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# Turkey in Horizon Europe

How to read a work programme.  
Demystifying the calls: every word counts.

Destinations 5 & 7

*Grigoris Chatzikostas*



REPUBLIC OF TURKEY  
MINISTRY OF INDUSTRY  
AND TECHNOLOGY





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# Destination 5: Land, oceans and water for climate action

*Selected topics for each destination will be presented in details. Key words, EC expectations, TRL required, scope, challenges, expected impact, type of actions.*



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MINISTRY OF INDUSTRY  
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COMPETITIVE  
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PROGRAMME



TÜBİTAK

## DESTINATION 5: Land, oceans and water for climate action

For **assessing** the impacts of climate change:

- on our land and marine environments
- natural resources
- agriculture and food systems
- and identifying mitigation options and adaptation pathways,



interdisciplinary and multidisciplinary **research and investments** across a broad range of activities is required to:

- better understand who or what is exposed and sensitive to these changes
- their underlying vulnerability
- the associated costs and adaptive capacity
- provide mitigation options that reduce the risk of long-term climate change

## DESTINATION 5: Land, oceans and water for climate action

The *conservation* and *enhancement* of Earth's **natural carbon sinks** (soils, plants, forests, farmed lands, wetlands, oceans) **is crucial**.

The **European GD green oath** to “**do no harm**”, requires: (i) careful examination of the **trade-offs**; (ii) **synergies** among the sustainability goals, *including* health protection, food and nutrition security, ecosystem services and biodiversity preservation both on land and at sea.

**R&I** has a significant role to play to *support* the design and implementation of policies that will *ensure* the achievement of **EU climate objectives**.

## DESTINATION 5: Land, oceans and water for climate action

- **Agriculture** has a significant role to play to reduce and mitigate GHG emissions and to enhance carbon sinks. It also *needs to* strengthen its capacity to adapt to climate change and its resilience. The **forestry sector** faces similar challenges.
- **Freshwater** resources are increasingly under stress as a consequence of overuse and climate change with wide-ranging consequences for human societies and ecosystems. It is therefore *necessary* to: (i) define the safe operating space in terms of water quantity and availability; (ii) reduce the vulnerability to change; (iii) enhance our adaptive capacity.
- **Strengthening the ocean and climate nexus** is another priority for the EU. There is growing political awareness of the importance of ocean and polar regions as an integral part of the Earth's climate system and of the need to *ensure* the integrity and resilience of these ecosystems.
- While new knowledge leading to a better understanding of the impacts of climate change is necessary, a **strong priority** needs to be granted to the **large-scale deployment and uptake of solutions** for climate adaptation and mitigation. **Environmental observations and related solutions** will be necessary throughout, from understanding to deployment.

## DESTINATION 5: Land, oceans and water for climate action

*Key elements* of the European GD:

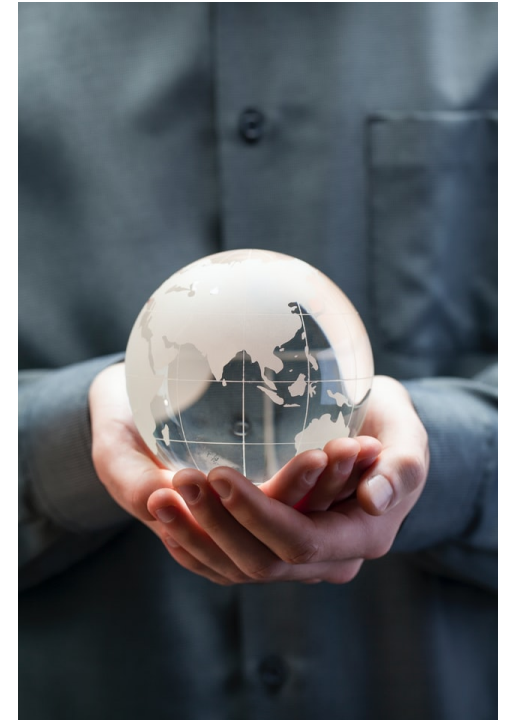
- reduce GHG emissions
- enhance carbon sinks in primary production and natural systems

Achieving:

- sustainable land management and
- 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*.



## DESTINATION 5: Land, oceans and water for climate action

- R&I activities will support solutions for climate- and environmentally-friendly practices, to reduce emissions of major greenhouse gases and the **environmental footprint of land use changes and agricultural activities**. R&I, **new technologies and business models** are expected to unlock the full potential of LULUCF (land use, land use change and forestry) activities in the mitigation of climate change.
- Results of funded activities will benefit land and forest management and the **delivery of multiple services provided by land and forests**, such as the provision of goods as long-term carbon stocks in harvested wood products, peatlands and wetlands, the protection of soils, water and biodiversity and finally climate change adaptation and mitigation.
- Ocean is also a large storage system for the global reservoirs of climate-regulating factors. R&I will advance knowledge innovations to foster **ocean-based solutions/mitigation options**, helping to close the emissions gap.

## DESTINATION 5: Land, oceans and water for climate action

R&I will be *critical* to **foster adaptation and build resilience** in agriculture, forestry and coastal areas.

They will *aim* to: deliver on the urgent need to **foster the adaptation of primary production**, notably by:

- providing farmers and other actors in bioeconomy value chains with **better-adapted crop varieties** and
- **animal breeds with lower impacts** on the related ecosystems.

**R&I efforts are *critical* to avoiding, reducing and reversing desertification.**



## DESTINATION 5: Land, oceans and water for climate action

- **Water adaptation strategies** and *approaches* will be developed and tested.
- Appropriate *solutions* including **water allocation schemes** will be developed for businesses, farmers and ecosystems.
- Potential **trade-offs**, and *measures* to mitigate and avoid them, will be assessed to *ensure* environmental sustainability and to *keep the objectives* of enhancing soil fertility, increasing carbon storage in soils and biomass, benefitting agricultural productivity and food security and reducing biodiversity loss.

R&I will also *aim* at better understanding **how institutions and behaviour shape vulnerability** and **offer opportunities for adaptation**.

## DESTINATION 5: Land, oceans and water for climate action

### Expected impact

Proposals for topics under this destination should set out a credible pathway to contributing to *climate action on land, oceans and water* and more *specifically* to one or several of the following impacts:

- Better understanding and enhancing the **mitigation potential** of ecosystems and sectors based on the sustainable management of natural resources;
- Advanced understanding and science to support **adaptation and resilience** of natural and managed ecosystems, water and soil systems and economic sectors in the context of the changing climate;
- Efficient **monitoring, assessment and projections related to climate change impacts**, mitigation and adaptation potential in order to bring out solutions for **tackling emerging threats and support decision-making** in climate change mitigation and adaptation policies at European and global levels;

## DESTINATION 5: Land, oceans and water for climate action

- Fostered climate change **mitigation in the primary sector**, including by the reduction of GHG emissions, maintenance of natural carbon sinks and enhancement of sequestration and storage of carbon in ecosystems;
- Improved **adaptive capacity of water and soil systems and sectors** including by unlocking the potential of nature-based solutions;
- **Better managed scarce resources**, in particular soils and water, thus mitigating climate related risks, in particular **desertification and erosion**, thanks to informed decision-makers and stakeholders and integration of adaptation measures in relevant EU policies.

When considering their impact, proposals also need to **assess their compliance with the “Do No Significant Harm” principle** according to which the research and innovation activities of the project should not be supporting or carrying out activities that make a significant harm to any of the six environmental objectives of the **EU Taxonomy Regulation**.

## DESTINATION 5: Land, oceans and water for climate action

This destination *contributes to support R&I* on climate for areas covered by **Cluster 6** notably on the ***implementation of climate change mitigation and adaptation solutions*** while Destination “Climate sciences and responses for the transformation towards climate neutrality” in **Cluster 5** concentrates on activities related to ***climate science and modelling***.

Topics **under this destination** will have impacts in the following **impact areas** of the Horizon Europe strategic plan for 2021-2024 :

- Climate change mitigation and adaptation
- Enhancing ecosystems and biodiversity on land and in water
- Clean and healthy air, water and soil
- Sustainable food systems from farm to fork on land and sea
- A resilient EU prepared for emerging threats
- A secure and open EU society
- Inclusive growth and new job opportunities



## Call: Land, ocean and water for climate action

### HORIZON-CL6-2021-CLIMATE-01-01: Improved understanding, observation and monitoring of water resources availability (RIA)

- Project results should contribute to the **enhancement of knowledge base** regarding water related climate change impacts, vulnerability, risk and adaptation assessments in Europe and abroad.
- Actions should bring together a **multidisciplinary and multi-institutional team** of researchers to pursue a combination of field data collection, innovative data analysis methods, artificial intelligence and the development of data-driven reduced-complexity models for scientific understanding and to guide management decisions, and to support relevant stakeholders and policy makers.
- The participation of academia, research organisations, utilities, industry and regulators is strongly advised.

Budget	10 mEUR
EU contribution	3 to 5 mEUR
Funded projects	3
TRL 5	

# Call: Land, ocean and water for climate action

## HORIZON-CL6-2021-CLIMATE-01-02: European Partnership Water Security for the Planet (Water4All) (COFUND)

- Leverage impacts of policies on the water security crisis, by upscaling projects (from research to demonstration) and supporting policy implementation based on cooperation, across stakeholders and sectors.
- Boosting the systemic transformations and changes across the entire research – water innovation pipeline, fostering **matchmaking between problem owners and solution providers** to ensure water security for all in the long term.
- Proposals should **pool the necessary financial resources** from the participating national (or regional) research programmes with a view to implementing **joints call for transnational proposals** resulting in grants to third parties.

Budget	20 mEUR
EU contribution	20 to 126 mEUR
Funded projects	1
Copernicus and/or Galileo/EGNOS	

## Call: Land, ocean and water for climate action

**HORIZON-CL6-2021-CLIMATE-01-04: Demonstration network on climate-smart farming – linking pilot farms (CSA)**

### Proposals should:

- foster **knowledge exchange** within and among Member States and regions and establish links with the EIP-AGRI and Member States' AKIS networks and coordination bodies
- link the demonstration farms into an **EU demonstration farm network** including all Member States to stimulate effective cross-fertilisation among Member States
- include a task to collaborate with project of topic HORIZON-CL6-2022-CLIMATE-01-03 “Demonstration network on climate-smart farming – boosting the role of advisory services” and a topic to be published in Cluster 6 work programme 2023/2024
- 7 years duration
- The proposals must use the multi-actor approach

Budget	23 mEUR
EU contribution	Around 23 mEUR
Funded projects	1

## Call: Land, ocean and water for climate action

### HORIZON-CL6-2021-CLIMATE-01-05: Agroecological approaches for climate change mitigation, resilient agricultural production and enhanced biodiversity (RIA)

#### Proposals should:

- contribute to the European Green Deal and international objectives to foster climate change mitigation and adaptation in agriculture
- cover the wide range of crops and farming systems present in the EU and Associated Countries agricultural sector
- implement the 'multi-actor approach', and ensure adequate involvement of the farming sector
- build on the results of relevant projects funded under Horizon 2020 and should ensure collaboration with projects funded under calls *HORIZON-CL6-2022-FARM2FORK-02-01-two-stage* and *HORIZON-CL6-2021-FARM2FORK-01-03* in this work programme
- This topic requires the effective contribution of SSH disciplines.

Budget	7 mEUR
EU contribution	Around 7 mEUR
Funded projects	1
Copernicus and/or Galileo/EGNOS	



# Call: Land, ocean and water for climate action

**HORIZON-CL6-2021-CLIMATE-01-06: Resilient livestock farming systems under climate change (RIA)**

## Proposals should:

- define and investigate **traits/phenotypes, and the potential of breeding**, to reduce GHG animal emissions or/and adapt to climate change
  - develop or refine related **tools for a proper assessment of practices and proposed innovations**
  - address **at least cattle and pigs** and may address any other relevant species
- 
- Proposals must implement the '**multi-actor approach**' and ensure adequate involvement of the farming sector, terrestrial livestock breeders, advisers and other relevant actors.

Budget	12 mEUR
EU contribution	Around 12 mEUR
Funded projects	1



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

*Selected topics for each destination will be presented in  
details. Key words, EC expectations, TRL required, scope,  
challenges, expected impact, type of actions.*



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

**Transformative changes** such as the ones required within the GD are **dynamic processes** that require **appropriate governance**. At the same time, to *ensure* coordination and for collaborative decision-making, governance **requires multiple channels and networks** that provide readily available **data and information** coming from different sources.

R&I activities under this destination aim at:

- experimenting with **new ways to govern the transition process**
- modernising the governance, in particular by making **information and knowledge available and accessible**.

R&I for governance to support the GD shall provide insights into **institutional barriers** such as:

- lock-ins
- path dependency
- political and cultural inertia power imbalances
- regulatory inconsistencies or weaknesses.

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



*Innovative governance* supporting the GD objectives needs to

- recognise,
- cope with and
- promote

resilience in the face of on-going *shocks and disruptions* both globally and across Europe, whether these be climatic, ecological, economic, social, geo-political or related to health.

Critical ***risk assessment and reduction strategies*** need to be incorporated, including the diversification of infrastructures, resources and knowledge through more **self-sufficiency and autonomy**.

## DESTINATION 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 solutions**, assessed through the “do not harm” principle of the Green Deal, is *key* for innovative governance models and a more science-based policy design, implementation and monitoring.
- To *maximise impacts of R&I* on the ground and spark **behavioural and socio-economic change**, the knowledge and innovation produced throughout the whole cluster should be **widely disseminated** to key stakeholders of the relevant sectors of the cluster.
- In particular, the Agricultural Knowledge and Innovation Systems (**AKIS**) needs to be *reinforced* to accelerate the required transformative changes.

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

Data and information obtained through **Environmental Observation** is of *great value* when assessing the state of the planet and is delivering crucial information to support the Green Deal and the climate and ecological transition.

**Integration** of information from different sources (space-based, airborne including drones, in-situ and citizens observations) with other relevant *data* and *knowledge* while ensuring (better) **accessible, interoperable or deployable information**, delivers information necessary for shaping the direction of the development of policies in the broad context of Cluster 6 of Horizon Europe.



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

A strong *link* to

- the **European Earth observations programme Copernicus** (in Cluster 4) and
- the European Space Agency's (ESA) Earth observation programme,

as well as *support* to

- the Group on Earth Observations (GEO),
- its European regional initiative (EuroGEO) and
- the Global Earth Observation System of Systems (GEOSS)

is *foreseen* for topics on environmental observations under this destination.

R&I activities relevant to **ocean, seas and coastal waters** will *complement* and *support*:

- the UN Decade of Ocean Science for Sustainable Development and UN Decade on Restoration
- the G7 Future of the Seas and Oceans Initiative
- the pan-Commission Destination Earth initiative
- the European Global Ocean Observing System (EOOS) and
- the GOOS 2030 strategy

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

*Digital innovation*, in complementarity with Cluster 4 and Digital Europe Programmes activities, should bring *benefits* for citizens, businesses, researchers, the environment, society at large and policy-makers. The **potential of the ongoing digital transformation, and its wider impacts, positive and negative**, need to be ***better understood and monitored*** in view of future policy design and implementation, governance, and solution development

This destination will develop **innovative digital and data based solutions** to support communities and society at large, and economic sectors relevant for this cluster to achieve sustainability objectives. R&I activities will ***add value to the knowledge and cost-effectiveness of innovative technologies*** in and across primary production sectors, food systems, bioeconomy, ocean and biodiversity.



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

Knowledge and advice to all actors relevant to this cluster are *key to improve sustainability*.

For *instance*, primary producers have a particular need for impartial and tailored advice on sustainable management choices. *Knowledge and Innovation Systems* are key drivers to enhance co-creation and thus speed up innovation and the take-up of results needed to achieve the GD objectives and targets.

This will include promoting **interactive innovation and co-ownership of results** by users, as well as **strengthening synergies** with other EU Funds in particular the CAP, reinforcing the multi-actor approach and setting up structural networking within national/regional/local AKISs. **AKIS** goes beyond agriculture, farming and rural activities and covers environment, climate, biodiversity, landscape, bio-based economy, consumers and citizens, i.e., *all food and bio-based systems including transformation and distribution chains up until the consumer*.

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

### Expected impact

Proposals for topics under this destination should set out a credible pathway to contributing to *innovative governance and sound decision making in policy for the green transition*, and more *specifically* to one or several 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 and products** ;
- A strengthened Global Earth Observation System of Systems (**GEOSS**) ;
- Sustainability performance and competitiveness in the domains covered by Cluster 6 are enhanced through further deployment of **digital and data technologies as key enablers**;

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

- More **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**

When considering their impact, proposals also need to **assess** their compliance with the “*Do No Significant Harm*” principle according to which the research and innovation activities of the project should not be supporting or carrying out activities that make a significant harm to any of the six environmental objectives of the **EU Taxonomy Regulation**.

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

Topics **under this destination** will have **impacts** in the following areas:

- Climate change mitigation and adaptation
- Clean and healthy air, water and soil
- Enhancing ecosystems and biodiversity on land and in water
- Sustainable food systems from farm to fork on land and sea
- High quality digital services for all
- A Competitive and secure data-economy



**Social innovation** is *recommended* when the solution is at the socio-technical interface and *requires* social change, new social practices, social ownership or market uptake.

# Call: Innovative governance, environmental observations and digital solutions in support of the Green Deal

**HORIZON-CL6-2021-GOVERNANCE-01-13: Modelling land use and land management in the context of climate change (RIA)**

## Projects should:

- include a task to collaborate with other projects financed under this topic and under topic HORIZON-CL6-2021-GOVERNANCE-01-12 “EU agriculture within a safe and just operating space and planetary boundaries”. They should also liaise with relevant Horizon 2020 modelling projects (including LandSupport ).
- focus activities mainly on **agriculture and forest land use/cover** and should extend to interactions of the former with other main land uses/covers and drivers
- work at **various spatial scales** – farm level, regional to EU levels - and simulations and projections should range from medium-term to long-term policy scenarios and should cover the whole of the EU and its Member States and **possibly Associated Countries**
- work on **land use dynamics** and explore the **effects of policy measures** that can influence such dynamics, in particular agricultural, land use and climate policies

Budget	10 mEUR
EU contribution	Around 5 mEUR
Funded projects	2
Copernicus and/or Galileo/EGNOS	

# Call: Innovative governance, environmental observations and digital solutions in support of the Green Deal

**HORIZON-CL6-2021-GOVERNANCE-01-14: User-oriented solutions building on environmental observation to monitor critical ecosystems and biodiversity loss and vulnerability in the European Union (RIA)**

**The proposals should:**

- deliver new **Earth observation (EO) data services** building on the potential of EO capabilities
- **tackle issues raised within the European Green Deal calls** and provide solutions to halt biodiversity loss and protect vulnerable ecosystems, and ensuring ecosystem capacity to continue to provide services to society and the environment
- **build on outcomes of EU funded projects** such as Horizon 2020 projects like ECOPOTENTIAL , initiatives like EuropaBON and programmes like LIFE , and should feed into the EC Knowledge Centre for Biodiversity, and deliver usable results to the monitoring framework of the EU biodiversity strategy for 2030
- **make mapping tools and information solutions available**

Budget	20 mEUR
EU contribution	3 to 5 mEUR
Funded projects	4
Copernicus and/or Galileo/EGNOS	

# Call: Innovative governance, environmental observations and digital solutions in support of the Green Deal

**HORIZON-CL6-2021-GOVERNANCE-01-18: Mapping and improving the data economy for food systems (RIA)**

**Proposals should:**

- gather **expertise from a broad range of disciplines** and food system participants to obtain new insights and achieve a deepened and more comprehensive understanding of the data economy for food systems
- develop a **framework for the data economy in food systems**, as a basis for monitoring its future development, its performance and impacts
- formulate **recommendations** (including technological, societal, economic, legal) **for policy makers** (EU, national, regional, local) and other stakeholders
- set out a clear plan on how they plan to collaborate with other projects selected under this and any other relevant call.
- The proposals must use the **multi-actor approach**.
- This topic should involve the effective contribution of **SSH disciplines**.

Budget	10 mEUR
EU contribution	Around 10 mEUR
Funded projects	1

# Call: Innovative governance, environmental observations and digital solutions in support of the Green Deal

## HORIZON-CL6-2021-GOVERNANCE-01-20: Data economy in the field of agriculture – effects of data sharing and big data (RIA)

Proposals will support capacities to understand, develop and demonstrate the **data economy in agriculture** and its effects.

### Proposals should cover:

- implications of the **ongoing policy-making process at EU level** including the development of relevant legislation in the analyses
- effects of **multi-level governance systems in the EU** under consideration of the situation and conditions in various Member States as well as effects of international (trade) relations
- consideration of multiple **data-sharing business- and governance approaches and technical solutions** in data sharing in the agricultural sector
- consideration of climate adaptation and reducing administrative burden in the assessment of the potential of agricultural data sharing for the sector and the society

Budget	4 mEUR
EU contribution	2 to 4 mEUR
Funded projects	1-2



# Call: Innovative governance, environmental observations and digital solutions in support of the Green Deal

**HORIZON-CL6-2021-GOVERNANCE-01-22: Assessing the impacts of digital technologies in agriculture – cost, benefits and potential for sustainability gains (RIA)**

## Proposals will:

- support the **development of capacities for assessing and demonstrating environmental and socio-economic effects of digital technologies in agriculture**
- contribute to the enhancement of the sustainability performance and competitiveness in agriculture through **further deployment of digital and data technologies** as key enablers through research and innovation in the field of the assessment of impacts of digital technologies in agriculture.

Projects are expected to make a significant contribution to establish a basis for the development, implementation and evaluation of sustainability- and data-related policies at regional, national and EU level and reaching related objectives, including **Green Deal ambitions, CAP, the White Paper on Artificial Intelligence, and Sustainable Finance.**

- The **multi-actor approach** must be implemented, involving at least scientists and representatives of the agricultural sector.

Budget	15 mEUR
EU contribution	Around 7.50 mEUR
Funded projects	2