Sustainable Innovation in the European Union Horizon 2020

Climate action, environment, resource efficiency and raw materials

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The CASI project focuses on one of the seven Societal Challenges of Horizon 2020 (SC5)

1. Health, demographic change and well-being
2. Food security, sustainable agriculture and forestry, marine, maritime and inland water research, and the bio economy
3. Secure, clean and efficient energy
4. Smart, green and integrated transport
5. **Climate action, environment, resource efficiency and raw materials (SC5)**
6. Europe in a changing world – Inclusive, innovative and reflective societies
7. Secure societies – Protecting freedom and security of Europe and its citizens

SC5 in the H2020 Framework Programme for RTD

"Activities in [Societal Challenge 5] will help increase European competitiveness, raw materials security and improve wellbeing. At the same time they will assure environmental integrity, resilience and sustainability with the aim of keeping average global warming below 2°C and enabling ecosystems and society to adapt to climate change and other environmental changes."

- **Objectives**
  - *To achieve a resource – and water – efficient and climate change resilient economy and society.*
  - *The protection and sustainable management of natural resources and ecosystems.*
  - *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.*

Source: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/climate-action-environment-resource-efficiency-and-raw-materials

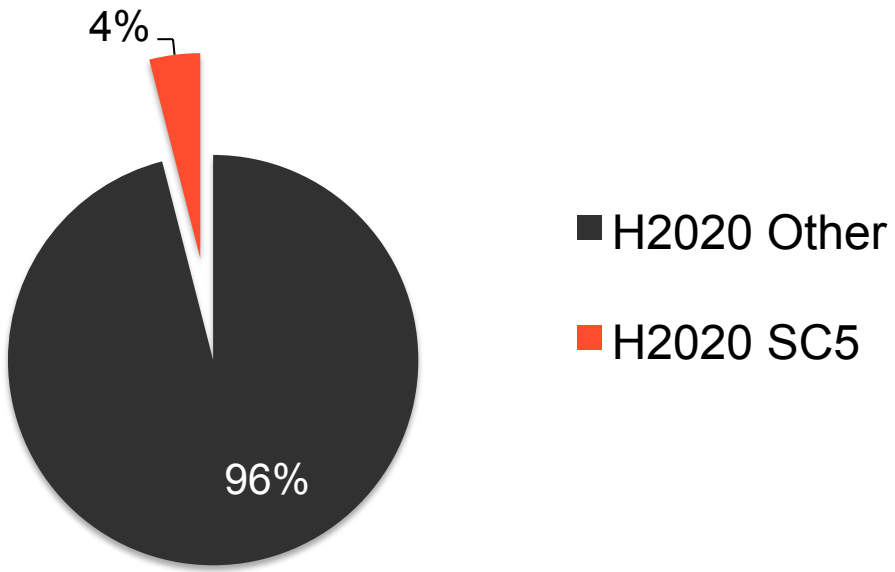
SC5 in the H2020 Framework Programme for RTD

- 22 sustainable innovation **priority areas** in Societal Challenge 5

Resource Efficiency	Climate Action	Raw Materials	Environment
1. Solutions for water imbalances 2. ICT systems improving resource efficiency 3. Resource efficient sustainable lifestyles 4. Eco-innovation and green economy transition	1. Climate change projections and scenarios 2. Climate change adaptation solutions 3. Climate change mitigation solutions 4. ICT systems to assess and predict climate actions 5. Climate action by sustainable lifestyle 6. Effective climate action eco-innovation policies	1. Long-term raw materials availability 2. Solutions to explore, extract, process & recycle 3. Alternative raw materials 4. Awareness on raw materials shortage 5. ICT systems to map raw materials trends 6. Eco-solutions to reduce raw materials use 7. Raw materials conscious sustainable lifestyle 8. Effective raw materials policies	1. Biodiversity examination and understanding 2. ICT systems mapping natural resources and trends 3. Solutions for cultural heritage assets 4. Strategic intelligence and citizens' participation

SC5 in the H2020 Framework Programme for RTD

- 77,028 million Euros budget: 3,081 € for SI activities (~4% of H2020)



Source: http://ec.europa.eu/research/horizon2020/pdf/press/fact_sheet_on_horizon2020_budget.pdf

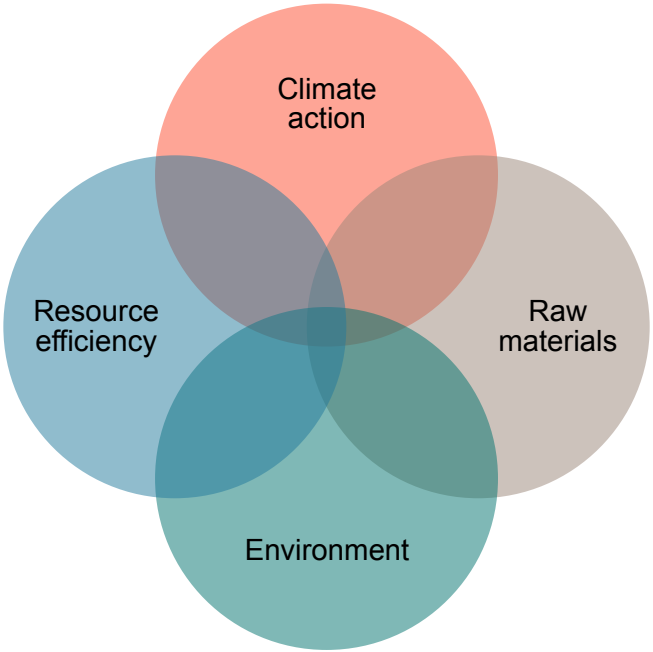
CASI-F focuses on SC5 priorities through the assessment and management of seven types of sustainable innovations (SI)

SI in the EU

Conclusions on SI in Horizon 2020

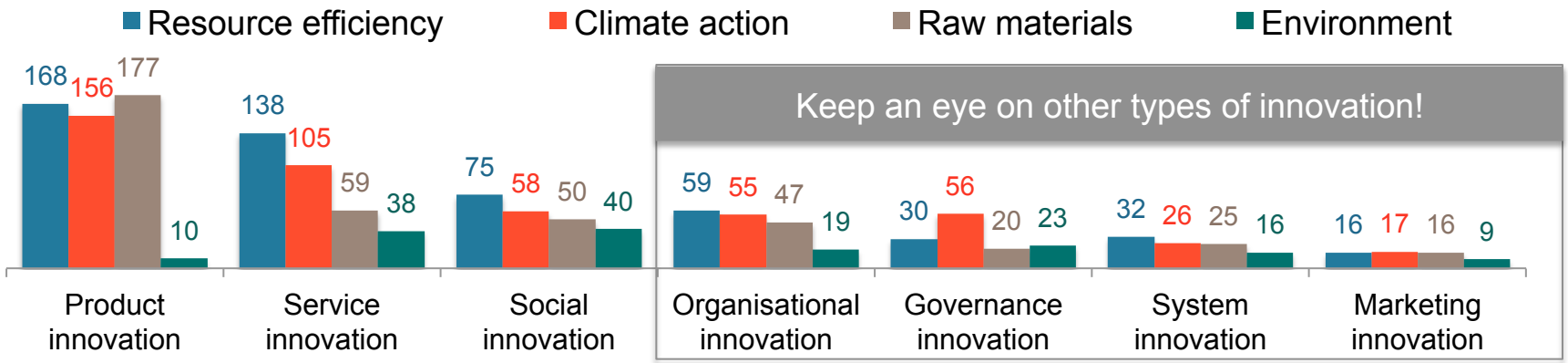
1st conclusion on “new” objectives in H2020 SC5

- Given that the European Commission Horizon 2020 framework programme for research and innovation considers environmental technologies a cross-cutting objective, the new efforts on **Raw Materials** are possibly the most significant and novel advancements in the sustainability agenda of the EU.



2nd conclusion on the role of SI in H2020 SC5 priorities

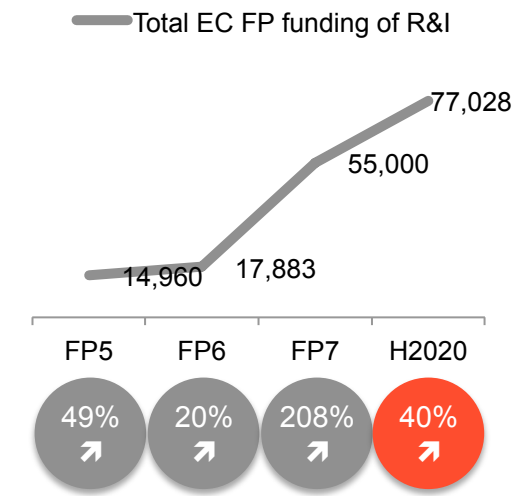
- While **product**, **service** and **social** innovations play a key role in addressing the EC societal challenge on 'climate action, resource efficiency, environment and raw materials' (SC5), it is important to systematically map other types of innovations (e.g. **organisational**, **governance**, **system** and **marketing**) as they lead to equally and sometimes more impactful positive transformations.



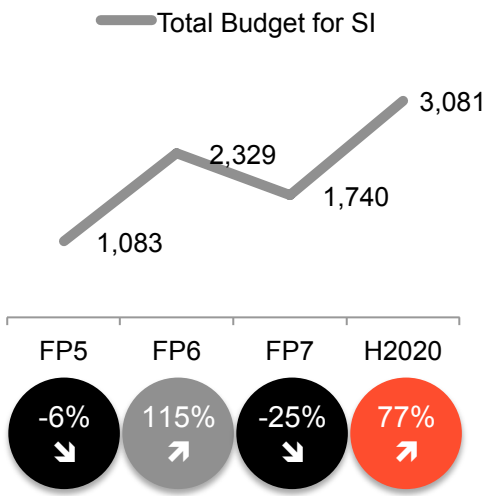
3rd conclusion on EC H2020 funding for SC5

- In H2020 both R&I and SC5 funding increased by 40% and 77%, respectively; however, the proportion of funding dedicated to SC5 increased by 1% only.
  Although SC5 is in the EC agenda, its growing importance is questionable.

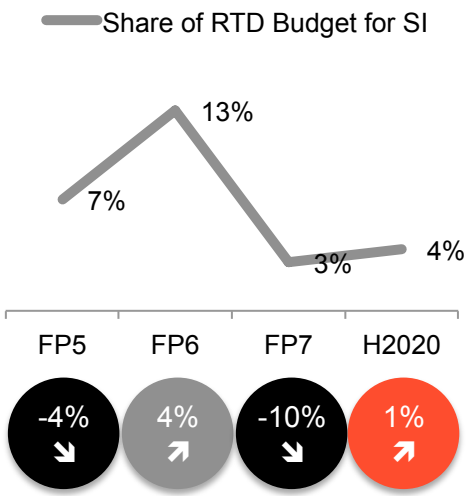
Million Euros



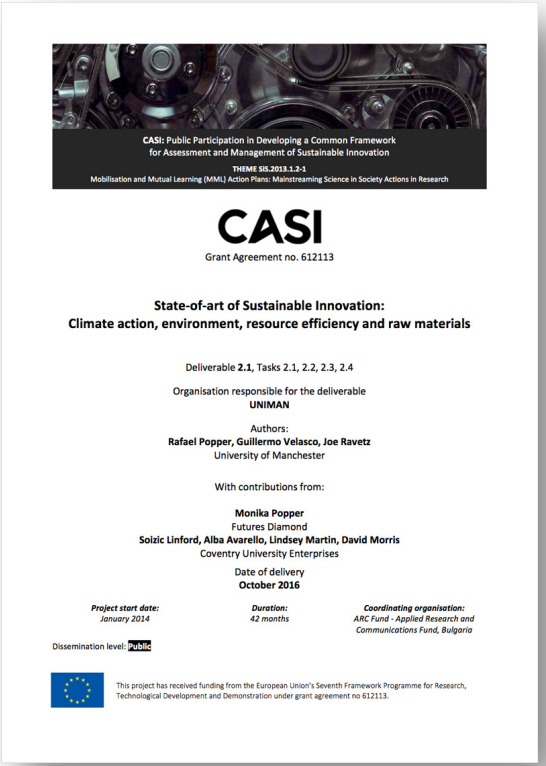
Million Euros



Proportion of FP funding



References



CASI: Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation

THEME SIS.2013.1.2-1

Mobilisation and Mutual Learning (MML) Action Plans: Mainstreaming Science in Society Actions in Research

CASI

Grant Agreement no. 612113

State-of-art of Sustainable Innovation:
Climate action, environment, resource efficiency and raw materials

Deliverable **2.1**, Tasks 2.1, 2.2, 2.3, 2.4

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- Popper, R., Velasco, G., Ravetz, J. (2016) **State-of-the-art of Sustainable Innovation: Climate action, environment, resource efficiency and raw materials**. CASI Project report. Deliverable 2.1.
- Popper R., Velasco G., Bleda, M., Amanatidou, E., Ravetz, J., Damianova, Z., Kozarev, V., Chonkova, B., Tsin, S., Avarello, A,, Martin, L., Morris, D. (2016) **Sustainable Innovation Conceptual Framework**. CASI project report. Deliverable 2.2.

See also https://ec.europa.eu/programmes/horizon2020/

SC5 priority areas on **Resource Efficiency**

Solutions for water imbalances

Developing integrated approaches to address water-related challenges and the transition to sustainable management and use of water resources and services.

Integrated strategies, tools, technologies and innovative solutions to meet current and future **needs**.

To develop appropriate **water management** strategies, improve **water quality**, cope with imbalances between water demand and availability or supply at different levels and scale, close the water cycle, promote sustainable end-user behaviour and address water-related risks whilst sustaining the integrity, structure and functioning of the aquatic ecosystems.

34 Nominated cases => **12** Mapped cases (see **2** examples below)

(FR) **WMS1000**

The WMS1000 Wind Turbine produces water without any external power source. Wind is the only energy used. It is perfectly adapted to supplying remote areas.

(EU) **INNERS - Innovative Energy Recovery Strategies in the Urban Water Cycle**

Water transport solutions are combined with recycling and energy recovery from waste water.

ICT systems to improve resource efficiency

Fostering resource efficiency through digital systems.

Innovations in information and communication technologies to gain efficiency in **productivity**, notably through automated processes, real time **monitoring** and decision support systems, in order to foster resource efficiency.

109 Nominated cases => **39** Mapped cases (see **2** examples below)

(EU) **ELSYS - Electronic system for international transfer of waste**

Waste operators can apply/receive permission from authorities for international waste transfer. GIS allows government to check route and change if there are objective reasons.

(GR) **Collection and Management of Energy from Renewable sources**

The Intelligent Power Manager (IPM) can be programmed to consume energy from renewable sources, from the grid, or from a generator.

Priority Area 03/22

Resource Efficiency 03

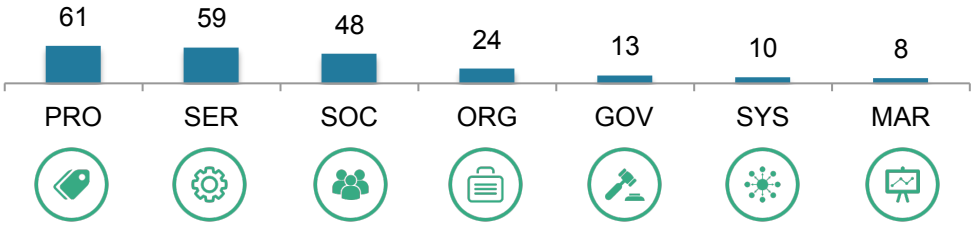
Resource efficient sustainable lifestyles

Supporting innovative policies & societal changes based on resource efficiency actions.

To address the main barriers to societal and market change, aiming to empower consumers, business leaders and policy makers to adopt innovative and sustainable **behaviour**, with contributions from **social sciences** and **humanities**.

Tools, methods and models to assess and enable economic, societal, cultural and institutional changes needed to achieve a paradigm shift towards a **green economy**.

To promote sustainable lifestyles and consumption patterns, encompassing socio economic research, behavioural science, user **engagement and public acceptance of innovation**, as well as activities to improve **communication** and **public awareness**.



223 Nominated cases => **103** Mapped cases (see **2** examples below)

(SP) **Actyva**

An integral cooperative aiming to realise a model of local sustainable agriculture following agro-ecological & food sovereignty principles, based on mutual aid. A Big Brother Bio-Farming platform encourages small organic producers to live-stream activities happening in their farms.

(BE) **De Wakkere Akker**

Community based on social, ecologic, healthy, education, economic principles. Citizens can become a member by €250 per year. That amount stands for a ‘harvest share’.

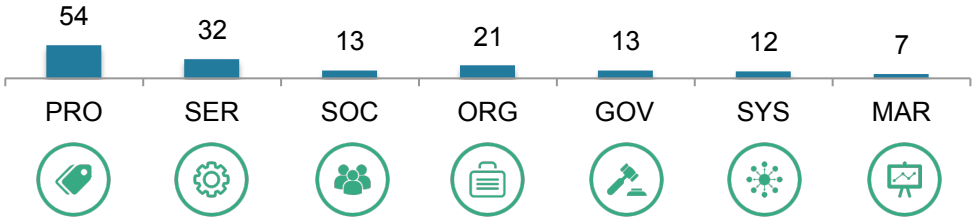
Eco-innovation and green economy transition

Measuring and assessing progress towards a green economy based on resource efficiency actions.

Robust **indicators**, **methods** and **systems** to support and assess the transition towards a green economy and the effectiveness of relevant resource efficiency policy options.

Socio-economic research for a better **understanding of the root causes of producer and consumer behaviour.**

Technology assessment methodologies and integrated modelling to support resource efficiency and eco-innovation policies.



152 Nominated cases => **75** Mapped cases (see **2** examples below)

(SE) **LundaMaTs**

Strategy for sustainable transportation system in Lund municipality until 2030. It structures its work in 6 focus areas including village development, living city centre, commercial transport, local commuting, growing & innovative Lund

(CZ) **ČEZ Group Smart Region Project**

Up until year 2015, 4.5 thousands of households and enterprises were equipped with smart meters of energy, infrastructure for electro-mobility and elements of the automation & monitoring distribution network.

SC5 priority areas on **Climate Action**

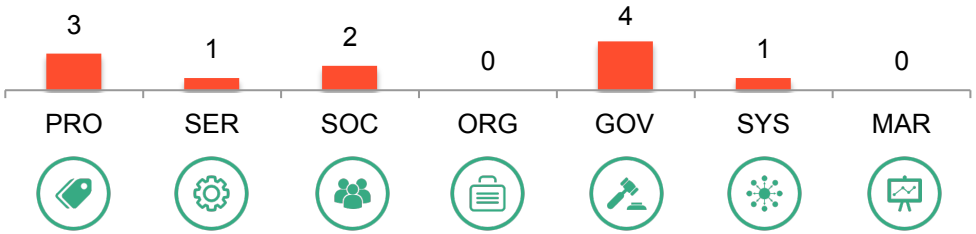
Climate change projections and scenarios

Improving the understanding of climate change and the provision of reliable climate projections.

Getting a more consistent knowledge on the **factors and drivers associated to climate change** is essential to devise more effective mitigation and adaptation solutions.

A better understanding of these factors and drivers can be achieved through the **development of more accurate measurement systems, scenarios and models**.

Improved **climate projections (time-based and/or geographical)** can actually serve as base for scientific explanations on the functioning of Earth ecosystems.



11 Nominated cases => **5** Mapped cases (see **2** examples below)

(BE) **Smart Climate Map**

To map initiatives and companies that contribute to become climate neutral in 2030. It enhances transparency about how firms contribute to reduce GHG emissions in Leuven.

(DK) **Centre for IT-Intelligent Energy Systems in Cities (CITIES)**

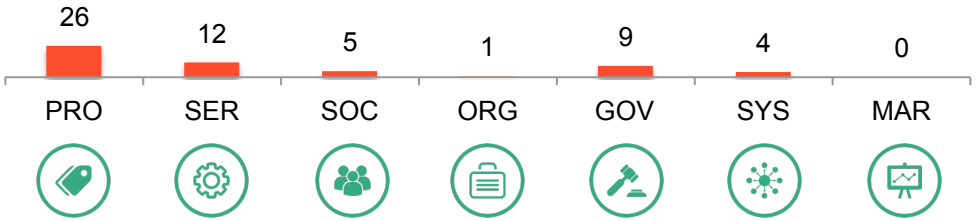
Integrated research centre covering all aspects of the energy system based on methods to forecast, control & optimize their interactions through advanced data & decision analysis, graphic info systems, and modelling.

Climate change adaptation solutions

Assessing impacts and vulnerabilities and developing innovative cost-effective adaptation, risk prevention and management measures.

Innovative, equitably distributed and cost-effective adaptation responses to climate change (considering both technological and non-technological green solutions), including the **protection and adaptation of natural resources and ecosystems**.

Potential impacts (costs, risks and benefits, inter-linkages, conflicts and synergies) **of adaptation and risk-prevention policy choices** with other climate and sectoral policies.



57 Nominated cases => **21** Mapped cases (see **2** examples below)

(US) **Clean Air Make More**

Real-time air monitoring system that immediately notifies citizens of a pollution problem. When pollution rises, it sends messages (email & text alerts) notifying where the pollution hot spot is and what measures citizens can take. Funded by fines.

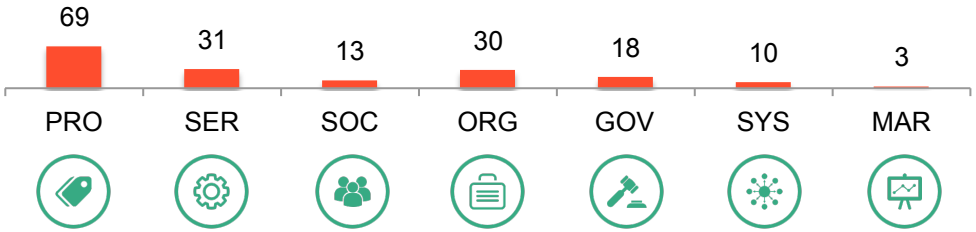
(SL) **POSSA**

Super absorbent for safe removal of hydrophobic substances from water surfaces and ground. This includes mineral and synthetic motor oils, lubricants, fuels, cooling liquids, nonpolar organic solvents and fats.

Climate change mitigation solutions

Supporting mitigation policies, including studies that focus on impact from other sectoral policies.

Focus in **mitigation policy options and low-carbon technology pathways at different scales** and for the key economic and societal sectors at the EU and global level (considering both technological and non-technological green solutions).



174 Nominated cases => **73** Mapped cases (see **2** examples below)

(UK) **North West Bicester - UK's first eco-town**

To build up to 6000 new zero carbon houses and associated facilities and infrastructure to sustain a sustainable community over next 30 years. Houses are designed to maximise sustainability through climate change and resource efficiency.

(NL) **Local green deals**

Business, government and civil society in the city of Tilburg organized themselves in a network organization based on the so-called local Green Deals. They focus on the joint responsibility of actors to get success on innovation projects.

ICT to assess and predict climate actions

Developing comprehensive and sustained global environmental observation and information systems for climate action.

Information systems to monitor, assess and predict the **condition, status and trends of the climate**, and to evaluate low-carbon and climate mitigation and adaptation policies and options across all sectors of the economy.

Capabilities, technologies and data infrastructures for Earth observation and monitoring must build, space technologies and enabled networks, remotely sensed observations, novel in situ sensors, mobile services, communication networks, participatory web-service tools. Free, open and unrestricted access to interoperable data and information, secure storage, management and dissemination.

11 Nominated cases => **4** Mapped cases (see **2** examples below)

(US) **Global Forest Watch**

Online forest monitoring and alert system that empowers people to better manage forests. It unites satellite technology, open data, and crowdsourcing to guarantee open access to timely and reliable information about forests.

(SP) **SIPAID – Comprehensive Flood Alarm and Prevention Management System**

Comprehensive solution based on real-time monitoring of sensor networks and weather forecasts defining the risk and impact of floods in Mediterranean regions.

Climate action by sustainable lifestyle

Supporting innovative policies and societal changes based on climate change actions.

Research and innovation to address the main **barriers** to societal and market change, aiming **to empower consumers, business leaders and policy makers to adopt innovative and sustainable behaviour**, with contributions from social sciences and humanities.

Tools, methods and models to assess and enable the main economic, societal, cultural and institutional changes needed **to achieve a paradigm shift towards a green economy concerned with climate change.**

166 Nominated cases => **89** Mapped cases (see **2** examples below)

(CR) **The Green Idea: Facilitating Organic Food Production through Marketing**

To help local organic food producers to reach a wider market and promotion of organic products, including marketing experts in creating public awareness on the importance of organic food.

(DK) **Transition now**

Platform that promotes action, innovation and a common effort from both politicians and citizens. The network aims at providing opportunity for open interdisciplinary dialogue including large scale seminars, debate cafés and guidelines for citizens.

Climate action eco-innovation policies

Measuring and assessing progress towards a green economy based on climate change actions.

Robust indicators at all appropriate spatial scales that are complementary to GDP, methods and systems **to support and assess the transition towards a green economy** concerned with climate change and the effectiveness of relevant policy options.

New policy instruments to facilitate the transition to a climate change resilient economy.

54 Nominated cases => **30** Mapped cases (see **2** examples below)

(BE) **Brownfieldconvenanten**

Private actors and government actors sign a contract to redevelop contaminated or/and deserted land previously used for industrial purpose. These actors cooperate to ease pressure on green fields, to provide space for economic activity, recreation, housing etc.

(EU) **Environmental Policy Support Tool for Recycling in Islands**

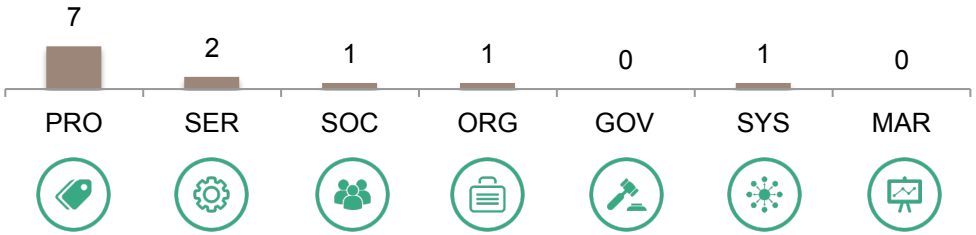
Decision support tool that will allow national authorities and other involved stakeholders to calculate the environmental benefit and financial cost of alternative ways of waste management.

SC5 priority areas on **Raw materials**

Long-term raw materials availability

Improving the knowledge base on raw materials availability.

Assessment of the long-term availability of global and EU resources, including urban **mines** (landfills and mining waste), **coastal-sea** and **deep-sea resources** (e.g. the sea-bed mining of rare earth minerals).



12 Nominated cases => **5** Mapped cases (see **2** examples below)

(UK) **National Industrial Symbiosis Program UK**

Platform for businesses to implement resource optimisation and efficiency practices, keeping materials and other resources in productive use for longer. Based on the performance of the UK NISP, improving re-use of raw materials through greater industrial symbiosis across EU could save €1.4bn/ yr

(IE) **LiDAR**

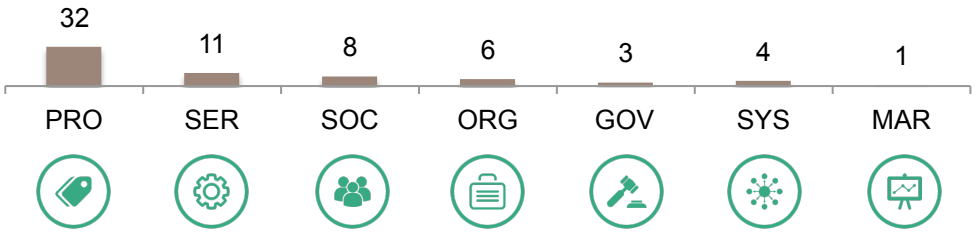
Technology that uses laser radars to detail the amount of carbon stored in hedgerows. It aims to know how smaller wooded areas contribute to storing carbon.

Solutions to explore, extract, process & recycle

Promoting the sustainable supply and use of raw materials, including mineral resources, from land and sea, covering exploration, extraction, processing, re-use, recycling and recovery

Developing and deploying economically viable, socially acceptable and environmentally friendly exploration, extraction and processing technologies for the **efficient use of resources** (mineral resources, from land and sea, urban mines).

New and economically viable and resource-efficient **recycling** and materials recovery technologies, **business models** and processes, including closed-loop processes and systems, including high-quality recycling and recovery, and drastically **reducing resource wastage**



65 Nominated cases => **20** Mapped cases (see **2** examples below)

(SP) **WAI**

Technology for transforming agricultural, urban, industrial, and forest waste into new eco-material of outstanding mechanical and calorific value. Its mechanical properties make the material an attractive substitute of wood and other natural resources.

(FI) **ZenRobotics Recycler**

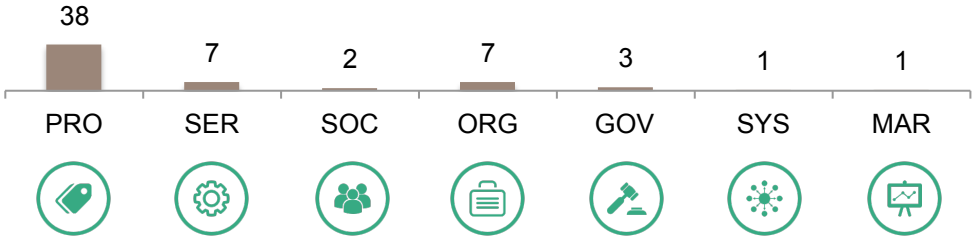
ZRR sorts metal, wood and stone fractions from waste. It uses visible spectrum cameras, NIR, 3D laser scanners, optic sensors, to create real-time analysis of waste stream and make autonomous decisions.

Alternative raw materials

Finding alternatives for critical raw materials.

Sustainable substitutes and alternatives for Critical Raw Materials (CRM).

Map, comprehensively assess and quantify estimated amounts of alternatives to the different CRM.



59 Nominated cases => **17** Mapped cases (see **2** examples below)

(US) **AIRCARBON**

AirCarbon is a material made by sequestering carbon emissions that would otherwise become part of the air. While almost all plastics today are made exclusively from oil or other fossil fuels, Aircarbon replaces oil with captured air components.

(CZ) **Czech Nanospider**

Nano-fibres are a thousand times thinner than human hair. They have great potential in many applications and industrial production is the key to their use in environmental protection. The considerable porosity and high surface offer extraordinary options to use in membranes and sensors.

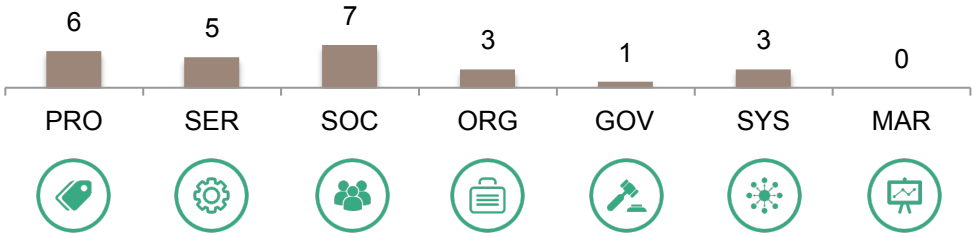
Awareness on raw materials shortage

Improving societal awareness and skills on raw materials.

Cultural, **behavioural**, **socio-economic**, **systemic** and **institutional changes** in order to address the growing problem of skills shortage in the raw materials sector: partnerships between universities, geological surveys, industry and other stakeholders.

Development of innovative **green skills**. Increase the awareness of the importance of domestic raw materials.

Structural changes to **empower** citizens, policy-makers, practitioners and institutions.



25 Nominated cases => **13** Mapped cases (see **2** examples below)

(BG) **3D Ecobus – Mobile Education Center**

Mobile information-educational centre, equipped with state-of-the-art multimedia tools for students, employees of companies and government institutions. Its purpose is to enrich their knowledge/habits on separate collection of waste and the benefits for environment and society.

(SP) **AV symbiosis**

Transforming rejected household goods into objects with new functions (second life). Workshops are organised in collaboration with NGOs and charities.

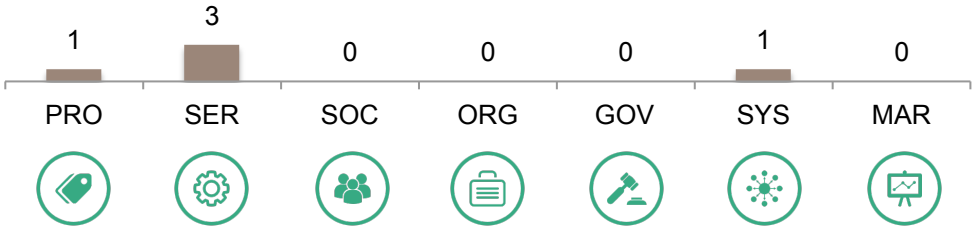
ICT systems to map raw materials trends

Developing comprehensive and sustained global environmental observation and information systems for raw materials.

Information systems to **monitor**, **assess** and **predict** the condition, status and trends of the raw materials.

Capabilities, technologies and data infrastructures for Earth observation and monitoring must build, space technologies and enabled networks, remotely sensed observations, novel in situ **sensors**, **mobile services**, **communication** networks, participatory **web-service** tools.

Free, **open** and **unrestricted** access to interoperable data and information, secure storage, management and dissemination.



5 Nominated cases => **1** Mapped cases (see **2** examples below)

(GE) **myECOcost**

Information system that can measure the ecoCost of any product by analysing required resources and collecting environmental data from manufacturing, assembling and transport, right to its disposal.

(SL) **Trashout**

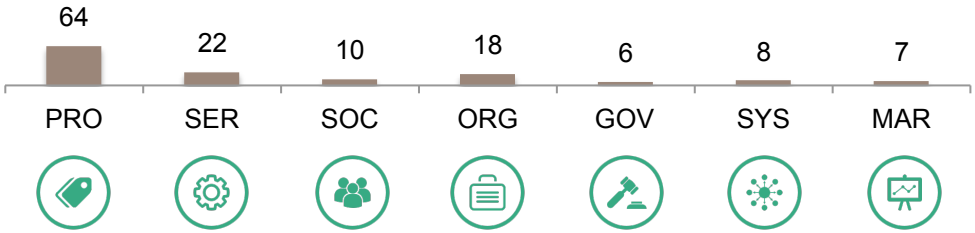
Trashout is an environmental project aiming to locate illegal dumps. The app helps people to have impact on their environment by reporting illegal dumps that will the appear in the app map. Government and waste agencies thus can take adequate actions.

Eco-solutions to reduce raw materials use

Strengthening eco-innovative technologies, processes, services and products, including exploring ways to reduce the quantities of raw materials in production and consumption, overcoming barriers in this context and boosting their market uptake.

All forms of eco-innovation, both incremental and radical, combining technological, organisational, societal, behavioural, business and policy innovation, and strengthening the participation of civil society.

To include **user-driven** innovation, business **models**, **industrial symbiosis**, product service systems, product **design**, full **life cycle** and cradle-to-cradle approaches as well as exploring ways to reduce the quantities of raw materials in production and consumption



135 Nominated cases => **54** Mapped cases (see **2** examples below)

(DK) **Carlsberg circular community - 'upcycling' system**
Carlsberg joins with global suppliers to develop ‘upcycling’ packaging that reduces reliance on natural resources, while still appealing to consumers. Based on circular economy materials by leveraging Cradle-to-Cradle® innovation and quality.

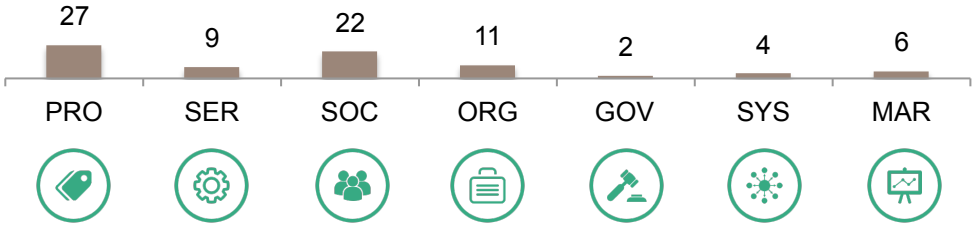
(CR) **ECO-SANDWICH- Prefabricated Wall Panel Systems Made of Recycled Aggregates**
Ventilated prefabricated wall panel system which utilizes construction and demolition waste (CDW) and mineral wool. Produced using sustainable technology to reduce primary raw material and energy consumption in building stock.

Raw materials conscious sustainable lifestyle

Supporting innovative policies and societal changes based on raw material sustainability actions.

Research and innovation to address the main barriers to societal and market change, aiming to **empower** consumers, business leaders and policy makers to adopt innovative and sustainable **behaviour**, with contributions from **social sciences** and **humanities**.

Solutions to promote sustainable **lifestyles**, consumption patterns and user engagement, focusing in raw materials sustainability.



81 Nominated cases => **35** Mapped cases (see **2** examples below)

(IE) **SMILE Resource Exchange**

Industrial symbiosis programme for businesses that encourages exchanging of resources between members in order to save money, reduce waste and develop new business opportunities. Potential exchanges are identified through free networking events, a free online exchange facility and a support team.

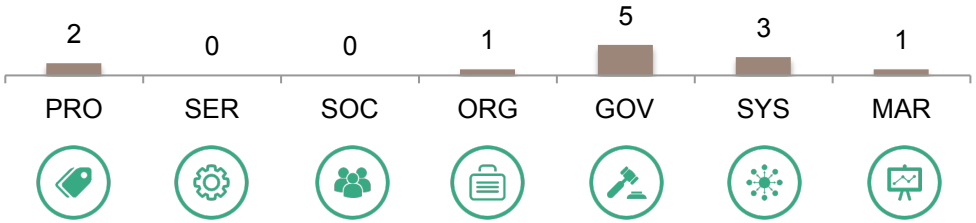
(UK) **M&S Sustainable building and learning**

New ‘sustainable learning M&S store which integrates all aspects of sustainability and involving customers in the journey. This store was an opportunity to try new things, invest in sustainable innovations – technologies, processes and systems.

Effective raw materials policies

Measuring and assessing progress towards a green economy based on raw materials sustainability actions.

Robust **indicators**, **methods** and **systems** to support and assess the transition towards a green economy, focusing on the effectiveness of relevant raw materials policy options.



12 Nominated cases => **4** Mapped cases (see **2** examples below)

(PT) **Environmental Product Declaration (EPD)**

Monitoring system of environmental product declarations (EPD) for products/services of habitat sector. A national programme allowing companies or entities requesting the development of rules for the Product Category regardless their origin country. The registration is checked by independent third parties.

(RO) **Greenhouse building subsidies**

Public policy funding to encourage individuals and households when building a new house or refurbishing the old one introducing green technologies in houses, e.g. photovoltaic, solar, biomass boilers, etc.

SC5 priority areas on **Environment**

Biodiversity examination and understanding

Furthering our understanding of biodiversity and the functioning of ecosystems, their interactions with social systems and their role in sustaining the economy and human well-being.

To anticipate these risks by **assessing, monitoring and forecasting the impact of human activities on the environment and natural resources** (including water, air, biomass, fertile soils, biodiversity and ecosystems).

To **examine how biodiversity and ecosystems function and react to anthropogenic impacts**, how they can be restored, and how this will affect economies and human well-being.

29 Nominated cases => **11** Mapped cases (see **2** examples below)

(AT) **Arche Noah - diversity of cultural plants**

ARCHE NOAH was established in 1990 on the initiative of gardeners, farmers and journalists, concerned with the future of seeds and heirloom varieties. ARCHE NOAH responds to the loss of agro-biodiversity with a positive vision and numerous activities: meetings, published books, workshops, seminars.

(CY) **BIOforLIFE: Cyprus Biodiversity**

Development of a communication campaign with the aim of raising the publics awareness on the subject of biodiversity. The Department of Environment of Cyprus is the Coordinating Beneficiary of the project.

Priority Area 20/22

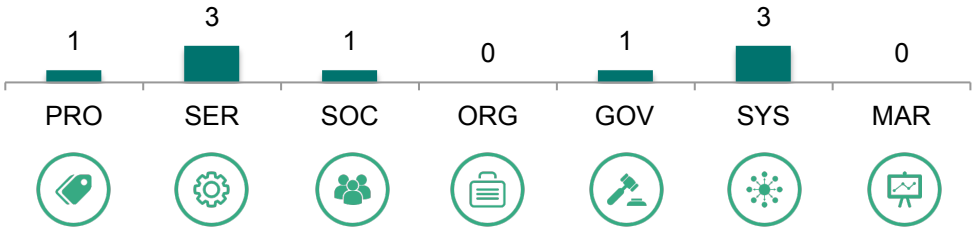
Environment 02

ICT for mapping natural resources and trends

Developing comprehensive and sustained global observation and information systems for environmental trends

Information systems **to monitor, assess and predict the condition, status and trends of the natural resources** (including water, air, biomass, fertile soils, biodiversity and ecosystems).

Capabilities, technologies and data infrastructures for Earth observation and monitoring must build space technologies and enabled networks, remotely sensed observations, novel in situ sensors, mobile services, communication networks, participatory web-service tools. Free, open and unrestricted access to interoperable data and information, secure storage, management and dissemination.



9 Nominated cases => **6** Mapped cases (see **2** examples below)

(CA) **Cybercartography**

Organization, presentation, analysis and communication of spatially referenced information on a wide variety of topics of interest and use to society. One example is the Inuit Sea Ice Use and Occupancy Project (ISIUOP) which investigates the importance, uses, and knowledge of sea ice.

(EE) **Vital Fields farm management app**

Vital Fields offers web and apps for farm management, weather and plant disease forecasting. It is a cloud-based agricultural early-warning system that helps farmers in plant disease and growth phase modelling, tracking climatic patterns and other farm.

Solutions for cultural heritage assets

Developing adaptation and mitigation innovations for preservation and management of cultural heritage assets.

Innovative solutions, through adaptation and mitigation strategies, methodologies, technologies, products and services for the **preservation and management of tangible cultural heritage in Europe at risk from climate change.**

33 Nominated cases => **16** Mapped cases (see **2** examples below)

(IE) **Burren & Cliffs of Moher Geopark**

Geoparks are special regions with outstanding geology and local culture. GeoparkLIFE aims to strengthen the working partnership between local/nat./international champions of conservation, tourism and community to ensure increasing benefits locally. The initiative works on projects that are centred around heritage.

(NL) **Electrical city shuttles (CargoHopper)**

It replaces large transport vehicles by small electric city transportation in Utrecht. These shuttles are silent electric powered followed by three mini trailers. It saves CO2 emissions and congestion on the canal roads.

Strategic intelligence & citizens' participation

Providing knowledge and tools for effective decision making and public engagement.

To improve **capacities for forecasting, early warning and assessing vulnerabilities, impacts and risks.**

To provide support for environmental and resource efficiency policies, and options for **effective evidence-based governance**. Innovation to increase policy coherence, resolve trade-offs and manage conflicting interests and to **improve public awareness of research results and the participation of citizens in decision making**.

84 Nominated cases => **59** Mapped cases (see **2** examples below)

(GE) **Dorf ist Energie (klug) (Village is Energy (clever)**
Villages in the region of South Westphalia are supported to improve their energy efficiency. Villages apply with a concept and five best ideas are chosen by a jury. The other applicants receive consulting for maturing their ideas.

(NL) **Sustainable Energy Landscape**
In Armoede area there are 15 farms and 60 households ADEL group is investigating how, with today's knowledge, the area can become (as much as possible) climate neutral in 2030.The initiative is formed by a number of themes(expert-supported) focus groups.