Carbon Gap Consultation

Horizon Europe work programme 2025

Cluster 5 - Climate, Energy and Mobility - Destination 1

Cluster 5 – Climate, Energy and Mobility - Destination 3

Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment - Destination 5

Mission Soil

Mission Oceans

Carbon Gap is a charity (charity number: 1200562) and private company limited by guarantee (company number: 13557860) registered in England at 71-75 Shelton Street, London, WC2H 9JQ, United Kingdom

Contribution ID: 23660c9a-fb97-471b-8956-f2ffeaa26bb0
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Work programme 2025 feedback opportunity - Cluster 5 - Climate, Energy and Mobility - Destination 1

Fields marked with * are mandatory.

The work programme 2025 will implement the key strategic orientations set out in the **Horizon Europe strategic plan 2025-2027**. Respondents are invited to consult the relevant cluster annexes of the strategic plan before answering the questionnaire.

Introductory questions

The feedback opportunity for the Horizon Europe work programme 2025 is carried out at the level of the 'Destinations'.

This is the survey about the **Cluster 5 – Climate, Energy and Mobility work programme part, Destination 1 'Climate sciences and responses for the transformation towards climate neutrality'**.

* Have you already replied to one of the other surveys related to the Horizon Europe work programme 2025?
  - ○ Yes
  - ◉ No

* 1. I am giving contribution as
  - ○ Individual, providing feedback in my personal capacity
  - ○ Representative of an academic/research organisation
  - ○ Representative of a company/business organisation
  - ○ Representative of a consumer organisation
  - ○ Representative of an environmental organisation
  - ○ Representative of a public authority
  - ◉ Representative of a non-governmental organisation (NGO)
  - ○ Social partner
  - ○ Other

* 2. Your name

Eloisa

* 3. Your surname

Viloria

* Your email

eloisa@carbongap.org

* 5. The focus of your work is

- ○ Global
- ◉ European
- ○ National
- ○ Regional and / or local

* 6. What country are you / your organisation based in?

Belgium

* 7. Name of the organisation

Please mention N/A if you reply as an individual

Carbon Gap

* 8. What is the size of your organisation?

Please select N/A if you reply as an individual

- ○ Less than 10 employees
- ◉ Between 11 and 50 employees
- ○ Between 51 and 250 employees
- ○ More than 250 employees
- ○ N/A

* 9. What is your transparency register number?

Please mention N/A if you don't have one

159208346089-06

Questions on the orientations for work programme 2025

Please find here the orientations for the Cluster 5 – Climate, Energy and Mobility work programme part, Destination 1 'Climate sciences and responses for the transformation towards climate neutrality'. The **orient ations provide the impacts and outcomes** expected from the actions to be funded in 2025.

Please click the link to download the orientations

Cluster_5_Destination_1.pdf

The questions below relate to the expected impacts and outcomes as outlined in the orientations document.

1. How relevant are the expected outcomes for achieving the expected impacts described in the orientations? Please select the answer from the scale where '1' means that the expected outcome is not relevant at all, and '10' – that it is very relevant.

	1	2	3	4	5	6	7	8	9	10
Advanced understanding and capability to analyse the recent past and predict the future evolution of the coupled Earth system, at global to local scales, and across timescales.	○	○	○	○	○	○	○	○	○	◉
Fit-for-purpose capabilities for understanding, monitoring and attributing the causes and impacts of climate change.	○	○	○	○	○	○	○	○	○	◉
Improved understanding of adaptation effectiveness and limits in the warming world, generating new and consistent scientific evidence to support decision-making.	○	○	○	○	○	○	○	○	◉	○
To advance the understanding of the impacts of temperature overshoot and the attainability of bringing temperatures down using feasible and sustainable levels of Carbon Dioxide Removals (CDR) to complement reductions of GHG emissions.	○	○	○	○	○	○	○	○	○	◉
Increased acceptance of climate policies by political and social stakeholders representing diverse socio-economic and development backgrounds, building on new scientific approaches that foster more balanced and inclusive policies by prioritising equity and justice.	○	○	○	○	○	○	○	○	○	◉
Improved coherence and consistency among the different scientific communities and initiatives, and across derived policies.	○	○	○	○	○	○	○	○	○	◉
Enabling science-based implementation of the Paris Agreement in 3rd countries, with particular emphasis on Africa and	○	○	○	○	○	○	○	◉	○	○

supporting the EU-AU R&I Partnership.										
The expansion of the scientific knowledge base concerning pathways that decrease emissions of fluorinated greenhouse gasses to enable an improved implementation by Parties of the Montreal Protocol and its Kigali Agreement.	○	○	○	○	○	○	○	◉	○	○
Overall, a significant contribution to the IPCC and other scientific assessments, as well as the UNFCCC and the global stocktake under the Paris Agreement.	○	○	○	○	○	○	○	◉	○	○

2. For the expected outcomes mentioned above, please explain why you find them relevant/not relevant.

1500 character(s) maximum

Understanding the causes and impacts of climate change, and Earth System evolutions is key to designing and enabling practices and technologies that can support the transformation towards climate neutrality. This requires synergies between:

1. Collaborative technological development across the scientific community;
2. Coherent environmental policy frameworks that encompass the geographical and socio-economic diversity of Europe.

Alongside drastic emission reductions, Europe needs Carbon Dioxide Removal (CDR) to reach climate neutrality by 2050 and become net negative thereafter. 2040 targets for CDR are expected to be enshrined in EU law in the next revision of the European Climate Law (2025), for which the Commission's Communication on Europe's 2040 climate target is laying the groundwork. There has also been increasing attention to removals through the adoption of the CRC-F, the 2040 target communication, and the Industrial Carbon Management Strategy (ICM).

Novel and Promising CDR methods, still at an early development stage, require research and innovation support to prove or disprove their technical, financial and social viability. Pilot support is also needed to enable learnings regarding costs, failure points, optimisation and practical applications. At the same time, more mature methods of CDR still require targeted, outcome-driven research to increase preciseness while quantifying their climate benefit, second order impacts and social acceptability.

3. For the orientations presented, what is missing, should be further expanded or reformulated? Please explain why?

3000 character(s) maximum

1. Policy coherence and scientific collaboration:

Calls derived under this destination to improve coherence and consistency among different scientific communities, and policies need to be extended to carbon dioxide removal (CDR):

a. Carbon dioxide removal (CDR) will play a complementary and increasingly significant role in Europe's

plan to reach climate neutrality by 2050, alongside emission reduction. Despite its key role, there is not yet a cohesive governance structure in place for CDR in the EU, including funding for RD&I. The current legislative framework is fragmented, addressing CDR across several pieces of legislation. Leaving these policy gaps unattended risks the EU failing to deliver CDR at the volumes required by 2040, 2050 and beyond, jeopardising Union-wide, legally binding climate objectives. Conversely, agreeing upon an EU framework to develop, deploy and scale CDR responsibly and, in time, would represent a significant step towards reaching the 2050 EU climate target.

b. To allow for technological spillovers and knowledge-sharing that can catalyse innovation, support for early stage CDR technologies across the Technology Readiness Level (TRL) spectrum should be conceived and executed through a coordinated and cross-cutting approach to:

o EU funding mechanisms: to efficiently direct a much-needed increased budget for CDR towards both novels and promising CDR methods, and knowledge gaps of more matured methods. The EU must allocate around 2.6 billion within the next HEU WP and FP10 on RD&I for removals to ensure their timely maturation. Horizon Europe plays a lead role in meeting this need.

o Projects and methods: to harness learnings that can be shared with the broader scientific community, and that take into consideration the geographical diversity of Europe.

o Open questions: to ensure a comprehensive approach to RD&I, including governance, and social questions.

2. Social and environmental impacts of carbon removal:

The EU has shown its willingness to commit to a just and inclusive transition in the European Green Deal. The EU has also acknowledged the importance of justice principles globally in the Paris Agreement. Ensuring CDR is developed and scales in a just, transparent, and inclusive way is key and it must start from the very early stages of technology and project development. This can be done through different channels:

- Evaluate and monitor social and environmental impacts of CDR projects, ensure that individual CDR projects meet social and environmental standards by embedding the evaluation of potential impacts into its funding criteria and specifying indicators to be monitored throughout a project's life cycle.
- Earmark funding for research into the social and ethical dimensions of CDR, part of the budget within calls related to carbon removal should be committed to social science research, including place-based analyses to gauge localised effects of CDR-specific methods.

Background Documents

Privacy_statement.pdf

Contact

Contact Form

Contribution ID: ffbac112-8ad7-4858-87c9-e25f0af9b604
Date: 06/05/2024 10:55:00

Work programme 2025 feedback opportunity - Cluster 5 – Climate, Energy and Mobility Destination 3

Fields marked with * are mandatory.

The work programme 2025 will implement the key strategic orientations set out in the **Horizon Europe strategic plan 2025-2027**. Respondents are invited to consult the relevant cluster annexes of the strategic plan before answering the questionnaire.

Introductory questions

The feedback opportunity for the Horizon Europe work programme 2025 is carried out at the level of the 'Destinations'.

This is the survey about the **Cluster 5 – Climate, Energy and Mobility work programme part, Destination 3 'Sustainable, secure and competitive energy supply'**.

* Have you already replied to one of the other surveys related to the Horizon Europe work programme 2025?
  - (●) Yes
  - ( ) No

* Your email

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Questions on the orientations for work programme 2025

Please find here the orientations for the Cluster 5 – Climate, Energy and Mobility work programme part, Destination 3 'Sustainable, secure and competitive energy supply'. The **orientations provide the impacts and outcomes** expected from the actions to be funded in 2025.

Please click the link to download the orientations

Cluster_5_Destination_3.pdf

The questions below relate to the expected impacts and outcomes as outlined in the orientations document.

1. How relevant are the expected outcomes for achieving the expected impacts described in the orientations? Please select the answer from the scale where '1' means that the expected outcome is not relevant at all, and '10' – that it is very relevant.

Renewable energy

	1	2	3	4	5	6	7	8	9	10
Energy producers and consumers benefit from improved efficiency and flexibility, reduced cost, improved reliability, robustness, and security of a portfolio of renewable energy and renewable fuel technologies, compared to existing ones.	○	○	○	○	○	○	○	○	○	○
Technology providers profit from successful demonstration and de-risking of a portfolio of renewable energy and renewable fuel technologies with a view to their commercial exploitation.	○	○	○	○	○	○	○	○	○	○
Technology providers have improved access to financing through better understanding of the bankability of a portfolio of renewable energy and renewable fuel technologies, and achieve more effective market uptake, business models, and commercialization avenues.	○	○	○	○	○	○	○	○	○	○
Technology providers are better placed to request support from other funding schemes closer to market, exploiting synergies across such schemes.	○	○	○	○	○	○	○	○	○	○
Researchers, industry, public authorities, and citizens have access to increased knowledge, assessment methods and tools on the environmental (both positive and negative) impacts of the different renewable energy and renewable fuel technologies along their lifecycle and value chains.	○	○	○	○	○	○	○	○	○	○
The implementation of the Strategic Energy Technology Plan (SET Plan) is supported and facilitated by science-based evidence.	○	○	○	○	○	○	○	○	○	○

The implementation of the African Union – European Union Climate Change and Sustainable Energy partnership is supported and facilitated by joint research activities with African partners.	○	○	○	○	○	○	○	○	○	○
The implementation of the missions and innovation communities of Mission Innovation is supported and facilitated by joint research activities with international partners.	○	○	○	○	○	○	○	○	○	○
Policy makers and regulators are provided with evidence to accelerate permitting procedures, harvest benefits from multiple uses of land and water, and increase the public acceptance of innovative and sustainable renewable energy projects, minimizing negative environmental impacts and improving the regulatory framework.	○	○	○	○	○	○	○	○	○	○
National authorities are provided with evidence of innovative renewable energy and renewable fuel technologies that can contribute to the target of at least 5% of newly installed renewable energy capacity by 2030 in line with the Renewable Energy Directive.	○	○	○	○	○	○	○	○	○	○

Energy systems, grids & storage

	1	2	3	4	5	6	7	8	9	10
R&I activities will improve the knowledge base needed for the modernisation of energy networks and their operation, markets, and services. This will support system integration and accelerate the integration of renewables, electrification, and digitalisation, backed by an interoperable, flexible data ecosystem, generative and traditional AI, digital twins, and a common European energy data space.	○	○	○	○	○	○	○	○	○	○

Developed digital solutions enhance the observability, real-time situational awareness, controllability, resilience, cost effectiveness and flexibility of energy grids.	○	○	○	○	○	○	○	○	○	○
Innovative and cost-effective energy storage (integration) solutions are developed, that provide flexibility to the energy system, reduce total cost of grid operation and enhancement and that minimise the use of critical raw materials and ensure, to the best extent possible, their reuse and recycling, are key elements of the energy system.	○	○	○	○	○	○	○	○	○	○
R&I actions will address forward looking aspects of energy security and value chain competitiveness of energy grids and storage applications and advance the preparedness of the AC and DC grids (including HVDC and LVDC systems) for the massive increase of RES integration.	○	○	○	○	○	○	○	○	○	○
Developed solutions contribute to the knowledgebase on secure operation and integration of power electronics at all systems levels, advancing the development of smart and flexible grids, increased resilience (including AI-powered solutions and cybersecurity), flexibility and decentralization.	○	○	○	○	○	○	○	○	○	○

Carbon capture, use and storage (CCUS) and carbon dioxide removal (CDR)

	1	2	3	4	5	6	7	8	9	10
European fossil-fuel power producers and carbon-intensive industries will gain access to improved technologies to capture CO2 from industrial installations at higher energy efficiency and CO2 purity.	○	○	○	○	○	○	○	○	○	◉

Operators and regulators for CO2 transport and storage have access to increased knowledge on the physical and chemical behaviour of impure CO2.	○	○	○	○	○	○	○	○	○	◉
Improved technologies to remove carbon from the atmosphere (e.g., improving the feasibility, efficiency, and cost performance of Direct Air Capture).	○	○	○	○	○	○	○	○	○	◉
Process industries will have access to improved technologies for the conversion of captured CO2 from the atmosphere or industrial installations into valuable resources.	○	○	○	○	○	○	○	○	○	◉
Researchers, industry, public authorities, and citizens have access to knowledge and lessons learned from industrial-scale CCUS projects between stakeholders and Member States across the entire industrial carbon management value chain.	○	○	○	○	○	○	○	○	○	◉
The implementation of the Carbon Dioxide Removal Mission of Mission Innovation is supported and facilitated by joint research activities with international partners.	○	○	○	○	○	○	○	○	○	◉
The implementation of the Strategic Energy Technology Plan (SET Plan) is supported and facilitated by science-based evidence	○	○	○	○	○	○	○	○	○	◉

2. For the expected outcomes mentioned above, please explain why you find them relevant/not relevant.

1500 character(s) maximum

Severe and continued emissions cuts remain the primary means of reaching global and EU climate targets. However, carbon dioxide removal (CDR) will play a complementary and increasingly significant role in Europe's plan to reach climate neutrality by 2050. Despite its key role, the EU lacks a unified governance structure for CDR, with current legislation fragmented across different pieces of legislation. Leaving these policy gaps unattended risks the EU failing to deliver CDR at the volumes required by 2040, 2050 and beyond, thereby jeopardising Union-wide, legally binding climate objectives.

Some novel, promising CDR methods are still at an early development stage and need targeted RD&I support to rapidly prove or disprove their technical, financial and social viability. Others could readily benefit from pilot support to generate learnings regarding costs, failure points, optimisation and practical applications. Even the more mature methods are dependent on targeted research to more precisely quantify their climate benefit, second order impacts and social acceptability.

The RD&I funding within the last HEU work programmes do not reflect the level of ambition and needs for CDR. The funding allocated directly to CDR projects amounted to 181 million EUR for 2021-2022 and 127.8 million EUR of the 2023-2024 budget. The EU must allocate around 2.6 billion within the next HEU WP and FP10 on RD&I for removals to ensure their timely maturation.

3. For the orientations presented, what is missing, should be further expanded or reformulated? Please explain why?

3000 character(s) maximum

Though CCS technologies have become an important part of Europe's climate pathways, it should be kept in mind that the development (and use) of CCS cannot suppose a route for polluters to decrease their efforts in reducing the greenhouse emissions produced through their processes and shall be used primarily for hard-to-abate sectors, avoiding mitigation deterrence at all costs.

The clear difference between CCS, CCU and CDR must be kept in mind while designing future calls, in the past HEU calls CDR has been often implicitly or explicitly grouped with carbon capture and storage (CCS) and carbon capture and utilisation (CCU), therefore it can be difficult to project applicants to assess the viability of their projects.

The grouping together in calls of CDR with CCU and CCS creates an unnecessary tension between these different families of methods and solutions, with nascent CDR projects pitched against more mature and financially viable CCU and CCS projects. This forthcoming programme should include carbon removal dedicated calls that address the open questions to mature and develop the whole portfolio of methods, including – but beyond- DACCS and BECCS, such as targeting ocean CDR, enhanced rock weathering, biochar, soil carbon sequestration, which have historically not received sufficient support. Europe will need to develop a portfolio approach to CDR and not overly rely in one single technology.

The RMI's Applied Innovation Roadmap for CDR lays out research priorities among the CDR portfolio of methods that need to be addressed to support their development and deployment; Frontier also offers a database of carbon removal knowledge gaps. The global funding estimates to address the current CDR research gaps are between EUR 16-32.3 billion over the next 20 years. Carbon Gap's proposal for a EU CDR Strategy estimates that Europe's contribution should amount between EUR 5.85-2.88 billion, so far it has only committed 613 million directly to carbon removal, while the contribution from HEU has only reached nearly 309 millions EUR between 2021-2024. Carbon Gap estimates that the EU must allocate around 2.9 billion EUR in the next funding cycle towards carbon removal, HEU must play a big role in this.

The facilitation of the Carbon Dioxide Removal Mission of Mission Innovation is supported and facilitated by joint research activities with international partners is a very positive step and could be used as example for other CDR related initiatives.

Check Carbon Gap's:
EU CDR Strategy: https://carbongap.org/eu-cdr-strategy/
HEU Work Programme analysis: https://tracker.carbongap.org/policy/horizon-europe/

Check:
RMI's Applied Innovation Roadmap for CDR: https://rmi.org/insight/the-applied-innovation-roadmap-for-cdr/
Frontier database: https://gaps.frontierclimate.com/

Background Documents

Privacy_statement.pdf

Contact

Contact Form

Contribution ID: 82ace8be-4b82-4b47-9761-e902b09c1842
Date: 06/05/2024 11:13:49

Work programme 2025 feedback opportunity - Cluster 6 - Food, Bioeconomy, Natural Resources, Agriculture and Environment - Destination 5

Fields marked with * are mandatory.

The work programme 2025 will implement the key strategic orientations set out in the **Horizon Europe strategic plan 2025-2027**. Respondents are invited to consult the relevant cluster annexes of the strategic plan before answering the questionnaire.

Introductory questions

The feedback opportunity for the Horizon Europe work programme 2025 is carried out at the level of the 'Destinations'.

This is the survey about the **Cluster 6 – Food, Bioeconomy, Natural Resources, Agriculture and Environment work programme part, Destination 5 'Land, ocean and water for climate action'**.

* Have you already replied to one of the other surveys related to the Horizon Europe work programme 2025?
  - (●) Yes
  - ( ) No

* Your email

eloisa@carbongap.org

Questions on the orientations for work programme 2025

Please find here the orientations for the Cluster 6 – Food, Bioeconomy, Natural Resources, Agriculture and Environment work programme part, Destination 5 'Land, ocean and water for climate action'. The **orientations provide the impacts and outcomes** expected from the actions to be funded in 2025.

Please click the link to download the orientations

Cluster_6_Destination_5.pdf

The questions below relate to the expected impacts and outcomes as outlined in the orientations document.

1. How relevant are the expected outcomes for achieving the expected impacts described in the orientations? Please select the answer from the scale where '1' means that the expected outcome is not relevant at all, and '10' – that it is very relevant.

	1	2	3	4	5	6	7	8	9	10
Improved scientific understanding of ocean climate interventions, ocean acidification, limits to ocean integrity at different emission scenarios, ocean changes and climate action, existing and emerging threats, risks and impacts, deep-sea biodiversity and response measures guided by the precautionary principle.	○	○	○	○	○	○	○	○	○	◉
Greenhouse gas emissions from the land-use sector, in particular non-CO2 emissions (methane and nitrous oxide), are better monitored and more effectively reduced, and CO2 removals from the atmosphere are increased.	○	○	○	○	○	○	○	○	○	◉
The capacity of the land-use sector and of relevant public authorities to anticipate impacts of climate change, including in the medium and longer term, is better understood and enhanced.	○	○	○	○	○	○	○	○	○	○
The resilience of agricultural production and of other terrestrial ecosystem services is fostered in the face of direct and indirect climate change impacts, including through more effective public policies.	○	○	○	○	○	○	○	○	○	○
Better management of the changing hydrological cycle to reduce water risks related to climate change impacts, foster water resilient land use and planning, enhance cross-sectoral cooperation between various water related policies and between different water use sectors. This is done while increasing water use efficiency in all sectors, balancing better water demand and supply, helping transforming the	○	○	○	○	○	○	○	○	○	○

economics and restructuring the governance of water.										
The fragmentation between EU, national and regional R&I funding on water is overcome and related policies are integrated and aligned with a shared strategic research and innovation agenda thanks to the additional activities of the Water4All Partnership ('Water Security for the Planet'), for increased protection and resilience of water resources.	○	○	○	○	○	○	○	○	○	○

2. For the expected outcomes mentioned above, please explain why you find them relevant/not relevant.

1500 character(s) maximum

Soil Organic Carbon MRV and Sustainable Management Practices:
Reducing greenhouse gas emissions and increasing carbon removals are vital for Europe's emission reduction and climate neutrality goals. Accurate MRV systems are crucial for monitoring greenhouse gas balances and soil organic carbon (SOC) levels, essential for monitoring soil health in the EU's land. Approximately 60-70% of EU soil ecosystems are unhealthy, posing risks to food, biodiversity, livelihoods, and water security. Unsustainable soil management can shift soils from carbon sinks to carbon sources, exacerbating climate change. Rigorous EU-wide action is necessary to address soil degradation, including advancing understanding of healthy soils, and sustainable land management practices

Ocean-based Carbon Dioxide Removal (CDR):
Ocean climate interventions have not previously received enough funding support for RD&I. This is detrimental since a good amount of these technologies are in their early stages of development and need support to further mature, such is the case for ocean carbon dioxide removal (Ocean CDR); these methods stimulate marine bio or geochemistry to increase the ocean's capacity to pump carbon from the atmosphere and store it, examples include blue carbon, ocean fertilisation, and ocean alkalinity enhancement. Sufficient support to address the open questions within these methods, including systems of tailored MRV are necessary to unlock their potential in Europe's climate pathways

3. For the orientations presented, what is missing, should be further expanded or reformulated? Please explain why?

3000 character(s) maximum

Both an increase of carbon sequestration and targeting of ocean carbon dioxide removal mention should be added to the orientations within the respective points to ensure a logic among orientations and outcomes. Carbon Gap's extensive research delves on the role of EU land stewards in climate action. Their land use decisions could be decisive for the success of Paris agreement objectives, the EU's climate neutrality goal, net zero targets in general and counterbalancing agricultural sector emissions. Through stakeholder interviews, Carbon Gap identified varieties of farmland priorities for Europe. These could serve as a base to guide research and innovation activities to further advance sustainable land management practices; these comprise:

1. Reducing agricultural emissions
2. Deploying carbon removal, prioritising durable carbon removal on agricultural land for farmers wanting to mitigate climate change

3. Restoring degraded land, optimising for all dimensions of soil health and avoiding the “carbon tunnel vision” when making land-use decisions
4. Closing the calories gap as global population rises, increasing the efficacy of every hectare, a shift towards plant-based diets & reduce food loss and waste
5. Tapping into soil’s sequestration potential, maximising soil’s carbon storage capacity per hectare
6. Balancing agricultural emissions, optimising efficiency between emissions cuts and removal and reaching net zero across the agricultural sector, then net negative
7. Reversing the current biodiversity crisis, factoring ecosystem health into farm management, and prioritising biodiversity recovery on farmland
8. Optimising for sustainable farming, prioritising farmer autonomy, dignity and farm workers’ rights, no compromise on social or environmental sustainability, while respecting people’s right to affordable, high quality and culturally preferred food

Increase support to Ocean carbon dioxide removal methods:
1. Technological development: establish calls aimed at addressing the research gaps and open questions existing in these methods. The Applied Innovation Roadmap for CDR lays out research priorities among the CDR portfolio of methods; the Frontier also offers a database of carbon removal knowledge gaps.
2. Environmental impacts : ocean carbon removal methods must be designed and implemented in a way that minimizes adverse impacts on marine ecosystems. RD&I must support the development of technologies that are environmentally sustainable and compatible with marine biodiversity and ecosystem functioning. Including research into the potential ecological consequences of ocean CDR and strategies to mitigate any negative effects, as well the development of reliable MRV systems.
3. Public perception and social questions: to address public concerns and promote understanding of the potential benefits and risks associated with these technologies. Including research into social, cultural, and ethical dimensions.

Background Documents

Privacy_statement.pdf

Contact

Contact Form

Contribution ID: 3680c14a-bae3-486e-88a6-af2fc54a4ad6
Date: 06/05/2024 11:20:32

Work programme 2025 feedback opportunity - Mission Soil

Fields marked with * are mandatory.

The work programme 2025 will implement the key strategic orientations set out in the **Horizon Europe strategic plan 2025-2027**.

Introductory questions

This is the survey about the **Mission: A Soil Deal for Europe.**

* Have you already replied to one of the other surveys related to the Horizon Europe work programme 2025?
  - (•) Yes
  - ( ) No

* Your email

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Questions on the orientations for work programme 2025

Please find here the orientations for the Mission: A Soil Deal for Europe. The **orientations provide the impacts and outcomes** expected from the actions to be funded in 2025.

Please click the link to download the orientations

Mission_Soil.pdf

The questions below relate to the expected impacts and outcomes as outlined in the orientations document.

1. How relevant are the expected outcomes for achieving the expected impacts described in the orientations? Please select the answer from the scale where ‘1’ means that the expected outcome is not relevant at all, and ‘10’ – that it is very relevant.

	1	2	3	4	5	6	7	8	9	10

Exchange, testing, demonstration, and sharing of results, as well as learning mechanisms for soil health are in place that link participatory on-the-ground research with end users (such as living labs, lighthouses, or citizen science), also in coordination with international partners and funders.	○	○	○	○	○	○	○	○	○	◉
Enlarged network of living labs and lighthouses is established across the EU to monitor and maximise soil health for all land uses and major pedo-climatic conditions.	○	○	○	○	○	○	○	○	○	◉
Improved evidence is available on the main environmental, social, economic, regulatory, and cultural factors influencing soil management and land degradation, its costs, and its consequences for food security, the economy, or the land market.	○	○	○	○	○	○	○	○	○	◉
Role and engagement of regional and local authorities in soil health management are strengthened, as is the engagement of citizens and land managers to co-design, test, and monitor solutions.	○	○	○	○	○	○	○	○	○	◉
Farmers, foresters, advisors, and urban planners, as well as public authorities and citizens have access to greater knowledge on soil issues.	○	○	○	○	○	○	○	○	○	◉
Comparable, cost-efficient soil health monitoring methods, including citizen science, remote sensing, and digital techniques are available to policy makers, researchers and land managers for effective data collection and flows across the EU and Associated Countries.	○	○	○	○	○	○	○	○	○	◉
Collection, storage, and analysis of comprehensive baseline data on the EU's global soil health footprint related to food, feed, wood, and biomass use are facilitated, focusing on the externalities of European demand on foreign countries.	○	○	○	○	○	○	○	○	○	◉

Enhanced understanding of soil and water interactions is available, as is improved risk assessment at different levels of water-related extreme weather events, and increased environmental resilience through restoration, conservation, and integrated management of the soil-water nexus.	○	○	○	○	○	○	○	○	○	◉
Impact of soil management practices on soil health are quantified and better integrated into policies and incentives to improve agriculture's resilience, including forestry and other land uses.	○	○	○	○	○	○	○	○	○	◉
Nutritional value of crops related to soil health is explored and better integrated into soil management practices to improve human health.	○	○	○	○	○	○	○	○	○	◉
Improved knowledge of soil biodiversity and its role in antimicrobial resistance and antibiotic biosynthesis is established, as well as potential consequences for human health in a One Health approach.	○	○	○	○	○	○	○	○	○	◉
Better mechanisms are applied for the science-policy interface across the Mission Soil projects to support the development and implementation of scientific evidence-based soil protection and restoration policies at EU, national, regional, and local levels.	○	○	○	○	○	○	○	○	○	◉

2. For the expected outcomes mentioned above, please explain why you find them relevant/not relevant.

1500 character(s) maximum

Soil Organic Carbon MRV and Sustainable Management Practices:

According to the European Commission, approximately two-thirds (60-70%) of EU soil ecosystems are unhealthy and continually degrading, posing risks to food, biodiversity, livelihoods, and water security from a food, biodiversity. It is even more alarming in light of soil's capacity to shift from a carbon sink to a carbon source when managed unsustainably.
Soil health is multifaceted and its measurement can be complex, but soil organic carbon (SOC) is a central element and a good proxy for it. Carbon-rich soils tend to be better structured, hold more water, better resist erosion and offer higher fertility for crops. But, overall, EU soils are losing carbon and emitting CO2 into the atmosphere, exacerbating climate change. Peatland drainage and soil erosion linked to agriculture and human settlements are just some of the reasons behind this carbon loss and emission.
Mitigating runoff and erosion, maintaining soil fertility, and restoring higher SOC is a must. This can draw significant amounts of CO2 from the atmosphere and a virtuous cycle between land and climate could be restored. Closing the soil carbon gap can, therefore, play a dual role in reducing global heating and bridging the larger soil health gap. Rigorous EU-wide action is necessary to address soil degradation, including advancing understanding of healthy soils, and sustainable land management practices.

3. For the orientations presented, what is missing, should be further expanded or reformulated? Please explain why?

3000 character(s) maximum

Restoring soil health across EU land is strategic, it can increase Europe's resilience to climate change and maintain soils' capacity to provide multiple resources and services. Bosting soil organic carbon (SOC) contributes to this aim, but MRV is necessary to monitor SOC and ultimately soil health.
There are many MRV methods for soil carbon, but open questions remain that HEU could address, for example:

- Lab-based MRV is effective but can be costly. Research developments that bring down the cost are key, since this methodology is key to developing other MRV types, such as training empirical models, and calibrating process-based models;
- In situ methods, such as spectroscopy, are a promising, cheaper alternative, but improvements are needed to target their efficacy and transparency;
- Improving data availability is also key since it could help build a global training library that improves the efficacy of soil models, and a coherent soil health monitoring system across all EU states, which must start with gathering a soil health database based on a common definition of soil health.
- Remote sensing is one of the most promising tool to monitor soils, but space for improvement remains, particularly in improving satellite imagery struggles to recover data, such as soil carbon to improve soil organic carbon estimates.

Carbon Gap's delves on the role of EU land stewards in climate action. Their land use decisions could be decisive for the success of Paris agreement objectives, the EU's climate neutrality goal, net zero targets in general and counterbalancing agricultural sector emissions. Through stakeholder interviews, Carbon Gap identified varieties of farmland priorities for Europe.

These could serve as a base to guide research and innovation activities to further advance sustainable land management practices; these comprise:

1. Reducing agricultural emissions
2. Deploying carbon removal, prioritising durable carbon removal on agricultural land for farmers wanting to mitigate climate change
3. Restoring degraded land, optimising for all dimensions of soil health and avoiding the "carbon tunnel vision"
4. Closing the calories gap as global population rises, increasing the efficacy of every hectare, a shift towards plant-based diets & reduce food loss and waste
5. Tapping into soil's sequestration potential, maximising soil's carbon storage capacity per hectare
6. Balancing agricultural emissions, optimising efficiency between emissions cuts and removal and reaching net zero across the agricultural sector, then net negative
7. Reversing the current biodiversity crisis, factoring ecosystem health into farm management, and prioritising biodiversity recovery on farmland
8. Optimising for sustainable farming, prioritising farmer autonomy, dignity and farm workers' rights, with no compromise on social or environmental sustainability, while respecting people's right to affordable, high quality, and culturally preferred food

Background Documents

Privacy_statement.pdf

Contact

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Contribution ID: 3e5ed22f-38a3-4df8-b49e-e1c889c2b1b0
Date: 06/05/2024 11:26:15

Work programme 2025 feedback opportunity - Mission Oceans

Fields marked with * are mandatory.

The work programme 2025 will implement the key strategic orientations set out in the **Horizon Europe strategic plan 2025-2027**.

Introductory questions

This is the survey about the **Mission: Restore our Ocean and Waters by 2030.**

* Have you already replied to one of the other surveys related to the Horizon Europe work programme 2025?
  - (●) Yes
  - ( ) No

* Your email

eloisa@carbongap.org

Questions on the orientations for work programme 2025

Please find here the orientations for the Mission: Restore our Ocean and Waters by 2030. The **orientations provide the impacts and outcomes** expected from the actions to be funded in 2025.

Please click the link to download the orientations

Mission_Oceans.pdf

The questions below relate to the expected impacts and outcomes as outlined in the orientations document.

1. How relevant are the expected outcomes for achieving the expected impacts described in the orientations? Please select the answer from the scale where ‘1’ means that the expected outcome is not relevant at all, and ‘10’ – that it is very relevant.

	1	2	3	4	5	6	7	8	9	10

Evidence-based approaches and solutions to support the establishment of Marine Protected Areas through the active involvement of relevant stakeholders (national and regional authorities, research organisations, NGOs, blue economic sectors such as fisheries, tourism, shipping, and citizens) in the Blue Parks activities implemented by the Mission.	○	○	○	○	○	○	○	○	◉	○
Placed-based activities addressing pollution-related pressures and effects in the sea-waters ecosystems by implementing source-to-sea approaches and promoting effective forms of governance at local and transregional level.	○	○	○	○	○	○	○	○	◉	○
Uptake of innovative solutions to support carbon-neutrality, energy transition and circularity in fisheries and aquaculture across the value chain, including through the integration of IT/AI, big data, automated and autonomous technologies and multi-purpose approaches.	○	○	○	○	○	○	○	○	○	◉
Place-based and people-centered restoration of a number of coastal regions and river catchments, helping regional and local authorities to implement solutions contributing to achieving substantial progress under the Mission target(s), building on existing knowledge and solutions, as well as on already applied mechanisms such as e.g. coastal restoration contracts, river contracts, etc.	○	○	○	○	○	○	○	○	◉	○
Restoration of waterfront cities helping relevant local authorities to implement solutions to achieve substantial progress under the Mission target(s), applying existing knowledge and solutions involving local communities and pooling complementary sources of funding.	○	○	○	○	○	○	○	○	◉	○

Restoration of small islands, helping relevant local authorities to implement solutions to achieve substantial progress under the Mission target(s), applying existing knowledge and solutions involving local communities and pooling complementary sources of funding.	○	○	○	○	○	○	○	○	◉	○
Integration of additional models in the European Digital Twin Ocean (EU DTO), ensuring appropriate connectivity/coupling between them: geochemical, ecosystem and integrated coastal models, building on the EDITO-Infra prototype and the EDITO-Model Lab project.	○	○	○	○	○	○	○	○	◉	○
Consolidation of national and regional hubs mobilizing of national and regional funds as well as private financing, to support the replication of innovative solutions in each lighthouse addressing the Mission objectives.	○	○	○	○	○	○	○	○	○	◉

2. For the expected outcomes mentioned above, please explain why you find them relevant/not relevant.

1500 character(s) maximum

Many carbon removal methods are still in the early stages of development. RD&I efforts are needed to advance these technologies from proof of concept to practical application. These are methods that deal with the complexity of marine ecosystems and therefore require innovative approaches to effectively capture and sequester CO2 from the atmosphere. Support at the EU level, and through Horizon Europe's past calls has been insufficient for this family of technologies and needs to be increased in forthcoming work programmes.

3. For the orientations presented, what is missing, should be further expanded or reformulated? Please explain why?

3000 character(s) maximum

Increase support to Ocean carbon dioxide removal methods:

1. Technological development: establish calls aimed at addressing the research gaps and open questions existing in these methods. RMI's Applied Innovation Roadmap for CDR lays out research priorities among the CDR portfolio of methods that need to be addressed to support their development and deployment; the Frontier also offers a database of carbon removal knowledge gaps.
2. Environmental impacts: ocean carbon removal methods must be designed and implemented in a way that minimizes adverse impacts on marine ecosystems. RD&I efforts focus on developing technologies that are environmentally sustainable and compatible with marine biodiversity and ecosystem functioning. This includes research into the potential ecological consequences of ocean carbon removal and strategies to mitigate any negative effects, as well as the development of transparent and reliable MRV systems.
3. Public perception and social questions: public perception and acceptance of ocean carbon removal technologies are essential for their successful implementation. RD&I efforts can help to address public concerns and promote understanding of the potential benefits and risks associated with these technologies. This includes research into social, cultural, and ethical dimensions of ocean carbon removal.

Check Carbon Gap's:
EU CDR Strategy: https://carbongap.org/eu-cdr-strategy/
HEU Work Programme analysis: https://tracker.carbongap.org/policy/horizon-europe/

Check:
RMI's Applied Innovation Roadmap for CDR: https://rmi.org/insight/the-applied-innovation-roadmap-for-cdr/
Frontier database: https://gaps.frontierclimate.com/

Background Documents

Privacy_statement.pdf

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