

Climate action, environment, resource efficiency and raw materials

SC5 in Horizon 2020

Excellent Science

■ European Research Council

Frontier research by the best individual teams

Future and Emerging Technologies

 Collaborative research to open new fields of innovation

■ Marie Skłodowska Curie actions

Opportunities for training and career development

Research infrastructures

(including e-infrastructure)

Ensuring access to world-class facilities

Industrial Technologies

Leadership in enabling and industrial technologies

 ICT, nanotechnologies, materials, biotechnology, manufacturing, space

Access to risk finance

 Leveraging private finance and venture capital for research and innovation

Innovation in SMEs

 Fostering all forms of innovation in all types of SMEs

Societal Challenges

- Health, demographic change and wellbeing
- Food security, sustainable agriculture, marine and maritime research & the bioeconomy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Climate action, environment, resource efficiency and raw materials
- Inclusive, innovative and reflective societies
- Security society

European Institute of Innovation and Technology (EIT)

Spreading Excellence and Widening Participation

Science with and for society

Joint Research Center (JRC)

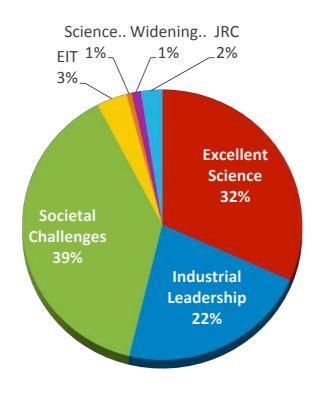
Furator

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

Use of Resources

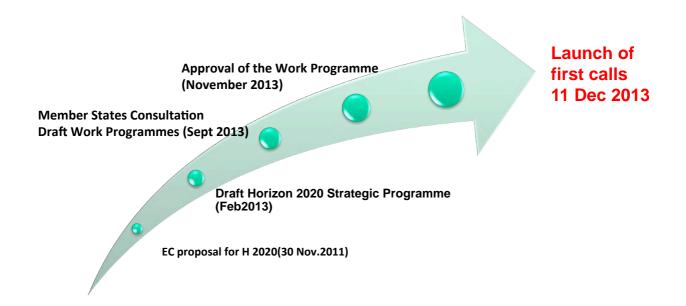


Proposed Work Programme Cycle

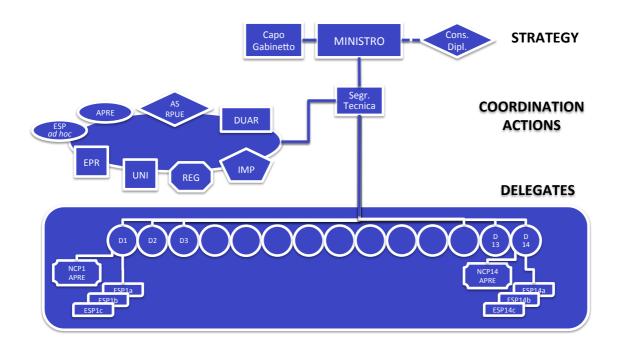
2014	2015	2016	2017	2018	2019	2020
W	P 1					
		W	P 2			
				Wi	3	
						WP 4

Italian delegation proposal WP cycle 1+2+2+2, current position indicative topics for 2015

Where are we in the preparation of Horizon 2020?



The Team



What are the delegate's tasks?



ITALIAN NATIONAL DELEGATES - H2020

1. Horizontal configuration

Dr. Raffaele Liberali, MIUR

2. ERC, Marie Slodowska-Curie Actions, Future and Emerging Technologies (FET)

Prof.ssa Daniela Corda, Direttore Ist. Biochimica delle Proteine, CNR, Napoli

3. Research Infrastructures

Prof.ssa Cristina Messa, Rettore eletto, Univ. Milano Bicocca

4. Information and Communication Technologies

Prof.ssa Paola Inverardi, Rettore eletto, Univ. L'Aquila

5. Nanotechnologies, Advanced materials, Biotechnology, Advanced manufacturing and processing

Prof.ssa Donata Medaglini, Dipartimento di Biotecnologie, Univ. Siena

ITALIAN NATIONAL DELEGATES - H2020

6. Space

Prof.ssa Amalia Ercoli Finzi, Politecnico Milano

7. SMEs and Access to Risk Finance

Prof. Alberto Di Minin, MIUR & Scuola Superiore S. Anna, Pisa

8. Health, Demographic change and Wellbeing

Prof.ssa Angela Santoni, Dipartimento di Medicina molecolare, Univ. "La Sapienza", Roma

9. European Bioeconomy Challenges: Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research

Prof. Fabio Fava, Dip. di Ingegneria Civile, Chimica, Ambientale e dei Materiali, Univ. Bologna

10. Secure, Clean and Efficient Energy

Prof. Riccardo Basosi, Dipartimento di Biotecnologie, Chimica e Farmacia, Univ. Siena

ITALIAN NATIONAL DELEGATES - H2020

11. Smart, Green and Integrated Transport

Prof.ssa Angela Di Febbraro, Dip. Ing. meccanica, energetica, gestionale e dei trasporti, Univ. Genova

12. Climate Action, Resource Efficiency and Raw Materials

Prof Carlo Barbante, Direttore Ist. Dinamica Processi Ambientali, CNR, Venezia

13. Europe in a changing world – Inclusive, Innovative and Reflective Societies

Prof. Fulvio Esposito, MIUR

14. Secure Societies – Protecting freedom and security of Europe and its citizens

Dr. Maurizio Aiello, Ist. Elettronica e Ingegneria Elettronica e delle Telecomunicazioni, CNR, Genova

Italian National Team in H2020 - SC5

(Climate Action, Environment, Raw Materials, Resource Efficiency)

- **Prof. Carlo Barbante,** IDPA-CNR (delegato)
 - Climate, Environment
- **Prof. Arturo Lorenzoni**, Università di Padova (esperto)
 - Climate, Resource Efficiency
- **Dr. Dario della Sala**, ENEA (esperto)
 - Raw Materials, Resource Efficincy
- **Dr. Sergio Treichler**, Federchimica (esperto)
 - Raw Materials, Resource Efficincy
- Dr. Matteo Di Rosa, Miriam De Anfelis, APRE
 - National Contact Point

The Italian delegation in the Programme Committees

- expresses Italy's position on the elaboration of Working Programmes (and therefore of competition announcements) and on the successive stages of their implementation
- references:
 - The general aims of EU research regarding Italy
 - National and regional research plans
 - The country's research capacity
- aims: Maximising the number of successful Italian projects
 - Supporting topics that might entail a successful Italian participation
 - Improving the feedback with regard to FP7 (8 => 14%)



ROLE OF THE PROGRAMME DELEGATE

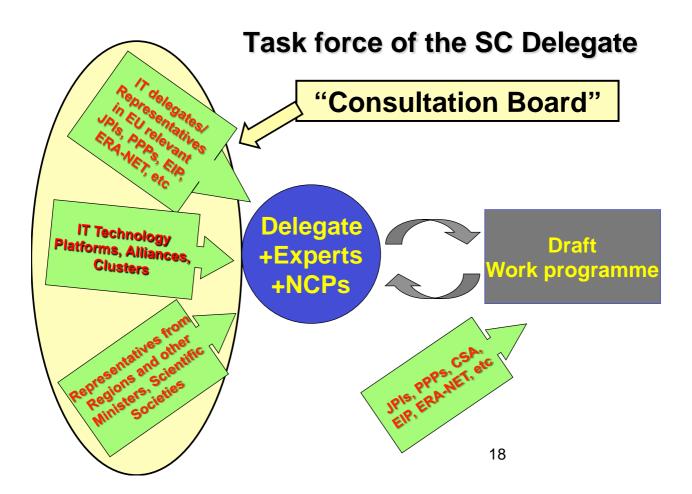
- Participating in the Programme Committee meetings;
- Contributing to shaping content priorities in the relevant Work Programmes;
- Following activities relevant to the Delegate's topics in other parts of H2020 (including instruments such as JPIs etc.), as well as agreeing such thematic overlaps with the responsible Italian Delegates of the Programme Committees concerned;
- Submitting meeting reports, with a focus on areas for action for Italy;
- Making the meeting reports available to all Delegates, Experts;
- Actively passing on important information to players in Italy (national, regional, sectorial);
- Participating in the draft of the national research plan (PNR);

ROLE OF THE PROGRAMME DELEGATE

- Actively feeding expertise gained by working as a Delegate into consultations regarding thematic, structural and budgetary effects of H2020 in Italy;
- Setting up thematic expert groups Consultation Board with important players in Italy;
- Participating in the regular exchange of the Delegate for Horizontal Issues in H2020 (e.g. gender, open access);
- Carrying out "pre-meetings" with Delegates from other countries before the Programme Committee meetings, in order to agree joint interests or joint courses of action;
- Maintaining informal contacts to "project officers" or other representatives of the European Commission responsible within the programme, in order to recognise trends of programme development early on.

ROLE OF EXPERTS

- Participating in the Programme Committee meetings if items on the agenda require the Experts' specific expertise and/or if an added value for supporting the Italian delegation can be expected;
- Supporting the Delegates both with regard to content issues, and – by mutual agreement – also with regard to technical-administrative issues (e.g. participating in reporting, or in organising events);
- Supporting the Delegates in implementing the "thematic expert groups" or other pertinent specialised bodies;



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

Horizon 2020: Main environment-related novelties

- Integrated, systemic and challenge-driven approach
- Transformation towards a green economy and society
- More eco-innovation, including social innovation
- More socio-economic and forward-looking activities
- Inclusion of raw materials
- Environment and health now under "Health" Challenge

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

Work Programme topics

Structure respects the challenge based approach

- 3 key features

Specific Challenge

 sets the context, the problem to be addressed, why intervention is necessary

Scope

 delineates the problem, specifies the focus and the boundaries of the potential action BUT without describing specific approaches

Expected Impact

 describe the key elements of what is expected to be achieved in relation to the specific challenge

FOCUS AREAS



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

...towards a zero waste society



- 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

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

...towards a zero waste society



TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)	
Call WASTE A Resource to Recycle, Reuse and Recover Raw Materials				
WASTE 1. Moving towards a circular economy through industrial symbiosis (Inn.)	2-stage	44*		* includes €5M contrib from LEIT
WASTE 6. Promoting eco-innovative waste management and prevention as part of sustainable urban development (Inn.; R&I)	2-stage		40	
WASTE 2. A systems approach for the reduction, recycling and reuse of food waste (R&I)	2-stage	9**		** topic & budget from SC2
WASTE 7. Ensuring sustainable use of agricultural waste, co-products and by-products (R&I)	2-stage		14**	
WASTE 3. Recycling of raw materials from products and buildings (R&I)	1-stage	14.5		
waste 4. Towards near-zero waste at European and global level (CSA) a) A European near-zero waste stakeholder network (2014) b) Global waste dimension (2014) c) Secondary raw materials inventory (2014) d) Raw materials partnerships (2015)	1-stage	4.5	4	Up to one project per sub-topic shall be funded
WASTE 5. Preparing and promoting innovation procurement for resource efficiency (CSA - Support to PPI)	1-stage	1		



Water innovation: Boosting its value for Europe

- Areas covered

...support to existing EU & global initiatives



- 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, agriculture, policy makers and citizens
- > Strengthening international R&I cooperation in the field of water

Water innovation: Boosting its value for Europe

- Areas covered

...support to existing EU & global initiatives



TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)	
Call WATER INNOVATION Boosting its value for Europe				
WATER 1. Bridging the gap: from innovative water solutions to market replication (Inn.)	2-stage	39	45	
wATER 2. Integrated approaches to water and climate change a)Water cycle under future climate (R&I) 2014 b) Integrated approaches to food security, low-carbon energy, sustainable water management and climate change mitigation (R&I) 2015	2-stage	13	15	
WATER 3. Stepping up EU R&I cooperation in the water area (ERA-NET)	1-stage	10	15	
WATER 4. Harnessing EU water research and innovation results for industry, policy makers and citizens (CSA) a) 2014 - b) 2015	1-stage	5	6***	*** topic 4b (& €3M budget) from SC2
WATER 5. Strengthening international R&I cooperation in the field of water (CSA) a) 2014 - b) 2015				
WATER 5. Strengthening international R&I cooperation in the field of water c)2015	2-stage		15	



Energy-efficiency

- Rationale



- ➤ 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

Energy-efficiency

- Rationale



TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)
Call: ENERGY EFFICIENCY			
EE3: Energy strategies and solutions for deep renovation of historic buildings (R&I) [EeB contribution]	1-stage	5	



Blue Growth: Unlocking the potential of the oceans

- Rationale and area covered



- 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

Blue Growth: Unlocking the potential of the oceans



TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)
Call: BLUE GROWTH			
BG1: Improving the preservation and sustainable exploitation of Atlantic marine ecosystems (R&I)	2-stage		20
BG8 : Developing in-situ Atlantic Ocean observations for a better management and sustainable exploitation of maritime resources (R&I)	2-stage	20	
BG14 : Supporting flagship international cooperation initiatives: Atlantic Ocean Cooperation Research Alliance (CSA)	1-stage	3.5	
BG15: European polar research cooperation (CSA)	1-stage	2	
BG9: Acoustic and imaging technologies (2014)	2-stage	10	



Disaster-resilience: Safeguarding society and adapting to climate change

- Rationale



- 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
- Cultural Heritage: mitigating the impacts of climate change and natural hazards

Disaster-resilience: Safeguarding society and adapting to climate change

- Rationale



TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)
FOCUS AREA: DISASTER-RESILIENCE *			
Science and innovation for adaptation to climate change: from assessing costs, risks and opportunities to demonstration of options and practices a) 2014: CSA	1-stage	3	
b) 2014: R&I	1-stage	15	
c) 2015: Inn.	1-stage		15
Natural hazards: towards risk reduction science and innovation plans at national and European level (CSA)	1-stage		3
Mitigating the impacts of climate change and natural hazards on cultural heritage sites, structures and artefacts (R&I)	1-stage		10

Societal Challenge 5



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
- > Fostering the implementation of adaptation solutions

Fighting and adapting to climate change

- Areas covered

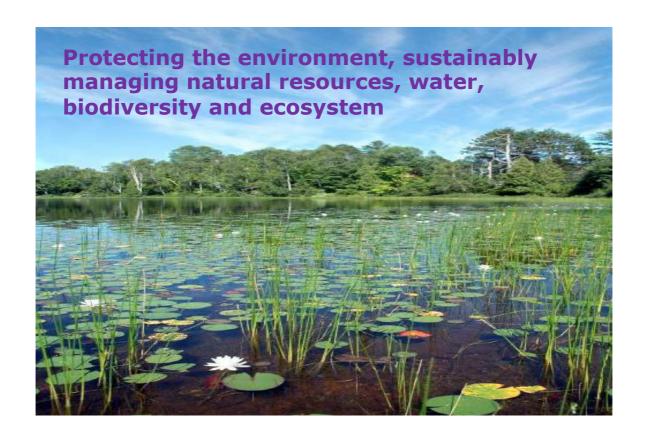
- > Advanced Earth-system models
- > The economics of climate change and linkages with sustainable development
- Coordinating and supporting research and innovation for climate action, with focus on climate mitigation





TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)
SC5 CALL: Growing a Low Carbon, Resource Efficient Economy with a Sustainable Supply of Raw Materials			
Climate Services for Europe and globally: SC5-1. Advanced Earth-system models (R&I)		42	
SC5-3. The economics of climate change and linkages with sustainable development (R&I)	2-stage		
SC5-4. Improving the air quality and reducing the carbon footprint of European cities (R&I)			15
SC5-2. ERA for Climate Services (ERA-NET)	1-stage		25
SC5-5. Coordinating and supporting R&I for climate action (CSA) a) Earth system modelling and climate services (2015) b) Climate mitigation options (2014)	1-stage	(*)	(*)





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



- > 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

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





TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)
SC5 CALL: Growing a Low Carbon, Resource Efficient Economy with a Sustainable Supply of Raw Materials			
SC5-6. Biodiversity and ecosystem services: drivers of change and causalities (R&I)	2-stage	20	
SC5-7. More effective ecosystem restoration in the EU (R&I)			15
SC5-8. Preparing and promoting innovation procurement for soil decontamination (CSA-Support to PCP)	1-stage	(*)	
SC5-9. Consolidating the European Research Area on biodiversity & ecosystems services (ERA-NET)	1-stage	12	
SC5-10. Coordinating and supporting R&I for the management of natural resources (CSA): a) Enhancing mapping ecosystems and their services (2014) b) Structuring research on soil, land-use and land management in Europe (2014) c) An EU support mechanism for evidence-based policy on biodiversity & ecosystems services (2015)	1-stage	(*)	(*)



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



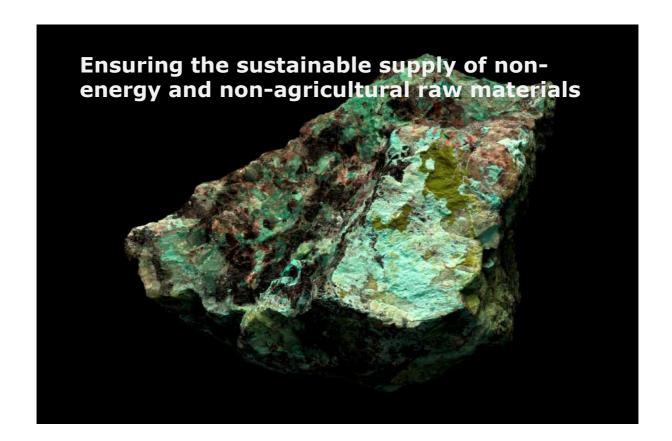
- Areas covered

- 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

Developing comprehensive and sustained global environmental observation and information systems



TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)
SC5 CALL: Growing a Low Carbon, Resource Efficient Economy with a Sustainable Supply of Raw Materials			
SC5-15. Strengthening the European Research Area in the domain of Earth Observation (ERA-NET)	1-stage		15
SC5-16. Making Earth Observation and Monitoring data usable for ecosystem modelling and services (R&I)	2-stage	14	
SC5-17. Demonstrating the concept of 'Citizen Observatories' (Inn.)			20
SC5-18. Coordinating and supporting Earth Observation R&I in Europe and in the North African , Middle East and Balkan region (CSA): a) Coordinating European Earth Observation Networks to reinforce the knowledge base for climate, natural resources and raw materials (2014) b) Integrating North African, Middle-East and Balkan Earth Observation capacities in GEOSS (2015)	1-stage	(*)	(*)



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

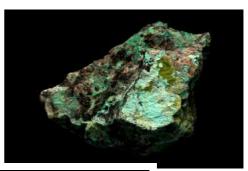


- Rationale

- The European "Raw Materials Initiative" (launched in 2008)
 - 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 (COM(2012) 82 final - 29 February 2012)

The overall objective of the EIP is to contribute to the 2020 objectives of the EU Industrial Policy to increase the share of industry on GDP to 20%, the Innovation Union flagship initiative, and the Resource Efficiency Policy by ensuring the sustainable supply of raw materials to European economy and society.

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



TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)
SC5 CALL: Growing a Low Carbon, Resource Efficient Economy with a Sustainable Supply of Raw Materials			
SC5-11. New solutions for sustainable production of primary raw materials (R&I): a) New exploration technologies and geomodels (2015) b) Mining of small deposits and alternative mining (2014) c) Deep mining on continent and in sea-bed (2015) d) Flexible processing technologies (2014) e) New metallurgical systems (2015)	1-stage	33	48
SC5-12. Innovative and sustainable solutions leading to substitution of raw materials (R&I): a) materials for electronic devices (2014) b) Materials under extreme conditions (2015)	1-stage	10	10
SC5-13. Coordinating and supporting raw materials R&I (CSA) a) Mineral deposits of public importance (2014) b) Raw materials intelligence capacity (2015) c) Innovation friendly minerals policy framework (2015) d) Raw materials research and innovation coordination (2015) e) Strategic international dialogues and co-operation on raw materials with technologically advanced countries (2014) f) Strategic international dialogues and co-operation with raw materials producing countries and industry (2015)	1-stage	5	8



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

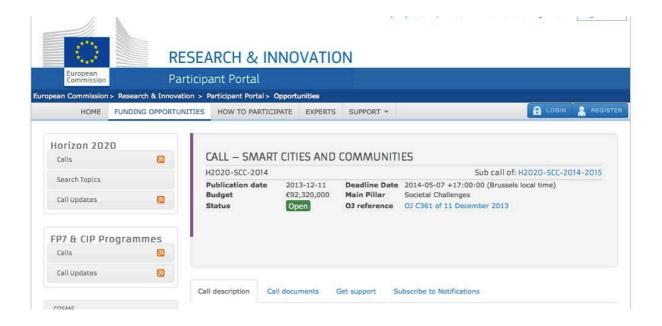


TOPICS	EVALUATION TYPE	BUDGET 2014 (€MIO)	BUDGET 2015 (€MIO)
SC5 CALL: Growing a Low Carbon, Resource Efficient Economy with a Sustainable Supply of Raw Materials			
SC5-14. Consolidating global knowledge on the green economy in support of sustainable development objectives in Europe and internationally (CSA) (2014)	1-stage	(*)	
SC5-20. Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials (SME Instrument)	1-stage	17**	19**

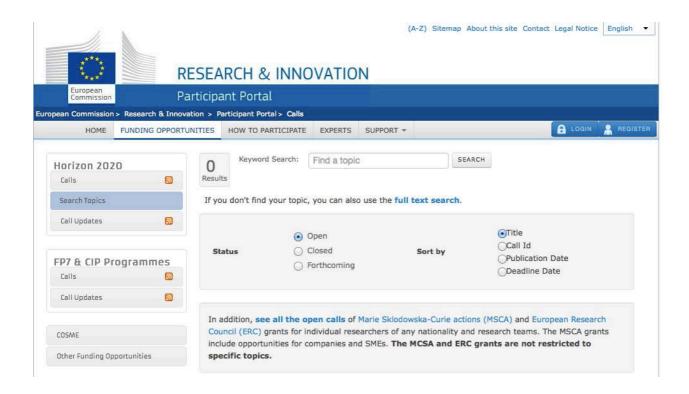
SC5 in Horizon 2020:

Suggestions for a successful participation

Google: "Participant Portal H2020"



Search Tool



Read the call carefully:

- Technical content / scope
- Special features
- Expected impact
- Funding scheme

If you find « your call »

- Select your partners on the basis of their quality and of their actual contribution to the project
- → synergies between entreprise and university/ research
- Do not wait: the connections are being made now
- Carefully read the assessment criteria and the instructions for the referees
- Allow sufficient time for asking an experienced person to preliminarly review the initial idea and the proposal

Read the call carefully:

- Technical content / scope
- Special features
- Expected impact
- Funding scheme

If you don't find « your call »

Read the call carefully:

- Technical content / scope
- Special features
- Expected impact
- Funding scheme

If you don't find « your call »

- other parts of Horizon 2020
- input for next calls through
 - Technological platforms
 - Consultation Boards
 - Organisation of workshops/position papers
 - Meetings to strengthen collaborations with groups from other countries
 - National and European information days, regional encounters
 - Project evaluation experts
 - The role of Detached National Experts

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