



#InvestEUresearch

Horizon 2020 Work Programme for Research & Innovation 2018-2020

Societal Challenge 5 'Climate action, environment, resource efficiency and raw materials'

Jean-François HULOT, Head of Unit, RTD/I1

Alison IMRIE, Senior Expert, RTD/I1

European Commission, DG Research and Innovation

Research and
Innovation



Horizon 2020 Work Programme 2018-2020

- **Budget of ca. €30 billion**
- **Last Horizon 2020 Work Programme**
- **Aligned to the EU's current agenda and priorities:**
 - Increased investment in sustainable development and climate related R&I
 - Integrating digitisation in all industrial technologies and societal challenges
 - Strengthening international R&I cooperation
 - Societal resilience
 - Market creating innovation
- **Implementing the Sustainable Development Goals**
- **Promoting R&I policy goals of open innovation, open science and open to the world**

Horizon 2020 Work Programme 2018-2020

- **Challenge-based approach**, with **big high-impact calls** and **fewer, broader topics**, each supporting a balanced portfolio of projects
- **Making research and innovation more visible** through communication, open access to research results, new emphasis on data management
- **Focus areas:**
 - "Building a low-carbon, climate resilient future"
 - "Connecting economic and environmental gains – the Circular Economy"
 - "Digitising and transforming European industry and services"
 - "Boosting the effectiveness of the Security Union"

Focus Area *'Building a low-carbon, climate resilient future'*

Covers the main actions in Work Programme 2018-2020 which can contribute to the goals of the **Paris Agreement**

- limit global temperature rise to well below 2°C, make efforts to limit this to 1.5°C;
- enhance adaptive capacity, strengthening resilience and reducing vulnerabilities;

Aims to develop ground-breaking solutions capable of achieving **carbon neutrality** and **climate resilience** of Europe and beyond in the second half of the century

Integrating **multiple angles** of society, economy, technology, industrial value chains, the energy system, environment, health, land use and governance

Total indicative budget (2018-2020):
EUR 3 343 million

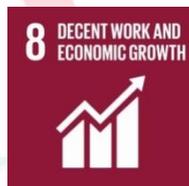


'Connecting economic and environmental gains – the Circular Economy' Focus Area

Covers the main actions in Work Programme 2018-2020 which will directly **support the circular economy policy**

- integrating production, consumption, waste management and raw materials
- * Ensure that growth no longer requires increasing consumption of resources, energy, water and primary raw materials
- * Minimise waste, including from plastics
- * Enhance industrial competitiveness

SDGs:



**Total indicative budget
(2018-2020):**

EUR 940 million



Societal Challenge 5: Climate action, environment, resource efficiency and raw materials

Work Programme 2018-2020

Focus:

- ✓ moving to a greener, more resource efficient and climate-resilient economy in sync with the natural environment
- ✓ demonstrating a strong commitment to supporting the UN's Sustainable Development Goals (SDGs) and the targets of the COP21 Paris Agreement

2 multiannual calls:



"Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement"

"Greening the economy in line with the Sustainable Development Goals (SDGs)"

Total indicative budget 2018-2020 €1.1bn



Call "Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement" – Objective

- solutions for achieving the PA's mitigation and adaptation goals
- scientific knowledge for the implementation of the Nationally Determined Contributions (NDCs) and for key PA-related milestones
- support to EU policies and objectives (e.g. Energy Union, Arctic policy, EU Adaptation Strategy) and EU climate diplomacy efforts
- cooperation with strategic partner countries/regions
- communicating research results to a broader audience, including the general public
- support to Sustainable Development Goals (SDGs) 13, 6, 11, 14 and 15

Call "Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement"

- ✓ **Decarbonisation**
- ✓ **Climate adaptation, impacts and services**
- ✓ ***Inter-relations between climate change, biodiversity and ecosystem services [in 2019]***
- ✓ ***The Cryosphere [in 2019]***
- ✓ **Knowledge gaps**
- ✓ ***Earth observation [in 2020]***

- **Budget in 2018:** €123 million
- **2018 topics open:** 7 November 2017
- **First call deadline:** 27 Feb 2018

"Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement" 2018 topics

Decarbonisation

- **LC-CLA-01-2018: Supporting the development of climate policies to deliver on the Paris Agreement, through Integrated Assessment Models (IAMs) (RIA)**
 - a) Supporting the design and assessment of climate policies
 - b) Improving Integrated Assessment Models (IAMs)

Climate adaptation, impacts and services

- **LC-CLA-03-2018: Climate change impacts in Europe (RIA)**
 - a) Climate change impacts on health in Europe
 - b) Global climate change impacts from a European perspective
- **LC-CLA-04-2018: Resilience and sustainable reconstruction of historic areas to cope with climate change and hazard events (RIA)**



"Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement" 2018 topics



Knowledge gaps

- **LC-CLA-08-2018: Addressing knowledge gaps in climate science, in support of IPCC reports (RIA)**
 - a) Improving the understanding of key climate processes for reducing uncertainty in climate projections and predictions
 - b) Tipping points
 - c) Ice-core drilling in East Antarctica

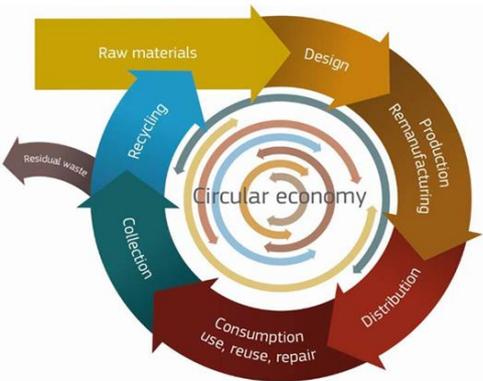


Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

- **Budget in 2018**
€219.7 million
- **2018 topics open:**
7 November 2017
- **First call deadline:**
27 Feb 2018

- ✓ **Connecting economic and environmental gains - the circular economy**
- ✓ **Raw materials**
- ✓ **Water for our environment, economy and society**
- ✓ **Innovating cities for sustainability and resilience**
- ✓ **Protecting and leveraging the value of our natural and cultural assets: Earth observation; nature-based solutions, disaster risk reduction and natural capital accounting; heritage alive**

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"



Connecting economic and environmental gains - the circular economy (C.E.): Objectives

- substantially improved efficiency of resource use
- increased use of resources originating from secondary sources, while avoiding adverse health effects
- minimising production of waste (including through design for product durability), pollution and GHG emissions
- enhanced capacity of cities to embrace C.E. approaches
- support transition to systemic, integrated solutions for closed cycles of resource use in the water sector
- contribute to implementing the Circular Economy Action Plan and key high-level EU priorities, including jobs, growth and investment, climate and energy, strengthened industrial base
- support EU endeavours to implement the SDGs, particularly SDGs 12, 6, 11 and 13, and Habitat III New Urban Agenda

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

Connecting economic and environmental gains - the circular economy

- **CE-SC5-01-2018: Methods to remove hazardous substances and contaminants from secondary raw materials (RIA)**
- **CE-SC5-02-2018: Independent testing programme on premature obsolescence (RIA)**
- **CE-SC5-03-2018: Demonstrating systemic urban development for circular and regenerative cities (IA)**
- **CE-SC5-05-2018: Coordinated approaches to funding and promotion of research and innovation for the circular economy (CSA)**

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

Raw materials: Objectives

- deliver pilot actions demonstrating sustainable production of primary and secondary raw materials, particularly CRM or other scarce high-tech metals
- deliver breakthrough research concepts, as basis of tomorrow's innovations
- contribute to building EU knowledge base of primary and secondary raw materials for solid decision making; further development of EC Raw Materials Information System – RMIS
- respond to the Circular Economy Action Plan and objectives of Strategic Implementation Plan of the EIP on Raw Materials
- improve framework conditions for sustainable development of and investment in innovative solutions for raw materials in the EU
- In the long term, positive impact on: downstream industries' access to raw materials; employment in and competitiveness of EU raw materials and related manufacturing industries, including SMEs; environmental and social performance of the sector; improved public awareness, acceptance and trust; EU endeavours to implement the SDGs, notably SDG 12

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

Raw materials (1)

- **CE-SC5-06-2018: New technologies for the enhanced recovery of by-products (RIA)**
- **CE-SC5-07-2018-2019-2020: Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes (IA)**
 - a) Sustainable processing and refining of primary and/or secondary raw materials
 - b) Recycling of raw materials from end-of-life products
 - c) Recycling of raw materials from buildings
 - d) Advanced sorting systems for high-performance recycling of complex end-of-life products

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

Raw materials (2)

- **CE-SC5-08-2018-2019-2020: Raw materials policy support actions for the circular economy (CSA)**
 - a) Voluntary scheme for certification of treatment facilities for key types of wastes (2018)
 - b) Resource efficiency in wood processing, recovery and recycling (2018)
- **SC5-09-2018-2019: New solutions for the sustainable production of raw materials (RIA)**
 - a) Breakthrough concepts and solutions for sustainable exploration, mining and/or processing (2018)

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"



Water for our environment, economy and society: Objectives

- support and accelerate implementation of EU policies and initiatives relating to water, resource efficiency and water-dependent industries
- contribute to policy relating to the Energy Union, climate action and the digital economy
- lead in the medium term to: digital solutions for improved public- and private-sector decision-making on water-related risks, efficiency and resilience; substantial reductions in water and energy consumption; development of new markets for water-smart technologies and services
- improve wastewater efficiency and quality of and access to drinking water in India
- support EU endeavours to implement the SDGs, particularly SDGs 6 and SDG 13

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

Water for our environment, economy and society

- **SC5-11-2018: Digital solutions for water: linking the physical and digital world for water solutions (IA)**
- **SC5-12-2018: EU-India water co-operation (RIA)**

N.B. Some topics of relevance to water can also be found in the call 'Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement'.

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"



Innovating cities for sustainability and resilience: Objectives

- enable cities to design and implement transition pathways to becoming inclusive, resilient, sustainable, low-carbon and resource efficient
 - enhancing cities' innovation capacity and enabling them to act as hubs of innovation
 - strengthen sustainability of urban areas globally, and particularly in China and CELAC countries
 - support EU endeavours to implement the SDGs, particularly SDGs 11 and SDG 3, together with Habitat III New Urban Agenda and EU Urban Agenda
- **SC5-13-2018-2019: Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems (RIA)**
 - a) Strengthening EU-China collaboration (2018)

N.B. A city-related topic is also found in the part of this call on "Connecting economic and environmental gains - the circular economy"

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"



Protecting and leveraging the value of our natural and cultural assets – Earth observation (E.O.): Objectives

- capitalise on GEOSS and recent E.O. trends, in collaboration with the Copernicus programme
- develop new mass-market applications for businesses, citizens and public authorities
- stimulate growth and jobs in Europe in the context of the digital economy (through open innovation)
- enable better informed decision-making in environmental policy and management, and in disaster management
- contribute to implementing EU space policy
- support to SDGs 9, 11, 13, 14 and 15

- **SC5-15-2018: Strengthening the benefits for Europe of the Global Earth Observation System of Systems (GEOSS) - establishing 'EuroGEOSS' (IA)**

N.B. See also EIC Horizon Prize 'Early Warning for Epidemics'

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"



Protecting and leveraging the value of our natural and cultural assets – Nature-based solutions, disaster risk reduction and natural capital accounting: Objectives

- improve decision making, early warning, preparedness and communication among relevant actors to better cope with earthquakes through enhanced forecasting capacity
- enhance capacity of authorities and private sector to better assess and value biodiversity, ecosystems and their services to enable them to incorporate and mainstream these values into accounting and decision making frameworks
- support EU endeavours to implement the SDGs, particularly SDGs 3, 6, 8, 11, 13 and 15

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

Protecting and leveraging the value of our natural and cultural assets: Nature-based solutions, disaster risk reduction and natural capital accounting

- **SC5-17-2018: Towards operational forecasting of earthquakes and early warning capacity for more resilient societies (RIA)**
- **SC5-18-2018: Valuing nature: mainstreaming natural capital in policies and in business decision-making (CSA)**
 - a) Valuing nature: developing and implementing natural capital and ecosystem accounts in EU Member States and Associated Countries
 - b) Operationalisation of natural capital accounting in business decisions

N.B. Some topics in the call 'Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement' also contribute to this priority area.

Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"



Protecting and leveraging the value of our natural and cultural assets – Heritage alive: Objectives

- position cultural heritage at centre of sustainable development
- unlocking potential of cultural heritage as strategic living resource and driver for economic growth and job creation, social cohesion and environmental sustainability
- contribute to protection and preservation of cultural and historic heritage in Europe and beyond
- mobilise investments in the sector leading to emergence of global market for heritage-led innovative solutions/services
- support to SDG 11 and its target (strengthening efforts to protect and safeguard the world's cultural & natural heritage)

• **SC5-19-2018: International network to promote cultural heritage innovation and diplomacy (CSA)**

N.B. A topic in call 'Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement' also contributes to this priority area.

Thank you!

#InvestEUresearch

More information:

www.ec.europa.eu/research

Participant Portal:

www.ec.europa.eu/research/participants/portal/desktop/en/home.html

Draft Work Programme 2018-2020:

<https://ec.europa.eu/programmes/horizon2020/en/climate-action-environment-resource-efficiency-and-raw-materials-work-programme-2018-2020>