proposals should develop pathways for digital developments to achieve a successful twin digital and biodiversity transition. They should develop methodologies to assess their impacts (including the impacts from energy/electricity infrastructure, or on democracy and on trust in science) on environmental, social and economic systems. Such assessments should focus on the direct and indirect effects of digital developments on biodiversity, intertwined with climate change and health. • Proposals should provide case studies and a collection of good and failed examples, including current relevant business models, the role of citizen science, and scenarios that could provide useful impact to these transformations and inform and inspire transformative change through learning, co-creation and dialogue. • Proposals should include specific tasks and allocate sufficient resources to develop joint deliverables (e.g. activities, workshops, and joint communication and dissemination) with all projects on transformative change related to biodiversity funded under this destination. They should use existing platforms and information sharing mechanisms relevant to transformational change and to biodiversity knowledge.

3. SUPPORT TO PROCESSES TRIGGERED BY IPBES AND IPC

SUBMISSION:6 October 2021

BUDGET: 5 MILLION Euro

TYPE OF ACTION: Coordination and Support

Proposals should cover the following:

providing assistance to the EU and associated countries, and to central Asian and to African researchers, knowledge holders and local communities for input into IPBES and IPCC; b. networking between scientific disciplines relevant to IPBES and IPCC (e.g. between SSH, STEM); c. translating IPBES output into EU languages, targeted to a wider readership by the EU public, interest groups, research and innovation projects, policy makers and businesses in cooperation with 'HORIZON-CL6-2021-BIODIV-01-19: A mechanism for science to inform implementation, monitoring, review and ratcheting up the new EU biodiversity strategy ('Science Service')'; d. facilitating synergies through cooperation between IPBES and IPCC researchers and relevant regional Multilateral Environment Agreements, such as the United Nations Economic Commission for Europe (UNECE) Air Convention; e. proposing standards for EU-funded biodiversity projects in applying the relevant work of the IPBES data and knowledge task force; f. supporting European negotiators at IPBES plenary meetings and inter-sessional work (such as for the review of assessments, the work of task forces and preparation for plenary groups); g. improving the level of coherence in how the EU and associated countries give input into both, CBD (e.g. SBSTTA/SBI) and IPBES processes in cooperation with 'HORIZONCL6-2022-BIODIV-01-10: Cooperation with the Convention on Biological Diversity'. The project should detail a plan on how the work can be further financed and governed over the medium- and long-term and secure commitments that enable the work to continue after the funding of this topic ends. Proposals must not develop any new platforms but ensure that all relevant evidence, data and information is accessible through e.g. the Oppla portal and cooperate with existing networks of national platforms 94 . They must also prepare the inclusion of its results to the EC Knowledge Centre for Biodiversity according to an agreed format. The project is to set a

clear plan on how it will plan to collaborate with other projects selected under this and any other related topics, such as 'HORIZON-CL6-2021-BIODIV-01-16: Biodiversity, water, food, energy, transport, climate and health nexus in the context of transformative change' and 'HORIZON-CL6-2021-BIODIV-01-21: Impact and dependence of business on biodiversity', and with the Biodiversity Partnership (HORIZON-CL6-2021- BIODIV-02-01). This includes links to ESFRI research infrastructures, to test whether they could host predictive models, visualization and analysis of their platform's, early warning systems, to respond to IPBES assessments and CBD requests), by participating in joint.

4. **UNDERSTANDING THE IMPACTS OF AND THE OPPORTUNITIES OFFERED BY DIGITAL TRANSFORMATION, NEW EMERGING TECHNOLOGIES AND SOCIAL INNOVATION ON BIODIVERSITY**

SUBMISSION:6 October 2021

BUDGET: 3 MILLION Euro

TYPE OF ACTION: Research and Innovation

Scope: •

Proposals should generate, collect and distribute knowledge on how to tackle the indirect drivers of biodiversity loss linked to technological and social innovation, which includes digitalisation. They should also assess the impacts on biodiversity of the digital divide between urban, peri-urban and rural areas.

Proposals should explain how changes in our societies are fostered by technological and social innovation impacting biodiversity – for example by bringing in new and emerging technologies, new production processes, consumer products, regulations, incentives, or participatory processes, which change how socio-technical and socio-ecological systems operate.

• Proposals are expected to contribute to informing stakeholders and users on the social and technological impacts of new and emerging technologies that are not covered by existing procedures for biodiversity-related risk assessments. This includes the wider positive and negative impacts on societal values, behaviour, institutional, financial and business frameworks, which in turn are having an impact on biodiversity and the capacity of ecosystems to provide a wide range of services.

• Proposals should assess which tools further mainstream biodiversity into policy making, and governance (including financing, the promotion of innovation, and bringing in new and emerging technologies) to achieve transformative action that benefits biodiversity, to avoid, mitigate or manage conflicts linked to these transformational changes80. In doing this, proposals should engage with civil society, policy makers, finance and business leaders, to create a toolbox for transformative change via action on biodiversity.

• Proposals should build their analysis on the synergies between multiple Sustainable Development Goals to deliver both direct and indirect biodiversity benefits, staying within planetary boundaries, and on the role of biodiversity in reaching the set of Sustainable Development Goals. Proposals should factor in impacts and opportunities of digital transformation, new emerging technologies and social innovation on biodiversity. This explicitly includes the interdependence of biodiversity loss and climate change, and

the impacts on biodiversity of digital, technological or social approaches on action to mitigate and adapt to climate change – and vice versa. • Proposals should develop pathways for digital developments to achieve a successful twin digital and biodiversity transition. They should develop methodologies to assess their impacts (including the impacts from energy/electricity infrastructure, or on democracy and on trust in science) on environmental, social and economic systems. Such assessments should focus on the direct and indirect effects of digital developments on biodiversity, intertwined with climate change and health.

5. WHAT ELSE IS OUT THERE? EXPLORING THE CONNECTION BETWEEN BIODIVERSITY, ECOSYSTEMS SERVICES, PANDEMICS AND EPIDEMIC RISK

SUBMISSION:6 October 2021

BUDGET: 3 MILLION Euro

TYPE OF ACTION: Research and Innovation

Scope:

Wildlife microbiomes, whether symbiotic, commensal or pathogenic, and their potential to spread by crossing interspecies barriers, eventually reaching humans via transitional interfaces (e.g. peri-urban, farming areas), are still largely unknown. Complex links between increased human-mediated disturbance, land-use change, natural habitat loss/degradation/fragmentation, climate change and biodiversity loss have all been linked to increases in the increased prevalence and risk of zoonotic disease for a variety of pathogens, mostly driven by human activities that modify the environment or spread pathogens into new ecological niches. Zoonotic diseases are significant threats to human health, with vectorborne diseases accounting for approximately 17 per cent of all infectious diseases and causing an estimated 700,000 deaths globally56 in a normal year, which can more than double in pandemic years .

The magnitude and direction of altered disease incidence due to anthropogenic disturbance differ globally and between ecosystems. Some described mechanisms and drivers that especially affect infectious disease risk are 58 habitat alteration (e.g. deforestation, urbanisation), depletion of predators, biological invasion, host transfer, biodiversity change, human-driven genetic changes, bushmeat hunting and consumption, environmental contamination by infectious agents, international exchanges, trade, etc.

This call aims to recover biodiversity and ecosystems services whilst predicting and preventing future pandemics and epidemic outbreaks, especially in tropical areas and biodiversity hotspots, through collaboration between environmental (including climate), ecological, biomedical and social sciences. Projects should map, identify and characterise (e.g. with molecular techniques) potential emerging pathogens and their hosts/vectors in both carefully selected natural and human-modified areas, explore the relationship of biodiversity and ecosystems dynamics with microbiomes' evolution and spread, within the broader context of socio-economic driving forces, climate change, public health and animal health. Pathogen discovery, prophylaxis and operational surveillance strategies should be developed to search for new potential pathogens, within natural and human-modified ecosystems and hosts as well

as in cases of human infectious diseases of unknown aetiology, to prevent, detect and contain their outbreaks. Risk maps and predictive models should be built based on development trends, the presence of probable host/bridge species, environmental and socioeconomic factors.

The impacts of land use and climate change on biodiversity, ecosystem services and pandemics should be also taken into account, as well as any recent IPBES reports on the links between biodiversity and pandemics59 . Ecologists, infectious-disease researchers, medical doctors, veterinarians, environmental, public-health and animal-health experts, socio-economic stakeholders and the private sector, particularly SMEs, as well as authorities, civil and political entities, should contribute among others to devise an early warning mechanism, track environmental change, assess the risk of pathogens crossing over and reduce risky human activities.