

Horizon 2020

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



**Environment Directorate
Research and Innovation**

Three priorities



Priority 3.

Societal challenges

Why:

- **Concerns of citizens and society/EU policy objectives (climate, environment, energy, transport, etc) cannot be addressed without innovation**
- **Breakthrough solutions come from multi-disciplinary collaborations, including social sciences & humanities**
- **Promising solutions need to be tested, demonstrated and scaled up**

Proposed funding (€ million, 2014-2020)

Health, demographic change and wellbeing	7 472
Food security, sustainable agriculture, marine and maritime and inland water research & the Bioeconomy	3 851
Secure, clean and efficient energy *	5 931
Smart, green and integrated transport	6 339
Climate action, environment, resource efficiency and raw materials	3 081
Europe in a changing world-inclusive, innovative and reflective societies	1 309
Secure societies-protecting freedom and security of Europe and its citizens	1 695
<i>Science with and for society</i>	<i>462</i>
<i>Spreading excellence and widening participation</i>	<i>816</i>

* Additional funding for nuclear safety and security from the Euratom Treaty activities (2014-2018)

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



Objective:

"to achieve a resource – and water – efficient and climate change resilient economy and society, the protection and sustainable management of natural resources and ecosystems, and a sustainable supply and use of raw materials, in order to meet the needs of a growing global population within the sustainable limits of the planet's natural resources and eco-systems."

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

Broad lines of activities:

- **Fighting and adapting to climate change**
- **Sustainably managing natural resources and ecosystems**
- **Sustainable supply of non-energy and non-agricultural raw materials**
- **Transition towards a green economy through eco-innovation**
- **Global environmental observation and information systems**
- **Cultural heritage**

Strategic programming in H2020

- **To increase impact of funding, and a more integrated approach by:**
 - **Bringing together activities from different challenges**
 - **Providing support across the innovation cycle**
 - **Use of funding schemes available**
- **Work programmes expected to have a 2 year-duration**
 - **First Work Programme 2014-15**

Cross-cutting issues

Mainstreaming of climate and sustainable development objectives

Climate action, resource efficiency and sustainable development supported across the whole of Horizon 2020

At least **60%** of the overall Horizon 2020 budget should be related to **sustainable development**

Climate-related expenditure should exceed **35%** of the overall Horizon 2020 budget

Work Programme 2014/2015 focus areas

Twelve focus areas identified, of which five linked to 'Climate action, environment, resource efficiency and raw materials:

- **Waste:** A resource to recycle, reuse and recover raw materials
- **Water innovation:** Boosting its value for Europe
- **Energy-efficiency**
- **Disaster-resilience:** Safeguarding society and adapting to climate change
- **Blue growth:** Unlocking the potential of the oceans

Waste: A resource to recycle, reuse and recover raw materials

Rationale:

- Major opportunity for European society
- Capitalising on EU strengths to reinforce EU position as a world market leader
- Whole production and consumption cycle
- Involvement of different stakeholders (incl. citizens), better organisation at EU level of different actors
- Supported by Public-Private Partnerships on Sustainable Process Industries (SPIRE PPP) and on Bio-Based Industries
- Contributing to the Resource Efficiency Road Map



Waste: A resource to recycle, reuse and recover raw materials

- Areas covered 2014/2015



- Moving towards a circular economy through industrial symbiosis
- A systems approach for the reduction, recycling and reuse of food waste
- Recycling of raw materials from products and buildings
- Towards near-zero waste at European and global level
- Preparing and promoting innovation procurement for resource efficiency
- Promoting eco-innovative waste management and prevention as part of sustainable urban development
- Ensuring sustainable use of agricultural waste, co-products and by-products

Water innovation: Boosting its value for Europe

Rationale:

- Reinforce water innovation capacity and market uptake of successful research results
- Boost the competitiveness and growth of the European water sector
- Create leadership in water resources management and position Europe as a global market leader in water related innovative solutions
- Support the needs of relevant EU water, innovation and resource efficient policies, international commitments and related initiatives: EIP Water, EIP Agriculture, JPI on Water, SPIRE PPP, IPCC, Rio+20, etc.



Water innovation: Boosting its value for Europe

- Areas covered 2014/2015

- Bridging the gap: from innovative water solutions to market replication
- Integrated approaches to water and climate change
- Stepping up EU research and innovation cooperation in the water area
- Harnessing EU water research and innovation results for industry, policy makers and citizens
- Strengthening international R&I cooperation in the field of water



Energy-efficiency

- Rationale and area covered



- Historic buildings provide essential infrastructure in European cities but mostly need more energy efficient solutions for upgrading and adaptation
- Energy strategies and solutions for deep renovation of historic buildings

Disaster-resilience: Safeguarding society and adapting to climate change

– Rationale and area covered 2014/2015



- Science and innovation for adaptation to climate change: from assessing costs, risks and opportunities to demonstration of options and practices
- Natural hazards: towards risk reduction plans at national and European level
- Mitigating the impacts of climate change and natural hazards on cultural heritage sites, structures and artefacts

Blue Growth: Unlocking the potential of the oceans

- Rationale and Areas covered 2014/2015



- The objective is to address wide and complex ocean challenges which are cross-cutting in nature
- Developing in-situ Atlantic Ocean Observations for a better management and exploitation of the maritime resources
- Improving the preservation and sustainable exploitation of Atlantic marine ecosystems
- Strengthening international cooperation in the field of marine sciences
- European polar research cooperation

Fighting and adapting to climate change

Rationale:

- Building the foundations for the development of European climate services
- Supporting climate policy through the development of strategic capabilities in climate projection, prospective economic analysis and international cooperation
- Preparing for future advances in IPCC reports



Fighting and adapting to climate change

- Areas covered 2014/2015



- Advanced Earth-system models
- The economics of climate change and linkages with sustainable development
- Coordinating and supporting research and innovation for climate action
- ERA for Climate Services
- Improving the air quality and reducing the carbon footprint of European cities

Protecting the environment, sustainably managing natural resources, water, biodiversity and ecosystem



Rationale:

- The aim of this activity is to provide knowledge and tools for a balanced management and protection of natural resources.
- Research and innovation activities should therefore contribute to reversing the trends that damage the environment.
- Innovative actions should also ensure that ecosystems continue to provide the resources, goods and services that are essential for sustainable development.

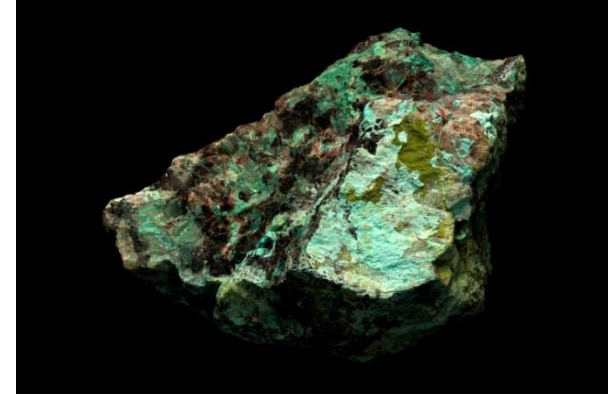
Protecting the environment, sustainably managing natural resources, water, biodiversity and ecosystem - Areas covered 2014/2015



- Biodiversity and ecosystem services: drivers of change and causalities
- Preparing and promoting innovation procurement for soil decontamination
- Consolidating the European Research Area on biodiversity and ecosystem services
- Coordinating and supporting research and innovation for the management of natural resources
- More effective ecosystem restoration in the EU

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Ensuring the sustainable supply of non-energy and non-agricultural raw materials



Rationale:

The European Raw Materials Initiative

- Ensure level playing field in access to resource in third countries
- Foster sustainable supply from European sources
- Boost resource efficiency and recycling

The European Innovation Partnership on Raw Materials

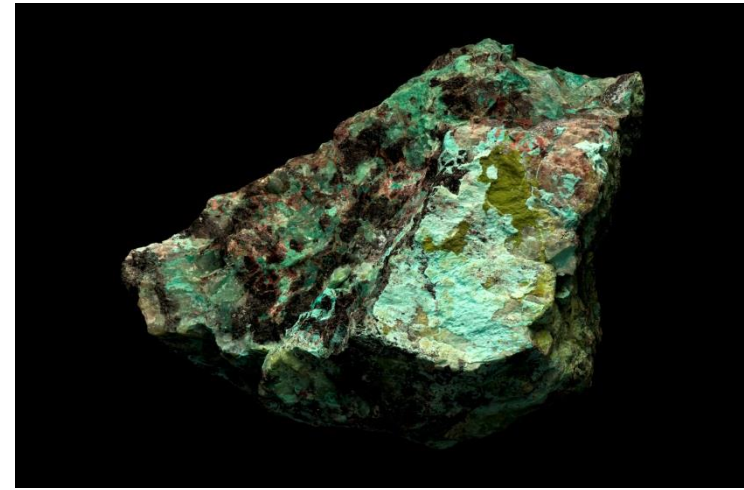
Ensuring the sustainable supply of raw materials to European economy and society.

Specific objectives:

- Reduce import dependency
- Improve supply conditions from the EU and other sources
- Push Europe to the forefront in raw materials sectors
- Provide alternatives in supply
- Mitigate negative environmental and social impacts

Ensuring the sustainable supply of non-energy and non-agricultural raw materials

- Areas covered 2014/2015



- New solutions for sustainable production of raw materials
- Innovative and sustainable solutions leading to substitution of raw materials
- Coordinating and supporting raw materials research and innovation

Enabling the transition towards a green economy through eco-innovation

Rationale:

- Decoupling growth from the use of natural resources
- Eco-innovation as the main driver
- Eco-innovation creates major opportunities for growth and jobs in Europe and internationally
- Green growth tackled globally and contributes to international commitments



Enabling the transition towards a green economy through eco-innovation

- Areas covered 2014



- Consolidating global knowledge on the green economy in support of sustainable development objectives in the EU and internationally

Developing comprehensive and sustained global environmental observation and information systems



Rationale:

- Comprehensive environmental observation and information systems to stimulate the smart use of resources.
- Information and knowledge from these systems will also be used to support evidence-based policies and develop new opportunities in global markets.
- Free and open access to data for Earth observation and monitoring will be encouraged.

Developing comprehensive and sustained global environmental observation and information systems

- Areas covered 2014/2015



- Making Earth Observation and Monitoring Data usable for ecosystem modelling and services
- Coordinating and supporting Earth Observation research and innovation in Europe and in the North African, Middle East, and Balkan region
- Strengthening the European Research Area in the domain of Earth Observation
- Demonstrating the concept of 'Citizens' Observatories'

Cross-challenge issues



- Areas Covered 2014/2015

- **Coordinating and supporting research and innovation in the area of climate action, environment, resource efficiency and raw materials**
 - Facilitating transnational cooperation between NCPs in Societal Challenge 5
 - Mapping Member State research and innovation in climate change, environment, resource efficiency and raw materials
- **Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials**



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**Thank you
for your attention!**

Find out more:

<http://ec.europa.eu/research/horizon2020>

2014-15 WPs available at:

http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=h2020-documents