



# **Management Plan 2018**

**Joint Research Centre – JRC**



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## INTRODUCTION

As the science and knowledge service of the European Commission, the JRC supports EU policies with independent evidence throughout the whole policy cycle.

In 2018, the JRC will contribute to the Commission's actions to complete work in the priority policy areas and to the longer-term (2025) perspective, set out in President Juncker's 2017 State of the Union Address (SOTEU) and the accompanying Commission work programme.

JRC's broad work programme which is adopted by a Commission decision supports all Juncker priorities, also containing anticipatory elements as well as research of exploratory nature. Its political relevance is ensured through bilateral and inter-service consultation with partner DGs.

Overarching priorities in 2018 will reflect the implementation of its long-term strategy (Strategy 2030) including the follow-up of recommendations of the mid-term evaluation of the JRC activities in Horizon 2020, and the preparation of the next Multiannual Financial Framework (MFF) and the Framework Programmes (FP) for Research and Innovation.

This management plan presents the main planned outputs and supporting actions in line with JRC's Strategic Plan (SP) 2016-2020. Part 1, however, focuses on outputs within four priority areas, as defined in the SP 2016-2020.

**JRC's 2018 work programme - supporting high-priority policy goals.** In 2018, the JRC will contribute to measures completing the Capital Markets Union and the Security Union, strengthening the Economic and Monetary Union and the Banking Union, and putting in place the Energy Union. It will provide knowledge and tools for combating terrorism, further developing the Digital Single Market, and delivering on the EU agenda on migration. JRC's studies on circular economy and work on the new CO<sub>2</sub> standards for cars, vans and heavy duty vehicles will provide valuable science advice to the respective initiatives at all stages of the policy cycle. JRC's information system on low-carbon transport and low-carbon energy observatory will support actions related to the transition to clean mobility and clean energy. The JRC has responded promptly to concerns about 'dual quality' of food products and will develop better comparative product testing methods.

Other examples of JRC's policy support include modelling work for EU legislation under the Paris Agreement and integrated assessments on greenhouse gases (GHG) emissions and mitigation options contributing to the climate change policy goals. Recent policy support such as a conceptual framework for resilience will be followed by a dashboard for the resilience of the EU and its Member States, a socio-economic atlas of Europe, and drivers of people's perceptions of fairness. JRC will also further develop the Social Scoreboard and social indicators and analyse the competitiveness of the European agri-food sector and the skills and determinants of employability.

**Focus on knowledge management.** In support of the Commission's objective of improving the way it manages knowledge, the JRC is running together with relevant Commission services Knowledge Centres for Disaster Risk Management, Bio-economy, Territorial Policy, and Migration and Demography. These bring together expertise from inside and outside the Commission and provide access to relevant data, knowledge and intelligence in a specific policy area. New Knowledge Centres will be planned and set up, including one on Food Fraud and Quality. The JRC also contributes to the Data4Policy group activities handling all aspects related to better use of data and will continue to support the European Semester process.

**JRC cross-cutting competencies serving the entire Commission.** JRC's Competence Centres will provide services to the Commission by developing cross-cutting expertise on scientific methods and analytical tools which can be applied in any policy area, and by providing methodological support for example in devising indicators for the next Multiannual Financial Framework and spending programmes. This will contribute to the Commission's Better Regulation policy and to the Inter-Institutional Agreement on Better Law-Making. For instance, the new Competence Centre on Modelling will promote a responsible, coherent and transparent use of modelling to underpin the evidence base for EU policies. It will group the Commission's competencies and best practice in building and using models for ever greater quality and transparency in designing and assessing EU policies.

**Implementing JRC 2030 Strategy.** The mid-term evaluation positively assessed JRC's progress in implementing its strategy. In 2018, it will continue implementing initiatives to strengthen scientific excellence and the plans and roadmaps drafted in 2017 on strategic partnerships and human resources (HR) management. JRC will carry out top-level scientific research projects within its Centre for Advanced Studies and make efforts towards dedicating 20 % of its resources to underpinning and exploratory research in the long-term. JRC will further expand the access to its research infrastructure and facilities and close agreements with higher education institutions within its new Collaborative Doctoral Partnership programme. Engagement with the candidate countries for EU accession, the European Neighbourhood Policy countries, with the African Union and EU's important trading partners will be promoted. Strategic partnerships with think tanks and renowned academic and research organisations will be enhanced. As regards HR management, the JRC will continue aligning staff competences with the Commission requirements and continue work on further developing its talent management and mobility programmes.

In line with the Strategy 2030, the JRC will also continue to work on the infrastructure development across its different sites to maintain an internationally-recognised, modern, safe and secure infrastructure thus creating a positive working environment which is environmentally, cost and resource efficient.

Further actions to increase efficiency stem from a simplification exercise started in 2017 to foster an enhanced service-oriented culture. It prompted several improvement actions in eight domains including finance and procurement, site management and the work programme cycle that will be implemented in 2018. The new Commission's Internal Control Framework (ICF) will be implemented through the JRC's Integrated Management System thus allowing the JRC to combine requirements from different sources, such as ICF, ISO standards and legal requirements, in one management approach.

Finally, in line with the Communication on 'Synergies and Efficiencies in the Commission – New Ways of Working' (SEC(2016)170 final) the JRC will continue to act as the European Commission appointed Business Domain Owner of the eProcurement project which is part of the SEDIA (Single Electronic Data Interchange Area) programme, recognising the JRC's experience in public procurement and contract management.

## PART 1. MAIN OUTPUTS FOR THE YEAR

The largest part of the JRC's work contributes to four Commission general objectives (GOs) as described in the JRC's strategic plan (SP) 2016-2020. However, the JRC also contributes to the goals of the other priorities of the Juncker Commission, and provides further cross-cutting support to all GOs by developing a stronger knowledge management capacity.

The JRC's work programme (WP) is a rolling bi-annual plan, organised in key orientations. The key orientations are linked to the ten general objectives and describe the broad range of JRC's research topics and the horizontal cross-cutting services related to knowledge management. The complete set of key orientations of the JRC's work programme for 2018-2019 together with overall descriptions is presented in Annex 3.

The key orientations related to the four JRC specific objectives contributing to the Commission general objectives 1, 3, 4 and 9 as explained in the SP, and examples of research outputs are presented in the tables below. In addition to the performance tables, the main activities planned by the JRC under the four selected general objectives in 2018 are also described before each table.

The target values for policy related outputs are derived from the number of planned policy deliverables as in the JRC multi-annual work programme (MAWP), available in the JRC project browser (JPB), where the complete list of planned deliverables corresponding to the key orientations with all details can be found:

<http://apps.jrc.cec.eu.int/jpbma>.

The information in JPB is updated throughout the year.

### ***General objective 1 'A New Boost for Jobs, Growth and Investment'***

In support of the initiative **towards a sustainable Europe by 2030** and the follow up to the UN Sustainable Development Goals, the JRC will carry out a 'distance to SDGs' analysis, analyse the inter-linkages between different Goals, and contribute to the SDGs multi-stakeholders platform.

To facilitate territorial policy development and investments, the JRC and DG Regional Policy have set up a Knowledge Centre for Territorial Policies. In 2018 and 2019, work will focus on establishing a database with key regional economic indicators, creating catalogues of territorial datasets, launching the front-end territorial indicators dashboard, disseminating the Territorial reference scenario 2017, and setting up and running a community of practice. The JRC's territorial intelligence and the use of analytical models underpin the development, implementation and assessment of cohesion policy.

The JRC will continue to develop its smart specialisation (S3) platform, set up with DG Regional Policy to support national and regional authorities for the implementation of smart specialisation strategies, to help reform national/regional research and innovation systems and promote international collaboration. In order to address the diversity of Europe's regions, the S3 Platform will reinforce its support to the development of smart specialisation at national and regional level, with particular focus on mutual learning and sharing of good practices in innovation policy implementation, governance and monitoring.

The S3 Platform will: i) perform data analysis, provide advice and encourage mutual learning for the implementation of smart specialisation strategies, ii) develop Thematic

Smart Specialisation Platforms to boost innovation and investment projects through interregional cooperation; iii) further develop smart specialisation concept and methodology based on lessons learnt and the smart specialisation strategies' impact assessment.

The JRC work on smart specialisation is being extended to other key EU policy programmes and initiatives, e. g. higher education, enlargement/neighbourhood, the circular economy and transition into a low-carbon industry and low-carbon economy. It will also be linked to the JRC's technology transfer activities.

JRC will provide socioeconomic analysis on the employment effects of major trends such as digitalisation, technological change and transition to a low-carbon economy, on skills and determinants of employability and job creation, and the changing nature of work. It will also help to assess policy programmes designed to help people into work. The JRC will continue its work on the new Social Scoreboard and social indicators for monitoring the proposed principles of the European Pillar of Social Rights.

To further support implementation of food and feed safety legislation and address the arising issues of food quality and food fraud, the JRC will launch a Knowledge Centre for Food Fraud and Quality. It will provide expert knowledge on the food chain, food composition and traceability systems in general as well as support to the coordination of networks, the development of dedicated analytical methods, text mining, data banking, the development of reference materials, knowledge transfer, and training.

The JRC will also support the Commission in addressing the issue of **dual quality food**. It will develop a robust harmonised testing approach and guidelines that can be used in any future investigations. Work will focus on elaborating a harmonised sampling and testing approach, including data evaluation and outlining how to organise a pan-EU testing campaign. It will also supervise a comparative exercise with several Member States to check whether certain quality-relevant characteristics of food products sold in the single market under the same brand and same packaging are indeed different. This should create reliable and comparable evidence on dual quality food practices.

In the area of technology transfer, the JRC will continue to provide operational support to EU policies by promoting exchange of best practices among large research organisations via the TTO-CIRCLE network and by supporting capacity building on technology transfer in less developed regions such as in the Balkans.

**Relevant general objective: A New Boost for Jobs, Growth and Investment**

**Specific objectives 1.1 to 1.9 (contributing to H2020 Specific Objective 17):**

Related to spending programme H2020

**A well-informed European policy-making, appropriately and timely supported by the JRC through the provision of high quality and innovative scientific and technical studies, tools, data, materials, models and standards, in the following areas:**

- (Specific objective 1.1) Agriculture and rural development**
- (Specific objective 1.2) Education, culture, youth and sport**
- (Specific objective 1.3) Environment**
- (Specific objective 1.4) Maritime affairs, fisheries and aquaculture**
- (Specific objective 1.5) Health and food safety**
- (Specific objective 1.6) Regional policy**
- (Specific objective 1.7) Research, science and innovation**
- (Specific objective 1.8) Transport**
- (Specific objective 1.9) Employment, social affairs, skills and labour mobility**

**Main outputs in 2018:**

**Key orientations (KOs) of the JRC Work Programme for 2018-2019**

| Output  | Indicator              | Target |
|---|------------------------|--------|
| <p><b>JRC Key Orientations in the area of 'Agriculture and rural development' (specific objective 1.1)</b><br/>                     Examples: scenario analysis of policy options for the CAP beyond 2020 based on economic and agricultural models; assessment of policy options to simplify the CAP control systems; analysis of farmers behaviour towards environmentally friendly practices and the uptake of new technologies; analysis of the competitiveness of the European agri-food sector, and the performance of European agri-food systems</p>   | Policy related outputs | 27     |
| <p><b>JRC Key Orientations in the area of 'Education, culture, youth and sport' (specific objective 1.2)</b><br/>                     Examples: policy relevant themes such as efficiency and equity in education investment, relevance for regional development and smart specialisation, education and societal well-being; integrating vulnerable groups such as migrants, refugees and other minorities into the education system and early childhood learning; study of the impact of digitisation on education and training practices; evaluation tools to measure and monitor cultural activities and creativity at city level 'Cultural and Creative Cities Monitor (C3 Monitor)'</p> | Policy related outputs | 10     |
| <p><b>JRC Key Orientations in the area of 'Environment' (specific objective 1.3)</b><br/>                     Examples: monitoring and modelling ambient air quality and emissions; recommendations on minimum quality requirements on quality of water for agricultural irrigation and ground water recharge as contribution to the regulation on waste water reuse; proposal for microbiological and chemical</p>   | Policy related outputs | 100    |

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| parameters, and assessment and certification of alternative methods for microbiological monitoring as contributions to revision of the Drinking Water Directive; for circular economy, support to Plastic Strategy by development of a recognised methodology and conducting life cycle assessments of the use of alternative feedstock for plastic production  |                        |    |
| <b>JRC Key Orientations in the area of 'Maritime affairs, fisheries and aquaculture' (specific objective 1.4)</b><br>Examples: measuring performance of the Common Fisheries Policy; economic analysis of EU fisheries, aquaculture and processing sector; assessing status and opportunities of Blue Economy; knowledge for maritime spatial planning and coastal management; improvement of EU maritime surveillance systems, and support to the implementation of the EU Maritime Security Strategy  | Policy related outputs | 11 |
| <b>JRC Key Orientations in the area of 'Health and food safety' (specific objective 1.5)</b><br>Examples: coordination/development of European health registries (e.g., the European Cancer Information System (ECIS) and the EU Platform on Rare Diseases); quality assurance and evidence-based guidelines for cancer diagnosis and treatment (EC Initiatives on Breast Cancer and on Colorectal Cancer); collection and analysis of evidence to support health promotion and prevention of non-communicable diseases; management of a Knowledge Centre on Food Fraud and Quality; developing a robust harmonised testing approach and guidelines for dual food quality; operating European Union Reference Laboratories in the area of food safety and alternative methods to animal testing | Policy related outputs | 49 |
| <b>JRC Key Orientations in the area of 'Regional policy' (specific objective 1.6)</b><br>Examples: through the Knowledge Centre for Territorial Policies, modelling and impact assessment of policies and investments using regional economic modelling (RHOMOLO), land use modelling (LUIISA) and transport modelling (TRANSTOOLS), and developing indices and quantitative analyses at urban, regional and macro-regional levels; the Urban Data Platform, a flagship project developed with DG REGIO, which provides information on the status and trends of European urban areas and is intended to help stakeholders to make investment decisions, track performance, and implement efficient policies programmes for cities   | Policy related outputs | 45 |
| <b>JRC Key Orientations in the area of 'Research, science and innovation' (specific objective 1.7)</b><br>Examples: modelling, monitoring and analysis of the drivers of, and barriers to research and innovation; development of indicators, scoreboards, information systems and web platforms for monitoring and   | Policy related outputs | 31 |



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| analysing the implementation of EU research and innovation policies; management of the Knowledge Centre for Bioeconomy; data collection, analysis, dissemination and modelling on the bioeconomy, and the assessment of food and nutrition security  |                        |    |
| <b>JRC Key Orientations in the area of 'Transport' (specific objective 1.8)</b><br>Examples: development of information system on low-carbon transport; development of the new transport network model TRANSTOOLS and work on congestion indicators  | Policy related outputs | 37 |
| <b>JRC Key Orientations in the area of 'Employment, social affairs, skills and labour mobility' (specific objective 1.9)</b><br>Examples: analysis of the distribution and evolution of skills and their links with employment potential; the changing nature of work and welfare systems; new forms of employment, social innovation and the collaborative economy; work on the Social Scoreboard (e.g., making available in all 24 languages, including regional level data) | Policy related outputs | 15 |

**General objective 3 'A resilient European Energy Union with a forward-looking climate change policy'**

Through scientific evidence and technical work, the JRC will help to implement and monitor existing policy initiatives and develop new ones under the five dimensions of the **Energy Union**: (i) decarbonising the economy and reducing greenhouse gas (GHG) emissions, (ii) increasing the security of energy supply, (iii) improving energy efficiency, (iv) integrating the internal energy market, (v) promoting research, innovation and competitiveness.

Support will include developing and validating accounting methodologies for greenhouse gas (GHG) emissions in international climate change commitments and helping to decarbonise the economy through pre-standardisation work on selected energy technologies.

The JRC will support the governance of the Energy Union by contributing to the annual State of the Energy Union report and supporting the assessment of the integrated national energy and climate plans.

Furthermore, the JRC will improve the availability of data, information and analyses on specific topics, such as alternative fuels and their sustainability, e-mobility, connected and automated vehicles, resource and energy efficiency, low-carbon energy technologies, heating & cooling, energy storage and biomass supply and demand.

For energy infrastructures, a robust methodology will be developed and validated to assess infrastructure projects, including resilience to the impact of climate change and suitability in different future climatic conditions. In the area of modelling, the JRC energy-economy modelling toolbox will be further developed.

The JRC will continue to provide technical and scientific support for developing, implementing and monitoring EU policies on nuclear safety, safeguards and radiation protection as well as related EU strategies (e.g. the energy security strategy). It will also continue to support the development and consolidation of various European technology platforms, including the Sustainable Nuclear Energy Technology Platform, the Implementing Geological Disposal of Radioactive Waste Technology Platform and the European Nuclear Energy Forum.

| <b>Relevant general objective 3: A Resilient Energy Union with a Forward-Looking Climate Change Policy</b>   |                        |  |
|--|------------------------|--|
| <b>Specific objectives 3.1 to 3.3 (contributing to H2020 Specific Objective 17 and to EURATOM Research &amp; Training Programme Specific Objectives 9, 10, 11, 12 and 13):</b><br><b>A well-informed European policy-making, appropriately and timely supported by the JRC through the provision of high quality and innovative scientific and technical studies, tools, data, materials, models and standards, in the following areas:</b><br><b>(Specific objective 3.1) Climate action</b><br><b>(Specific objective 3.2) Energy</b><br><b>(Specific objective 3.3) Safe and secure use of nuclear energy</b> |                        | Related to spending programmes H2020 and Euratom |
| <b>Main outputs in 2018:</b>   |                        |  |
| <b>Key orientations (KOs) of the JRC Work Programme for 2018-2019</b>  |                        |  |
| Output   | Indicator              | Target   |
| <b>JRC Key Orientations in the area of 'Climate action' (specific objective 3.1)</b>   | Policy related outputs | 37   |

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| Examples: modelling support for EU legislation under the Paris Agreement; integrated assessments on GHG emissions and mitigation options in agriculture and forests   |                        |     |
| <b>JRC Key Orientations in the area of 'Energy' (specific objective 3.2)</b><br>Examples: assessment of the National Energy and Climate Plans in the context of the Energy Union Governance; full deployment of the POTEnCIA energy-climate model and development of a central scenario with the Member States; support to the energy market initiative, through work on smart-grids and smart-meters   | Policy related outputs | 107 |
| <b>JRC Key Orientations in the area of 'Safe and secure use of nuclear energy' (specific objective 3.3)</b><br>Example: in support of safe, secure and responsible solutions for the development of advanced nuclear systems, and the management of its radioactive waste, JRC is the implementing agent for Euratom in the Generation IV International Forum (GIF), coordinating the participation of the Euratom and Member States research community, as well as contributing directly with its own research results (JRC direct actions on nuclear fuels, reactor materials, spent fuel and waste management strategies, as well as safeguards and non-proliferation studies) | Policy related outputs | 92  |

***General objective 4 'A deeper and fairer internal market with a strengthened industrial base'***

With its extensive scientific and technical expertise, the JRC will continue to support the European single market, including for services, and a renewed EU industrial policy strategy.

It will contribute to the **Circular Economy Action Plan** through work on quality of water for agricultural irrigation and ground water recharge, assessment and certification of alternative methods for microbiological monitoring, development of a recognised methodology and conducting life cycle assessments of the use of alternative feedstock for plastic production, and indicators on secondary raw materials to monitor the circular economy.

In support of the bioeconomy, the new Bioeconomy Knowledge Centre will collect, structure and make accessible knowledge on the bioeconomy, the sustainable production of renewable biological resources and their conversion into products. Such knowledge will come from a wide range of scientific disciplines and sources.

The JRC will contribute to the new security and defence initiatives to better support European defence cooperation and the competitiveness of Europe's defence industry.

It will use its in-depth knowledge of Europe's industrial landscape to contribute to regulatory fitness checks for various industrial sectors and also contribute to a framework for measuring European competitiveness across Member States and industries.

The JRC will tackle scientific aspects of implementing the new regulations on medical devices and *in vitro* diagnostics. It will address key objectives of the new legal framework: improved quality and safety of devices (e.g. pre-market scrutiny), stronger post-marketing surveillance/vigilance and greater transparency.

The JRC will further support the development and implementation of European emission and fuel consumption standards and test procedures for light- and heavy-duty road vehicles and support the tighter market surveillance for motor vehicles. It will also help to develop globally harmonised test procedures, including for electric and hybrid vehicles, and standards for interoperability. In the case of electric vehicles, the JRC will seek to ensure complementarity and synergies with the big action on batteries in the Horizon 2020 work programme 2018-20.

To support implementation of the EU space strategy adopted at the end of 2016, the JRC prototype platform will analyse Copernicus earth observation data and support the uptake of earth observation data for digitising industry and building an EU data economy. JRC's expertise in global navigation satellite system technologies will support the impact assessment of the EU governmental satellite communications programmes.

#### Relevant general objective 4: A Deeper and Fairer Internal Market with a Strengthened Industrial Base

**Specific objectives 4.1 to 4.2 (contributing to H2020 Specific Objective 17):**

Related to spending programme H2020

**A well-informed European policy-making, appropriately and timely supported by the JRC through the provision of high quality and innovative scientific and technical studies, tools, data, materials, models and standards, in the following areas:**  
**(Specific objective 4.1) Internal market, industry, entrepreneurship and SMEs**  
**(Specific objective 4.2) Customs risk management policy and the fight against fraud**

**Main outputs in 2018:**

#### Key orientations (KOs) of the JRC Work Programme for 2018-2019

| Output   | Indicator              | Target |
|--|------------------------|--------|
| <p><b>JRC Key Orientations in the area of 'Internal market, industry, entrepreneurship and SMEs' (specific objective 4.1)</b><br/>           Examples: analysis of Copernicus Earth Observation data and support to the uptake of EO data in the process of digitising industry and building an EU data economy; further development and improvement of vehicle emission test procedures for testing in the laboratory and on the road; support the monitoring of the European vehicle market for the compliance with European Regulations in terms of emissions; monitoring and analysis of the primary and secondary raw materials in the context of the Raw Materials Scoreboard and Circular Economy Indicators; development of the Raw Materials Information System in support of the EU Knowledge Base on Raw Materials; strong support to standardisation</p> | Policy related outputs | 85     |

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| <p><b>JRC Key Orientations in the area of Customs risk management policy and the fight against fraud ' (specific objective 4.2)</b><br/> Examples: customs risk analysis on the basis of trade data on the status and movement of cargo containers, supporting the fight against evasion of customs duties and quotas, and that against trafficked, smuggled or counterfeited goods, and analysing unknown substances</p> | Policy related outputs | 6 |
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**General objective 9 'A Stronger Global Actor'**

Today's interconnected and interdependent societies are facing unprecedented global challenges and transnational security threats, such as climate change, increasing inequalities, extreme poverty and instability. However, this also opens up new opportunities for more sustainable development, equity and peace.

The JRC has taken a number of new initiatives to assist Commission departments with the monitoring and implementation of the UN's 2030 agenda for sustainable development and its sustainable development goals and targets (SDGs) under the new European consensus on development. It has done this to make the EU and its partners more resilient in this changing global environment. The JRC will provide support particularly in the areas of food security and nutrition, the sustainable management of natural resources, the environment and biodiversity, resource efficiency, circular economy and sustainable production and consumption, climate, energy, urban development, and inequalities. The JRC will consolidate its knowledge across these sectors and develop and organise related information, indicators, methods and data within the Commission. This will facilitate the integration and coherence of the EU's social, economic and environmental policies, which is required to achieve the globally agreed targets by 2030.

The JRC supports EU policy (the Instrument for Nuclear Safety Cooperation) to reinforce nuclear safety globally. It cooperates with the International Atomic Energy Agency on nuclear safeguards and helps to increase global nuclear security through cooperation with the main international players.

| Relevant general objective 9: A Stronger Global Actor   |                        |   |
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| <p><b>Specific objectives 9.1 to 9.2 (contributing to H2020 Specific Objective 17 and to EURATOM Research &amp; Training Programme Specific Objectives 9, 10, 11, 12 and 13):</b><br/> <b>A well-informed European policy-making, appropriately and timely supported by the JRC through the provision of high quality and innovative scientific and technical studies, tools, data, materials, models and standards, in the following areas:</b><br/> <b>(Specific objective 9.1) Global safety and security</b><br/> <b>(Specific objective 9.2) International cooperation and development</b></p> |                        | <p>Related to spending programmes H2020 and Euratom</p> |
| Main outputs in 2018:   |                        |   |
| Key orientations (KOs) of the JRC Work Programme for 2018-2019  |                        |   |
| Output  | Indicator              | Target  |
| <p><b>JRC Key Orientations in the area of 'Global safety and security' (specific objective 9.1)</b><br/> Examples: through the Knowledge Centre for Disaster Risk Management enhancement of the</p>   | Policy related outputs | 80  |

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| <p>quality of the assistance for risk vulnerability and crisis assessment, improvement of the evidence base for humanitarian emergencies and disasters under its civil security nexus; support to a number of conflict prevention initiatives from the Global Conflict Risk Index to the Kimberley Process Certification Scheme used to prevent the trade in conflict diamonds; assistance to the implementation of the Instrument for Nuclear Safety Cooperation and the Instrument contributing to Stability and Peace (nuclear safety, radioactive waste management and radiation protection; CBRN-e security including border monitoring, export control, combating illicit trafficking and enhancing preparedness and response)</p> |                               |           |
| <p><b>JRC Key Orientations in the area of 'International cooperation and development' (specific objective 9.2)</b><br/> Examples: mapping EU policies into Sustainable Development Goals and maintenance of an online platform and analysis of the interlinkages among SDGs to improve policy coherence; contribution to the launch of a Community of Practice on SDGs (global community of organisations and experts committed to collaboratively generating, managing and sharing knowledge and data to mobilise a sustainable future); key role in support to Global Covenant of Mayors for Climate &amp; Energy; support to EU Arctic policy</p>   | <p>Policy related outputs</p> | <p>42</p> |

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| <p><b>Relevant general objectives:</b><br/> <b>General objective 1: A New Boost for Jobs, Growth and Investment</b><br/> <b>General objective 3: A Resilient Energy Union with a Forward-Looking Climate Change Policy</b><br/> <b>General objective 4: A Deeper and Fairer Internal Market with a Strengthened Industrial Base</b><br/> <b>General objective 9: A Stronger Global Actor</b></p>   |  |               |
| <p><b>Specific objective 10: In order to ensure the most relevant and timely scientific support to European policy-making, the JRC will effectively and efficiently coordinate its activities related to the management of the JRC WP cycle, of the relations with policy DGs and other policy and scientific stakeholders and knowledge management.</b></p> <p><b>Note: this specific objective refers to a) the policy support coordination activities and b) knowledge management activities not mentioned in the JRC WP 2017-18. This specific objective covers all areas of work of the JRC (i.e. all Commission GOs, as explained in the 'Strategy' chapter of the Strategic Plan)</b></p> | <p>Related to spending programmes: H2020 and Euratom</p> |               |
| <p><b>Main outputs in 2018:</b></p>  |  |               |
| <p>Output</p>  | <p>Indicator</p>   | <p>Target</p> |
| <p>'Science Meets Parliaments' and 'Science Meets Regions' events to strengthen dialogue with</p>  | <p>Number of new regions reached</p>                     | <p>6</p>      |

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| inter-institutional partners and the EU Member States  |  |   |
| Extension of Collaboration arrangements with the Brazilian Ministry of Science, Technology, Innovations and Communications (MCTIC) and the US National Institute for Standards and Technology (NIST), as part of the implementation plan on strategic partnerships | Agreements updated   | Q4  |
| Round-tables with European Institute of Innovation and Technology (EIT), and Knowledge Innovation Communities (KICs), as part of the implementation plan on strategic partnerships   | Number of events   | 6   |
| Coordination of agreements with international institutions, as the Commission (technical) representative in Euratom (Euratom-Japan Atomic Energy Agency, Euratom-USA and EC support programme to IAEA)   | Number of steering committee meetings  | 3   |
| 'Putting Science into Standards' Workshop 'Quantum Technologies' aiming to bring together stakeholders in the fields of standardisation and research   | Number of participants   | 150   |
| Steering the continuous scientific development of the JRC through novel instruments like JRC Art and Science initiative: SciArt Summer School on Big Data  | Number of external SciArt experts and artists participating in the summer school   | 25  |
| Information materials to stakeholders e.g., monthly 'Science & Policy briefing' to ensure impactful outreach   | Number of subscribers  | 300 (increase of 10 % as compared to 2017)          |
| Underpinning policy support and excellence in research by exploratory research (ER) with partner institutions and through building competences in emerging, policy relevant areas  | JRC scientific staff actively involved in the JRC Exploratory Research (ER) Programme<br><br>Percentage of exploratory research activities from 2018 call proposing research in or related to social sciences, art or humanities | > 1.8 %<br><br>> 20 % (equal to percentage in 2017) |
| Collaborative Doctoral Partnerships (CDP) scheme, allowing higher education institutions gain a better   | Percentage of CDP negotiations concluded during 2018<br><br>Percentage of concluded CDP  | 75 % (of 30)<br><br>50 %                            |

|   |   |        |
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| understanding of research needs at different stages of the policy cycle while advancing JRC relations with leading academic institutions  | agreements under which students are recruited in 2018 by either university or JRC               |        |
| Open access to JRC research infrastructures (physical)  | Number of new JRC research infrastructures launching calls for open access                      | 4      |
| Coordination of JRC Standardisation related activities: executing JRC leadership task of Action 2 – Linking Research and Innovation with Standardisation, within the framework of the Joint Initiative on Standardisation (Commission, European standardisation organisations and other stakeholders) | Number of reports to DG GROW  | 1 (Q1) |
| JRC Centre for Advanced Studies (CAS), building advanced competences in selected scientific topics  | Number of fully established CAS projects (all staff recruited and kick-off meetings held in Q1) | 4      |
| Development of the JRC Academy implementation plan, implementing JRC education and training strategy  | Degree of completion  | 100 %  |
| Free access to JRC knowledge resources  | Share of JRC peer-reviewed publications published with open access                              | 95 %   |

**Specific objective 11: To ensure the highest quality of its policy support, the JRC will effectively and efficiently maintain scientific excellence in its core competences.**

Related to spending programme(s) H2020 and Euratom

**Note: this specific objective refers to all areas of work of the JRC (i.e. all CGOs, as explained in the 'Strategy' chapter of the Strategic Plan).**

**Main outputs in 2018:**

| Output  | Indicator   | Target |
|---|---|--------|
| Publication of scientific results in peer reviewed journals. Scientific results in peer-reviewed journals co-authored with peer organisations beyond Europe. Scientific results of exploratory research | Peer-reviewed publications listed in SCI-e and SSCI | > 680  |



## PART 2. MAIN ORGANISATIONAL MANAGEMENT OUTPUTS FOR THE YEAR

### A. Human resource management

In support of its business operations, the JRC aims to 'recruit, train, assess, motivate and retain highly qualified staff so that the effective and efficient operation of the DG as well as promotion of equal opportunities within the DG will be ensured'. During 2018, the JRC will optimise the long-term alignment of competences in the JRC with the Commission requirements, as outlined in its Strategy 2030. The JRC will actively contribute to the implementation of the Commission-wide HR actions of staff engagement and talent management, as well as the new diversity and inclusion strategy. The continuous development of the talent management programme plays a very important part of the human resource management objectives for 2018. The recent evaluation of the JRC talent management programme recommends that the new actions will be all gender inclusive and that a wider variety of programmes with fewer participants would be ideal to best target strategically important competence areas. Talent management plays an important part in capacity building, career development and preparation for job mobility. A broad mobility programme has been designed to stimulate mobility of staff both within JRC and outside which will enhance collaboration and knowledge sharing.

The JRC continues to perform above Commission average in the staff well-being domain, according to the latest staff satisfaction survey. To further increase this satisfaction level the JRC will continue to actively engage in the 'fit@work' programme across its different sites by consistently following the recommended actions in the Commission strategy and action paper. In particular actions that support mental well-being and resilience, and actions that ensure consistent application of the work/life balance working schemes are needed. Finally, leadership development opportunities for the JRC managers will continue to be promoted, helping them in engaging with their staff, in supporting their development and showing authentic concern for their well-being.

The HR Modernisation project as laid down in the Communication on Synergies and Efficiencies continues to be rolled out in the Commission. HR services for DGs are now delivered by the Account Management Centres (AMCs). Within each DG, the HR Business Correspondent coordinates strategic HR matters and prepares the related decisions of the DG's management.

The definition of HR strategy and priority actions to make progress towards the strategic plan targets are the responsibility of the HR Business Correspondent and are therefore addressed in the JRC's Management Plan and Annual Activity Report.

**Objective: The DG deploys effectively its resources in support of the delivery of the Commission priorities and core business, has a competent and engaged workforce, which is driven by an effective and gender-balanced management and which can deploy its full potential within supportive and healthy working conditions.**

#### Main outputs in 2018:

| Output   | Indicator   | Target   |
|--|---|--|
| 1. In order to improve the <b>female representation in middle management</b> positions according to SEC(2017)359 the JRC's plans the following main outputs: | Overall indicator: Number of new first time female Unit Heads | The overall current target is to nominate 8 new female Unit Heads by 1 <sup>st</sup> November 2019. By end of 2018 the first 6 of these nominations must take place. |

|  |   |  |
|--|---|--|
| <p>1a. Continuous awareness-raising towards potential female candidates about available vacancies</p> <p>1b. Close monitoring of upcoming Unit Head vacancies, whether retirement, resignation or mobility and evaluate current female talent pool in respect to the vacancies</p> <p>1c. Roll out of inclusive talent management programme based on recommendations from the 2016/17 pilot talent management programme evaluation</p> <p>1d. JRC sponsorship of the LEAD@COMM<sup>1</sup> Network which would help female staff grow potential and support the JRC succession plan from its pilot Talent Management Programme</p> | <p>1a. Percentage of applications from internal female staff to published Unit Head vacancies</p> <p>1b. Number of female staff selected to published Unit Head</p> <p>1c.i. Number of participants in the new talent management programme</p> <p>1c.ii. Participants' evaluation of the talent management programme vacancies</p> <p>1d. Number of LEAD@COMM initiatives sponsored by the JRC for helping female staff to grow</p> | <p>1a. Double the amount of applications received by female applicants.</p> <p>1b. For vacancies appearing in 2018 ensure a minimum of 6 females selected.</p> <p>1c.i &gt; 50 participants</p> <p>1c.ii 75 % satisfaction rate from participants to the inclusive JRC talent management programme</p> <p>1d. At least 6 LEAD@COMM initiatives which take the form of lunch-time lectures, networking events, discussion panels, workshops/trainings and continuing the support to the career days as organised by HR services. The JRC sponsorship will be in the form of budget, provision of meeting rooms, video-conference facilities, support of senior management and provision of mentors and coaches.</p> |
| <p>2. In order to increase <b>staff engagement</b> the following main outputs are planned:</p> <p>2a. Competence development and management of talent within the context of the JRC change agenda and the</p>  | <p>2a. Staff satisfaction survey indicators</p>   | <p>2a. JRC Staff engagement in the Commission Staff Satisfaction Survey to remain above the EC average</p>   |

<sup>1</sup> The LEAD@COMM network was launched in October 2017 as a result of the JRC 2016/17 pilot talent management programme and is already a vibrant network where experiences are being shared and peer support given.

|   |  |  |
|---|--|--|
| <p>Commission HR strategic agenda</p> <p>2b. Staff Satisfaction Survey Action Plan: several actions will be carried out and followed-up in the following areas: mobility, knowledge sharing &amp; communication, well-being and physical working environment.</p> <p>An additional action plan for mobility has been drawn up following a recent cross-JRC working group. The additional actions include consolidated recruitment plans, Competence mapping, Career day, and career and mobility actions for contract agents</p> <p>2c. Extend talent management programme to a larger more inclusive population</p> <p>2d. Implementation of the JRC mobility package</p> <p>2e. Embedding of the Commission's Diversity and Inclusion Strategy C(2017)5300 into a JRC Action Plan</p> <p>2f. As part of the JRC 2030 Strategy and its</p> | <p>2b. Degree of implementation of the actions planned (Staff Satisfaction Survey Action plan and additional mobility plan)</p> <p>2c. Design, adoption and roll out of a new inclusive JRC talent management programme</p> <p>2d.i Participants to the initiatives in the mobility package.</p> <p>2d.ii. Number of people participating to the JRC short term exchange programme and the Visiting Researcher programme.</p> <p>2e. Regular monitoring of the implementation of the specific JRC Action Plan is in line with the action plan of the DG HR (which is under elaboration) translating the Commission's Diversity and Inclusion Strategy</p> <p>2f.i. Number of specific training courses linked to the</p> | <p>2b. 100 %</p> <p>2c. 75 % satisfaction rate from participants to the inclusive JRC talent management programme</p> <p>2d. 75 % satisfaction rate from participants</p> <p>2e. Monitored throughout the year</p> <p>2f.i. &amp; 2f.ii. Positive feedback from participants to training</p> |
|---|--|--|

|   |   |  |
|---|---|--|
| <p>Knowledge Management pillar, provision of skills to staff through learning and development to interact more effectively with policy makers</p>                                   | <p>JRC Knowledge Management key pillar.</p> <p>2f.ii. Participants' evaluation to specific training courses</p> <p>2f.iii. Number of people participating to the JRC short term exchange programme</p>  | <p>courses (at the moment no current value is available)</p> <p>2f.iii. At least 20 participants</p>   |
| <p>3. In the context of the JRC's implementation of the <b>'health and well-being'</b> Commission Strategy, the main outputs will be training and awareness-raising activities.</p> | <p>3a. Number of training and awareness-raising activities carried out to promote a fit@work culture in all JRC sites</p> <p>3b. Number of nutrition awareness actions in the canteens, social and cultural activities, specific training programmes and ergonomic actions in all JRC locations</p> <p>3c. Number of events promoting the role of the medical services and the social support to staff in all JRC locations</p> <p>3d. Results from surveys carried out as a means to get staff opinion on ongoing actions on the needs and suggestions for future initiatives</p> <p>3e. Number of mindfulness training/workshops to be organised at all the JRC sites</p> <p>3f. Number of flagship volunteering initiatives organised in Ispra and Brussels</p> <p>3g. Number of other volunteering initiatives at other sites (Petten, Geel, Karlsruhe and Seville)</p> | <p>3a. At least 3 activities on at least 1 site</p> <p>3b. 1 campaign in all sites</p> <p>3c. 1 event in each site</p> <p>3d. 75 % satisfied with initiatives provided</p> <p>3e. 1 workshop in each site</p> <p>3f. 1 initiative in Brussels and 1 in Ispra</p> <p>3g. Promote volunteering in other sites with 1 initiative per site</p> |

## **B. Financial Management: Internal control and Risk management**

The Commission adopted a new Internal Control Framework<sup>2</sup> (ICF) in April 2017 to be fully applicable as from 1 January 2018. The new framework moves away from a purely compliance-based to a principle-based system, whereby the services are offered the necessary flexibility to adapt to their specific characteristics and circumstances while ensuring a robust internal control with a consistent assessment throughout the Commission. The JRC has laid down an implementation plan which it has already started implementing, to facilitate the migration to the new framework and to ensure the timely, consistent and effective implementation of this framework. The main focus of the implementation will be the integration of the ICF into the JRC's Integrated Management System (IMS), thus allowing the JRC to combine requirements from different sources, such as ICF, ISO standards and legal requirements, in one management approach. In 2018, the JRC aims to fully migrate to the Commission's new framework with the end objective of continuing to have in place the organisational structure and the internal control systems suited to the achievement of the policy and control objectives and having due regard to the risks associated with the environment in which it operates.

The JRC is committed to implement, maintain and report on an effective and reliable internal control system, so that reasonable assurance can be given that the resources assigned are used according to the principles of sound financial management; that the risk of errors are minimised and do not exceed 2 %; that the control procedures put in place give the necessary guarantees concerning the legality and the regularity of the underlying transactions; and that the controls put in place are cost-effective.

During 2018 the JRC will, as part of its revised Anti-Fraud Strategy (AFS), and its related action plan, continue to ensure that the controls in place adequately cover the risk of fraud and that preventive measures are implemented as foreseen in the AFS.

### **Objective 1: Effective and reliable internal control system giving the necessary guarantees concerning the legality and the regularity of the underlying transactions.**

#### **Main outputs in 2018:**

| Output   | Indicator  | Target   |
|--|--|--|
| <p>The target for 2018 will be achieved by the following outputs:</p> <ul style="list-style-type: none"> <li>• Training courses and awareness-raising activities, regular finance and procurement network and operational network meetings, exchange of best practise and communication through JRC Connected to raise awareness and competence on procurement and financial issues</li> </ul> | <ol style="list-style-type: none"> <li>1. Estimated residual error rate</li> <li>2. Estimated overall amount at risk for the entire budget under the JRC's responsibility</li> <li>3. Estimated future corrections</li> <li>4. Proportion of exceptions</li> </ol> | <p>The following targets are maintained:</p> <ol style="list-style-type: none"> <li>1. Residual error rate below the JRC's materiality criteria of 2 %</li> <li>2. Amount at risk below the JRC's materiality criteria of 2 %</li> <li>3. 100 % recoveries and correction of specific errors</li> <li>4. &lt; 1 % of transactions</li> </ol> |

<sup>2</sup> C(2017)2373 final

|  |   |  |
|--|---|--|
| <p>• Further development of the functionalities of the Public Procurement and Management Tool (PPMT) aimed at completing the support of the full procurement process including pre-award</p> <p>Enhancement of the corporate dimension of PPMT to serve as the Commission's back-office tool for the procurement process</p> | <p>5. Quality of procurement procedures submitted to the Public Procurement Advisory Group (PPAG)</p> | <p>5. <math>\geq 95</math> % with positive opinion</p> <p>The JRC intends to continuously improve its internal control system to ensure the adequate management of the risks relating to legality and regularity of the underlying transactions, taking into account the nature of the purchases, payments and revenue concerned</p> |
|--|---|--|

| Objective 2: Effective and reliable internal control system in line with sound financial management.            |  |   |
|---|--|---|
| Main outputs in 2018:   |  |   |
| Output  | Indicator  | Target  |
| <p>1. Conclusion reached on 'Cost effectiveness of controls – Area 'Procurement'</p>                            | <p><b>Overall indicator 1:</b> The overall cost of control relating to all control costs incurred in the procurement process</p> <p><b>Sub-indicator 1(a):</b> Cost of controls of the procurement stage up to selection of the offer and evaluation</p> <p><b>Sub-indicator 1(b):</b> Cost of controls of the financial transaction</p> <p><b>Sub-indicator 1(c):</b> Cost of supervisory measures (ex-post controls)</p> | <p>Overall indicator 1: <math>&lt; 6</math> %</p> <p>Sub-indicators: 1(a) <math>&lt; 4</math> %<br/>1(b) <math>&lt; 4</math> %<br/>1(c) <math>&lt; 0.4</math> %</p> <p>The targets for 2018 is to maintain the above indicators which are set taking into account that they largely depend on the number and value of procurement procedures and financial transactions executed and the time spent by staff on the related control activities.</p> |
| <p>2. Conclusion reached on 'Cost effectiveness of controls – Area 'Contracted Income'</p>                      | <p>The overall cost of controls of the 3 stages of the contractual activities / total contractual projects value</p>   | <p>The target for 2018 is to maintain the indicator at <math>\leq 0.3</math> %. The indicator is largely dependent on the number and value of contractual project proposals and the time spent by staff on the related control activities.</p>  |
| <p>3. Annual survey carried out to measure the JRC staff perception on the Internal Control Framework (ICF)</p> | <p>Implementation of the Internal Control Framework in the JRC measured by the average of scores obtained from the annual survey on the implementation of Internal Control Framework (ICF). (Scores range between 1 ('Disagree') and 5 ('Agree'))</p>  | <p>Average score <math>\geq 3.3</math></p>  |

|   |  |  |
|---|--|--|
| 4. ICF awareness campaign: training courses on the revised ICF, workshops, events and the use of JRC Connected as a communication tool  | Number of training courses and awareness-raising activities  | > 6 events<br><br>Increase in the staff perception of the ICF (measured by the above-mentioned annual survey)                    |
| 5. Implementation of the new ICF  | Completion status of the implementation of the revised ICF<br><br>Integration of ICF 2017 into the JRC's Integrated Management System (IMS) as per the Implementation Plan | 100 % implementation of actions planned for 2018   |
| 6a. Payments, registered, processed and approved within legal time limits<br><br>6b. Encouragement of companies to make use of the Commission portal for electronic invoicing to further improve the payment delays | Timely execution of payments   | To be maintained at $\geq 95$ %  |
| 7. The action plans to audit recommendations from the European Court of Auditors (ECA) and the Internal Audit Service (IAS) are being implemented   | Number of critical and very important recommendations overdue for more than 6 months, whose action plan has not been fully implemented yet                                 | No critical or very important audit recommendations overdue for more than 6 months after the date established in the action plan |

**Objective 3: Minimisation of the risk of fraud through application of effective anti-fraud measures, integrated in all activities of the DG, based on the DG's anti-fraud strategy (AFS) aimed at the prevention, detection and reparation of fraud.**

**Main outputs in 2018:**

| Output   | Indicator   | Target   |
|--|---|--|
| Regular monitoring of the implementation of the updated anti-fraud strategy (AFS) of the JRC and reporting on its result to management | Degree of implementation of actions planned for 2018 in the updated anti-fraud strategy | 100 % implementation<br><br>Reporting to management twice per year |

|  |  |                             |
|--|--|-----------------------------|
| Increased level of anti-fraud awareness which will be achieved by the implementation of the updated AFS action plan specifically by the actions related to training and awareness-raising in the area of anti-fraud and ethics | Regular measurement of the ethical climate and the fraud awareness for target population(s) as identified in the JRC's AFS. This indicator is measured taking into account the average of scores obtained from the annual survey on the implementation of Internal Control Framework quantifying the anti-fraud awareness and the ethical climate using the rating scale of 1 ('Disagree') and 5 ('Agree') | Ethical climate rating of 4 |
|--|--|-----------------------------|

### ***C. Better Regulation***

N/A for JRC

### ***D. Information management aspects***

The Commission adopted a new corporate strategy for data, knowledge and information management in October 2016. The new strategy establishes a corporate framework while leaving room for DGs to develop and implement their own approaches tailored to their unique needs. A new Information Management Steering Board (IMSB) has been created to oversee the implementation of the strategy, to ensure coherence between actions and to prioritise them. The Director General of the JRC has been appointed as member of the Board. The JRC has contributed actively to the implementation of this strategy in 2017 and will continue to do so in 2018, by supporting the strategy's second pillar ('Working together and sharing information and knowledge'), by pursuing pilot projects to enhance knowledge sharing in key policy areas, such as the European Semester and other policies where Country Knowledge has major relevance. Also the JRC will contribute to the establishment of a Commission one-stop-shop for collaborative working. Connected will be further developed as part of a future high-quality, user-centric ecosystem of collaboration and connectivity tools across the Commission. New competence and knowledge centres will be deployed as required in response to emerging political priority needs. Within the strategy's third pillar ('Maximising use of data for better policy-making'), the JRC will continue participating in the Data4Policy Group of DGs; together with SG, it will also contribute to a new IMSB Work Programme Action on Data for Evaluation in relation with the Better Regulation Initiative. Finally, it will implement a JRC-integrated approach to competence mapping and 'knowledge management (KM) for policy' training, in coordination with DG HR, and in line with the strategy's fourth pillar ('Creating a culture of knowledge sharing and learning'). These activities are described in detail in the JRC work programme (complete information in JRC Project Browser at <http://apps.jrc.cec.eu.int/jpbma>).

It is noted that the JRC contributes to knowledge management also by providing free access to JRC knowledge resources (cf. specific objective 10) and by the many other activities embedded in its work programme and in part described within the specific objectives 1, 3, 4 and 9, such as Knowledge and Competence Centres.



With regard to e-Domec implementation, JRC will pursue its effort in opening files visibility at Commission level on the basis of its applicable rules reviewed and enforced in 2017. The integration of its core business application for management of outputs (PUBSY), achieved in 2017, will be completed by the integration of JRC Work Programme planning and monitoring IT system (JRC Project Browser) as well as its collaborative platforms in line with EC corporate guidelines. These will reinforce knowledge sharing and culture of working together across the JRC and the Commission.

**Objective: Information and knowledge in your DG is shared and reusable by other DGs. Important documents are registered, filed and retrievable.**

**Main outputs in 2018:**

| Output   | Indicator  | Target   |
|--|--|--|
| Fully reviewed filing plan by document management correspondents in all JRC lead departments ('chef de file'). This review will foster increased visibility and accessibility of JRC information | Regular monitoring of filing plans   | 100 % monitoring of filing plans and related reporting |
|  | Percentage of JRC files shared and made reusable by the Commission   | 60 %   |
| HAN Integration of JRC IT tools supporting core business (JPB) and collaborative platforms (SharePoint, Connected)   | JRC undertakes the necessary steps once Commission Central Services have adopted integration projects  | Q4   |
| Raising awareness on information management and side related aspects   | Definition of scope, content and stakeholders  | Q4   |
| Training and capacitybuilding for scientists and policy makers (including Commission staff) in evidence and policy   | Number of JRC staff trained  | > 250  |
| Country and regional knowledge management methods and practice   | Number of users in the Commission Country Knowledge communities who have viewed at least something in the previous 30 days (i.e. active users) | > 50 % (Year-to-Year)                                  |

**E. External communication activities**

JRC external communication activities aim to foster recognition that good policy decisions must be based on robust scientific evidence. They highlight the links between EU policies and the JRC contribution to them on the one hand, and the Commission's political priorities and narrative on the other. They reinforce the Commission's key messages and

the credibility of EU policies, while positioning the JRC as the science and knowledge service of the European Commission.

**Objective: Citizens perceive that the EU is working to improve their lives and engage with the EU. They feel that their concerns are taken into consideration in European decision making and they know about their rights in the EU.**

**Main outputs in 2018:**

| Output   | Indicator  | Target  |
|--|--|---|
| Key publications such as JRC Digital Newsletter and the JRC annual report  | Number of subscribers  | 20 000  |
| JRC in the Media   | Number of articles about the JRC   | 3 000   |
| Press trips  | Number of press trips<br>Number of participants  | 3<br>20   |
| Direct reach of the DG communication actions via websites (EU Science Hub), social media and key known multipliers | Number of unique visitors to the websites, number of page views<br><br>Number of social media followers:<br><br>Twitter 'EU ScienceHub'<br><br>Facebook<br><br>LinkedIn<br><br>YouTube | 3 000 000 unique website visitors (increase of 10 % as compared to 2017), 7 000 000 page views<br><br><br>20 000 followers (25 % increase)<br>10 000 followers (30 % increase)<br>25 000 followers (25 % increase)<br>1 500 subscribers (50 % increase) |
| JRC annual conference  | Number of views (streaming and of the annual conference's web pages)   | 10 000  |
| Participation at ESOF 2018 (EuroScience Open Forum), the largest interdisciplinary science meeting in Europe       | Number of JRC activities presented   | 7   |

**Annual communication spending:**

| Baseline (2017) | Estimated commitments (2018) |
|-----------------|------------------------------|
| € 1 600 000     | € 1 900 000                  |

## ***F. Examples of initiatives to improve economy and efficiency of financial and non-financial activities of the DG***

Originally conceived as a priority for 2017, the simplification of JRC processes and procedures was launched to spearhead the drive to continuously improve the effectiveness, efficiency and economy across the JRC processes. The simplification initiative is intended to:

- Strengthen knowledge of and participation in core process improvement by JRC colleagues and increase job satisfaction;
- Deliver on JRC strategic objectives; and
- Achieve measureable efficiency and effectiveness gains on processes.

Eight domains were chosen as the most suitable areas in which progress could be made:

1. Planning, reporting, risk and quality management;
2. Finance and Procurement;
3. Site Management;
4. Work programme cycle;
5. Information, document and knowledge management;
6. ICT tools;
7. Administrative support issues; and
8. Staff-related issues.

The bottom-up campaign, conducted in the spring of 2017, generated 145 ideas by staff. Action plans for each domain were drawn up in the second half of 2017 allowing for a phased timing of improvements in the individual domains. For 2018, the focus will be on implementation and obtaining results. It is planned that from the proposals retained for follow-up, 75 % will be fully implemented by end 2018 with the remainder throughout 2019. For several of the proposals, coordination with other Commission services is necessary such as DG BUDG, DG DIGIT or OIB.

Implementation will be closely monitored via quarterly progress meetings with domain leaders and with a digital 'Simplification Forum' to take place in mid-2018. In addition, there will be regular communication with JRC colleagues together with an open invitation to identify new ideas for improvement. This will build on the progress made in 2017 on the willingness of JRC colleagues to contribute, collaborate and work together.

During 2018, measures will be taken to give simplification a high visibility and attention in the frame of improvement actions that are carried out within the JRC's Integrated Management System (IMS). The aim will be that, from 2019 onwards, simplification efforts can be run entirely through the plan-do-act-check cycle of the IMS.

By end 2018, a quantitative assessment will be performed of the efficiencies gained as a result of the simplification measures implemented.

## ***G. Infrastructure***

### **Infrastructure Development**

In line with Chapter 11 of the JRC Strategy 2030 '*DG JRC must have internationally-recognised, modern, safe and secure infrastructure, which creates a positive working environment. It must be environmentally, cost and resource efficient. It must be managed in an effective, coherent and consolidated manner*'. The outputs planned for 2018 in this field will therefore target this aim and contribute to the renewal of the ageing premises, some of which date back to the 1950's or 1960's. The renewal will also

concern environmental, health and safety measures in line with European Legislation imposed to Member States.

| <b>Objective:</b><br><b>Infrastructure development: Harmonise the approach to infrastructure development across the JRC.</b><br><b>Energy conservation: Drive energy efficiency gains.</b><br><b>Operational efficiency: Increase efficiency of site-related facilities and services.</b>   |  |   |
|---|--|---|
| <b>Main outputs in 2017:</b>  |  |   |
| Output  | Indicator  | Target  |
| 1a. Surface area of new buildings delivered and buildings demolished and refurbished with respect to Directive 2012/27/EU. The following infrastructure projects are planned to start in 2018: <ul style="list-style-type: none"> <li>• construction of new buildings and other facilities</li> <li>• full refurbishment of buildings</li> <li>• demolition of buildings</li> </ul> | Surface area calculations                              | An annual assessment of the total surface not meeting the national minimal standards in terms of energy efficiency on the basis of article 5 of the Directive 2012/27/EU<br><br>A minimum of 3 % (as defined in the Directive) for refurbishment should be reached annually |
| 1b. Implementation of Energy Performance of buildings Directive 2010/31/EU:<br>- Construction of a new building in JRC Ispra (already included in 1a above)   | Finalised construction of nearly zero-energy buildings | Construction of the new building that started in March 2017 is expected to have duration of 2 years   |
| 1c. JRC Infrastructure Development Plans  | Development plans available for all sites              | In line with JRC strategy 2030, all sites should have an approved development plan covering the period until 2030 that would fit with the financial perspectives at Commission level  |

### **Decommissioning**

The planning and budget of the Decommissioning Programme are periodically reviewed since its start in 1999. This exercise is intended to align progress of projects with priorities and with needs of the programme. It also provides the data for the preparation of the future budget requests.

**Objective: Implement the Decommissioning & Waste Management Programme (see progress indicators in Annex 2)**

**Main outputs in 2018 (main outputs in 2018 by relevant JRC site can be found in Annex 2):**

| Output  | Indicator           | Target      |
|---|---------------------|-------------|
| New Communication from The Commission to the Council and the European Parliament including revised budget <sup>3</sup>  | Documents available | Q4          |
| Decommissioning of Nuclear Installations and Management of Radioactive Waste: Management of Nuclear Liabilities arising out of the activities of the JRC carried out under the Euratom Treaty | See Annex 2         | See Annex 2 |

**Supplementary research programme for the High Flux Reactor in Petten (The Netherlands)**

The operation of the European Atomic Energy Community's High Flux Reactor, which is located at the JRC site in Petten (NL), has been supported in the last years by a series of supplementary research programmes.

On 13 November 2012, the Council adopted a four-year (2012-2015) supplementary research programme (Council Decision 2012/709/Euratom - OJ L321/59, 20.12.2012) to be implemented by the JRC for the European Atomic Energy Community.

According to Article 4 of the Council Decision 2012/709/Euratom, the Commission will inform the European Parliament and the Council by producing a report on the implementation of the supplementary research programme. This report addresses the period 2014-15 (a report on the period 2012-2013 has already been issued).

**Objective: Operation of the high-flux reactor**

**Main outputs in 2018:**

| Output  | Indicator                               | Target |
|---|---|--------|
| Reporting on High Flux Reactor (HFR) activities 2014-2015 | Report and Staff Working Document (SWD) | Q2     |

<sup>3</sup> The Communication will present the achievements since the last Communication (i.e. for the period 2013-2017), the current status including difficulties, and an outlook for the future.

### ***Annex 1. Tables***

Performance tables are provided in the body of the document.

## Annex 2. Indicators and outputs related to decommissioning

### Objective: Implement the Decommissioning & Waste Management Programme

#### Brief description:

The decommissioning activity aims to progressively dismantle the JRC's nuclear installations, either already obsolete (with no foreseen further use) or 'future liabilities' (still in use). It also intends to treat 'historical' waste (i.e. waste accumulated in the past) and waste arising from the dismantling operations. In 1999, the Commission decided to launch a programme to meet this objective. By this choice, the Commission shifted to the practice adopted by most EU Member States, preferring to start the decommissioning immediately after shutdown of the installations rather than deferring decommissioning in the hope that decreasing radiological activity would reduce the financial burden. The programme started in 1999 under the assumption, made for budgetary planning reasons, that the decommissioning of the last nuclear installation and the final disposal of historical wastes would be achieved around 2035. The updated Strategy and Budget (2017) takes into consideration all JRC nuclear installations, including those still in operation and Wing M. Accordingly, a new timeline has been defined for the four affected sites up to 2060.

Due to the status of their facilities and to their respective environment, the Ispra site (IT) is engaged in a wider range of activities than the three other sites Geel (BE), Karlsruhe (DE) and Petten (NL), where most facilities are still operational.

#### Main outputs in 2018:

| Description  | Latest known result  | Intermediate target (end of 2018)  | Final target                       |
|--|--|--|------------------------------------|
| Corporate  |  |  |                                    |
| New Communication from the Commission to the Council and the European Parliament including revised budget with Impact Assessment | Budget and strategy review ready for endorsement (endorsement expected by November 2017)                             | Document available   | Publication 2018                   |
| Decommissioning and waste management activities at Ispra site  |  |  |                                    |
| Management of Nuclear Material (NM) and High Level Waste (HLW) up to its Intermediate Storage                                    | Feasibility study for possible reprocessing completed<br><br>Nuclear tests for the temporary storage area authorised | Decision on reprocessing alternative<br><br>Temporary storage area formally in operation<br><br>Contract for transfer of fuel remnants awarded | Storage of NM and HLW ready (2024) |

|   |  |  |  |
|---|--|--|--|
| Establishment of waste treatment and characterisation facilities  | Major civil works of grouting facility almost completed  | Supply of electromechanical equipment  | Grouting facility (2019)   |
|   | Planning of procurement for IP2 containers   | Procurement of IP2 containers launched after confirmation of acceptance at National Repository                             | Final waste package containers (2019)                                  |
|   | File ('Piano Operativo') for characterisation and super-compaction under approval by Safety Authorities  | Specific contract signed for 1st super-compaction campaign after PO approval by safety authorities                         | Waste Characterisation and super-compaction                            |
| Decommissioning of obsolete facilities including clearance  | Launch revision of 'Clearance' procedures through framework contract   | 'Clearance' of waste from decommissioning the facility completed   | 'FARO' facility decommissioned (2019)                                  |
|   | STRRL license conversion still pending   | STRRL license conversion   | STRRL facility (excl. Tank Farm) decommissioned (2024)                 |
| Pre-decommissioning - waste management activities at Karlsruhe site   |  |  |  |
| Management of Nuclear Material and High Level Waste (HLW) up to its Intermediate Storage                    | Qualification of welding process for encapsulation of spent fuel batches ongoing to ensure compliance of parts supplied for different transports | Qualification of welded pins and organisation of transport with/by owner   | 100 % of commercial spent fuel on which PIE has been completed removed |
| Reduction of commercial spent fuel  |  |  |  |
| Reduction of JRC-owned legacy spent fuel and nuclear materials  | Result of feasibility study for possible reprocessing available  | Improved characterisation of obsolete irradiated and nuclear inventories and identification of alternative disposal routes | 100 % of obsolete JRC-owned spent fuel and nuclear materials removed   |
| Residual contribution to German waste repository (residual budget as updated by German Authorities in 2014) | 42 % (+ 0) of budget committed; 2017 invoice from BMUB still pending (as of October 20, 2017)  | Budget will be committed in accordance with the requirements of the competent German authorities (as of 2017: BMUB)        | 100 % of the budget committed (in 2023)                                |



|  |  |   |  |
|--|--|---|--|
| Decommissioning of obsolete equipment  | 72 % (+ 0) of glove boxes dismantled; 8 glove boxes decontaminated, but not yet dismantled<br><br>Current clearance process analysed, room for improvement identified<br><br>Disposal of historical low level waste packages accelerated | 12 glove boxes decontaminated and dismantled;<br>Different routes for dismantling of legacy glove boxes will be assessed<br><br>Call for tender for radiation protection officer taking care of clearance measurements<br><br>Ideally disposal of historical waste packages completed | 100 % of legacy glove boxes dismantled (date not defined)<br><br>Minimised liabilities, maximised use of 'clearance' disposal path<br><br>100 % of historical waste packages disposed        |
| Pre-decommissioning and waste management activities at Geel site                         |  |   |  |
| Management of Nuclear Material and High Level Waste (HLW) up to its Intermediate Storage | Sorting, classification and conditioning of additional nuclear material identified for future evacuation   | Agreement reached with NIRAS on nuclear material that can be accepted as unconditioned waste  | 100 % of identified materials evacuated  |
| Decommissioning of obsolete equipment  | Ongoing evacuation and clearance of obsolete VDG equipment<br><br>18 obsolete glove boxes identified and emptied<br><br>Central effluent collection tank and pipes: Modification file approved by safety authorities                     | 50 % of clearance measurements of VDG equipment done<br><br>50 % of obsolete glove boxes evacuated<br><br>Clearance measurements effluent tank; demolishing of tank and evacuation as radioactive or cleared waste  | 100 % of obsolete VDG equipment evacuated<br><br>100 % of obsolete glove boxes evacuated<br><br>Collection tank, pumping room and all pipes leading to the central collection tank evacuated |
| Pre-decommissioning - waste management activities at Petten site                         |  |   |  |
| Management of Nuclear Material and High Level Waste (HLW) up to its Intermediate Storage | Finalisation of feasibility study for combined transport   | Contract signed for the sawing of the KAKADU pin in October 2017; all other waste will be subject to a framework contract with NRG (to be signed in 2018), cf. steel waste  | 100 % of JRC legacy waste (un-irradiated experimental fuel) evacuated  |

|                                       |   |   |   |
|---------------------------------------|---|---|---|
| Decommissioning of obsolete equipment | Transport and decontamination of steel waste for recycling; recovery of concentrated radioactive slag and transport of excessively activated steel samples and slag to COVRA storage facility: Waste transports performed | Due to the complexity, new waste discoveries and the expected duration of the waste evacuation process, it was decided to establish a multi-annual framework contract covering all JRC-owned waste items; preparation of Technical Specifications for this framework contract in progress | Steel decontaminated and recycled; activated steel and slag sent to COVRA                     |
| Decommissioning of HFR                | Preparation of draft roadmap for development of decommissioning strategy<br><br>Complete version of cost and decommissioning plan available mid-November 2017   | Development of strategy; further work in close cooperation with Dept. III and unit A.7<br><br>Final report including dismantling of buildings (January 2018)  | Decommissioning of HFR (date not defined)<br><br>Updated Decommissioning Plan (every 5 years) |

### ***Annex 3. Key orientations for the Joint Research Centre's multi-annual work programme for 2018-2019.***

#### **1. A new boost for jobs, growth and investment**

See General Objective 1 in the body of the document for an overview.

##### **1.1. Agriculture and rural development**

a) **CAP implementation** — develop efficient and innovative tools to implement agricultural legislation, considering also the opportunities of big data and remote sensing and benefiting from the free and open access to Copernicus satellites; help to set standards and provide technical guidance for an optional monitoring approach as from 2018;

b) **environmental needs** — develop methods and tools for the integrated assessment of agriculture, rural development and the environment, taking into account the economic impact at farm and regional level (so that CAP instruments can be tailored to environmental needs); analyse farmers' behaviour towards environmentally friendly practices and the uptake of new technologies;

c) **resource efficiency, climate change and food security** — develop knowledge and models on soil, water and ecosystem dynamics in order to improve their sustainable management (socioeconomic and environmental dimensions) in agricultural systems, and make better use of the potential of the bioeconomy. Study the effects of climate change on the agricultural sector, assess the potential of climate change mitigation and adaptation strategies; forecast crop yields, production and demand in support of European food security (and global food security, which is covered under key orientation 9.2);

d) **agricultural market and trade** — analyse the competitiveness and trade relations of the European agri-food sector, and the performance of European agri-food systems (including the food chain). Provide detailed analysis of policy options for the CAP beyond 2020 based on economic and agricultural models.

##### **1.2. Education, culture, youth and sport**

a) **education and training systems** — monitor trends under EU policy strategies (e.g. Europe 2020, ET2020 and the Knowledge Hub on Higher Education) and provide evidence of the successful implementation and development of such policy frameworks;

b) **innovative education** — carry out research on policy relevant themes such as efficiency and equity in education investment, the role of (higher) education for regional development and smart specialisation, education and societal wellbeing, the integration of vulnerable groups such as migrants, refugees and other minorities into the education system, and early childhood learning; study digitisation's impact on education and training practices and systems;

c) **cultural and creative sectors** — to assess the impact of specific culture-oriented initiatives on economic and social development, develop further tools for measuring and monitoring cultural activities and creativity in cities (see also key orientation 10.1.c).

## **1.3. Environment**

### ***1.3.1. Protecting and enhancing our natural capital***

a) **freshwater and marine environment** — assess water resources and water use efficiency, floods and droughts (linked to key orientation 9.1.1.a); provide hydro-economic modelling and assessment of implementation scenarios for the Water Framework Directive and related directives; provide integrated analyses of water allocation across economic sectors for Europe and other regions of the world (water-energy-food-ecosystems); develop methods to monitor and assess chemical, microbiological, biological and ecological water quality, and assess acceptable alternatives. Develop standards and reference materials for pollutants (including plastics) for fresh and marine waters; set consistent and comparable nutrient boundaries across Europe; develop minimum quality requirements for water reuse (also contributing to the circular economy — see key orientation 1.3.2.a); develop the knowledge base, including the integrated modelling framework for freshwater and marine environment, targeting in particular the Marine Strategy Framework Directive (linked to key orientations in 1.4) and related directives. Continue the research work on mapping and assessing ecosystem services delivered by freshwater and marine ecosystems that can be of interest for the EU biodiversity strategy. Help develop a comprehensive approach to assessing and managing the risks from the simultaneous presence of multiple chemicals (mixtures) in the aquatic environment, in particular gathering, assessing and developing the scientific and technical knowledge on effect-based tools and on identifying problematic substances in mixtures;

b) **biodiversity, forests and soils** — support the implementation and final evaluation of the EU biodiversity strategy, notably by assessing ecosystem conditions, ecosystem services and natural capital accounting in the context of the environmental knowledge community, the green infrastructure, the invasive alien species information system, global biodiversity monitoring and the sustainable supply and demand of biomass for all uses. Analyse and model forest resources and develop information systems on forests and forest fires in support of the EU forest strategy. Support the EU soil thematic strategy and further soil policy developments by improving knowledge, modelling and developing indicators of soil functions and soil and land degradation processes, including desertification. Maintain JRC soil expertise and develop the European Soil Data Centre and monitor land and soil conditions through land use/cover area frame statistical survey and other data sources, in close coordination with the European Environment Agency and ESTAT. JRC will continue activities on soil 'point' contamination and close data and knowledge gaps in particular on soil biodiversity and soil diffuse pollution. JRC will support growing soil and land related activities at international level in particular on SDGs, FAO and the Global and European Soil Partnerships, UN Convention to Combat Desertification (UNCCD) Land Degradation Neutrality, the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES) as well as networks like and the European Soil Bureau Network.

### ***1.3.2. A circular, green and competitive low-carbon economy***

a) **sustainable consumption and production and the circular economy** — elaborate criteria and measures for implementing of sustainable product policies (EU Ecolabel Regulation, Green Public Procurement Communication, Ecodesign requirements for Energy-related Products Directive, Energy Label Regulation) and facilitating the exchange of information on best practice. Determine best available techniques and develop indicators for waste management, and assess how to optimise energy recovery from waste in line with the EU waste hierarchy. Help to manage the EU raw materials knowledge base (see also key orientation 4.1.a) and develop quality criteria for secondary raw materials. Support the eco-innovation action plan, in particular the

environmental technology verification programme. Develop lifecycle methodologies, data and analyses for sustainable consumption and production and other actions related to circular economy policy, such as the plastics strategy, which includes assessing the product-waste interface (i.e. reparability, durability, and recyclability), and the environmental footprint of products and organisations. Develop and deploy a set of indicators for the sustainability assessment of buildings. Assess environmental and industrial policies, coupled with economic assessments, e.g. real cost assessment, to make this approach more attractive to European companies.

b) **environmental knowledge, information and indicators** — develop environmental indicators and lifecycle based methods for the roadmap to a resource-efficient Europe and for incorporating environmental considerations into other policies, e.g. via the better regulation toolbox. As a better way to generate, plan and share environmental knowledge, contribute to the environmental knowledge community, including through its knowledge innovation projects. Improve spatial data management at the Commission, building on the experience in implementing INSPIRE (the infrastructure for spatial information in Europe). Develop innovative tools and products for spatial data harvesting and management as contribution to the follow up on the environmental reporting fitness check.

### **1.3.3. 1.3.3 Protection from environment-related risks to human health and wellbeing**

a) **chemicals and nanomaterials** — help to design and implement legislation on chemicals, including for nanomaterials, and support policy development in cross-cutting areas. Set up a toxicology knowledge base and further develop and maintain the Information Platform for Chemical Monitoring IPChem, especially to support the European Human Biomonitoring Initiative HBM4EU. Support mutual acceptance of chemicals and nanomaterial data at international level (e.g. OECD); develop and promote alternatives to animal testing; develop methodologies, standards, reference materials and representative test materials for nanomaterials, including the nanomaterials repository (see also key orientation 4.1);

b) **air quality, pollutant emissions and industrial accident prevention** — monitor and model ambient air quality and emissions (for the reduction of transport specific emissions, see key orientations 3.1.1 and 4.1.a); carry out integrated impact assessments of air quality and climate policies and provide tools to make it easier to manage air quality at national, regional and local level; support the implementation of EU air quality policies through harmonisation and standardisation programmes, providing training to Member States, and by improving and validating innovative methods; support the implementation of the Industrial Emissions Directive by determining best available techniques for reducing industrial emissions to air, water and soil; develop information systems on, and carry out analyses of, industrial accidents.

## **1.4. Maritime affairs, fisheries and aquaculture**

a) **Implementation of the common fisheries policy** — develop and apply biological, economic, social, spatial and genetic/genomic approaches to sustainable and competitive aquaculture and fisheries, in the EU and worldwide;

b) **maritime security** — improve EU maritime surveillance systems, enhance their interoperability and provide support to implement selected actions under the EU maritime security strategy (work on security is covered under key orientations in Section 7.2).

## **1.5. Health and food safety**

### **1.5.1. Health**

a) **healthcare, health information, and promotion of a healthier society** – in the field of standardisation, harmonisation, and improvement of healthcare and health information in the EU, the initial focus is on cancer and rare diseases. This includes the coordination/development of European disease registries, the launch of an innovative and comprehensive quality assured healthcare pathway (starting with breast cancer, followed by colorectal cancer), monitoring cross-border health threats, and reference systems including certified reference materials for health measurements. As for the promotion of a healthier society, the focus is on physical activity, nutrition, alcohol and tobacco, all in the framework of non-communicable disease prevention. This includes support in fighting obesity, both childhood and adult, in line with the Tartu call for healthy life style. Promotion of a healthier society will further be supported through an action to help member states to reach the sustainable development goals on health, by selecting and evaluating interventions for implementation in member states; in particular through the management of the best practice portal (submission, evaluation and dissemination of best practices)

b) **supporting nano-related policies, health technology assessment** – monitor chemical data and implement endocrine disruptors criteria; disseminate novel toxicity approaches;

### **1.5.2. Food safety, food quality and food fraud**

a) **food and feed safety** – manage three EU reference laboratories, which includes developing harmonised/validated methods, organising laboratory proficiency tests and providing new analytical tools for food and feed safety control and the pre marketing authorisation of genetically modified organisms and feed additives;

b) **food and feed quality and fraud** – manage a Knowledge Centre on Food Fraud and Quality (see also key orientation 7.1.b); assist in the fight against food fraud; produce certified reference materials for food and feed analysis; develop a harmonised testing approach to assess alleged differences in quality of food products;

c) **plant health** – protect plant health through early detection and plant health monitoring initiatives; support the establishment of a priority list of plant pests in the Union.

## **1.6. Regional policy**

A **Knowledge Centre for Territorial Policies** was set up in 2016. The following activities all contribute to its objectives:

a) **territorial modelling for impact assessment of policies and investments** – develop a capacity to do integrated modelling to better assess the impact of investments and policies in regions, cities and macro-regions, including demographic trends, and climate change impacts;

b) **economic, social and environmental cohesion and development** – develop indices and quantitative analyses at urban, regional and macro-regional levels;

c) **support for macro-regional and smart specialisation strategies** – develop integrated processes and qualitative methods to support the development, implementation and monitoring of smart specialisation strategies and capacity building at national, regional, urban and macro-regional levels.

## 1.7. Research, science and innovation

a) **research and innovation policies** — model, monitor and analyse the drivers of and barriers to research and innovation, including the effectiveness of policy instruments related to research and innovation at EU, national, regional and (cross)-sectoral levels. Manage the Research and Innovation Observatory through the collection, production and dissemination of data and analysis related to national research and innovation policies. Develop indicators, scoreboards, information systems and web platforms for monitoring and analysing the implementation of EU research and innovation policies. Provide support through foresight and horizon scanning to identify research and innovation priorities. Promote the exchange of best practices among research organisations on intellectual property management and technology transfer including on new financial instruments, ecosystems designs and opening of research infrastructure;

b) **fuel cells and hydrogen technologies** — support the Fuel Cells and Hydrogen Joint Undertaking by monitoring and assessing the technologies and multi-annual programme. This JRC work is closely linked with work-streams described in Sections 1.8 (transport — namely, on alternative fuels) and 3.2 (energy);

c) **low-carbon energy observatory** — provide data, analysis and assessment of the state of the art of different energy technologies, their industrial development, market barriers and global competition; estimate the potential contribution of the technologies in the future energy mix; carry out an inventory of scientific developments and new and emerging technologies. The relevant JRC work is closely interconnected with work described in Section 3.2 (energy);

d) **bioeconomy** — manage a Knowledge Centre for Bioeconomy, collecting, analysing, disseminating and modelling data on the bioeconomy and assessing food and nutrition security. Provide data and analysis on sustainable biomass supply and demand at EU level and worldwide, covering all types and uses of biomass, to provide a basis for coherent policies on the bioeconomy, including relevant agriculture, food, environment, climate, energy and industry policies. Contribute to the Revision of the Bioeconomy Strategy in 2018 inter alia taking the point of view of the Industrial Policy. JRC work on the bioeconomy will be closely interconnected with work described in Sections 1.1 (agriculture and rural development), 1.3 (environment), 1.5 (health and food safety), 3.1 (climate action) and 3.2 (energy) and 4.1 (industrial base).

## 1.8. Transport

a) **transport innovation** — support the strategic transport innovation agenda and develop the transport innovation and monitoring information system (TRIMIS);

b) **alternative fuels** — carry out pre-normative testing and help to develop standards for implementing the alternative fuels infrastructure under the Alternative Fuels Infrastructures Directive; support the follow-up of the action plan for alternative fuels infrastructure with the broadest use of alternative fuels and related provisions in Directive 2014/94/EU on the deployment of alternative fuels infrastructure; perform modelling of electromobility including the best placement for charging infrastructure and support for electromobility standardisation through pre-normative research;

c) **transport policy analysis** and tools for citizen's awareness and education — perform socioeconomic analyses of the transport sector, using transport models, quantitative methodologies, data, scenarios and technology watch; develop congestion indicators; and contribute to harmonisation of transport data with spatial and environmental information;

d) **intelligent transport systems and electronic tools** — provide technical support to implement the 'smart tachograph', in particular to prepare new technical specifications;

support the development of cooperative intelligent transport systems and connected and automated vehicles; develop electronic tools in support of quality inland water transport across Europe;

e) **safety and security** — develop tools and databases on EU-wide multimodal accidents and incidents (including a specific database for alternative fuels incidents), and data visualisation and exploration tools for transport safety analysis, including for aviation safety; and carry out performance testing and analysis of aviation security technologies.

### **1.9. Employment, social affairs, skills and labour mobility**

a) **monitoring and evaluation of employment and social policy** — provide high quality monitoring, benchmarking, impact assessment and evaluation support for employment and social policy related measures, notably through three competence centres referred to in Section 10.1;

b) **European pillar of social rights** — help to establish the core principles of the pillar by analysing what makes a society fair;

c) **future of skills and work** — analyse how skills are distributed and evolve and their links with employment potential, the changing nature of work and welfare systems, and new forms of employment, social innovation and the collaborative economy (see also key orientation 4.2.a).

## **2. A connected digital single market**

The JRC will continue to support the digital single market initiatives. It will provide qualitative and quantitative socioeconomic research on the digital economy, digital living and digital society, analysing the various parts of the digital value-chain (i.e. underpinning technologies, innovation and entrepreneurship, economics of the digital single market). It will assess the economics of online platforms and online multi-sided markets in support of the new initiative on **fairness in platform-to-business relations**. It will further explore the impact of the digital transformation and artificial intelligence on societies, ethics, economies, governance and public policies.

The JRC will support the implementation of the **cybersecurity package**. It will identify and analyse security, intellectual property, and privacy issues on the new and emerging technologies that are driving the digital single market (such as the increasing number of connected objects and the internet of things, artificial intelligence, digital identities and distributed ledgers technologies).

It will further supply technical and scientific services to promote a more efficient use of the radio spectrum, validate proposals on spectrum sharing for mobile broadband and promote large-scale digitisation through vertical integration of 5G technologies.

The JRC will develop tools to assess the performance of emerging technologies in urban environments (such as smart sensor technology and unmanned systems). It will support the implementation of interoperability solutions and the use of ICT infrastructures to maximise the use of (big) data from multiple sources. This includes assessing the possibilities that public and publicly funded data offer to innovation and science

In this framework, the JRC is looking at cross-cutting issues such as interoperability, standardisation, security and privacy to take advantage of smart energy in cross-vertical application areas such as mobility, building automation, smart living and smart cities. In doing this, it is seeking to support the use of interoperable solutions in real-life.



## 2.1. Digital economy and society

a) **impact of digital technology and transformation on society** — assess the impact of digital technology, of collaborative and platform economy, and related economic models on growth, jobs and consumer welfare in the EU; measure the economic impact of policy initiatives in the European Data Economy, notably Free Flow of Data; investigate digitally-enabled innovation and entrepreneurship; analyse the uptake of artificial intelligence and the deployment of digital transformations in human societies and their impact on governance, public services, and human-machine interactions;

b) **modern telecommunications** — develop IT tools and methodologies to analyse the radio spectrum inventory and support spectrum management; perform technical tests and analyses of the integration of 5G technologies and 5G vertical markets; investigate the potential of quantum cryptographic keys for 5G and satellite telecommunications; study the impact of quantum technologies on wireless protocols like 5G; support to the Roam-Like-At-Home initiative;

c) **cybersecurity, privacy and trust** — help to build EU resilience to cyber-attacks; provide technical support for the deployment of the EU cybersecurity strategy including on-field research of issues related to the cybersecurity of hyperconnected systems; help to create an adequate security and trust framework for the internet of things (IoT) by supporting the establishment of standards and trust assessment of IoT systems; analyse communication protocols, data protection and privacy issues of the new telecommunication paradigms and online services; support to the certification of security related IT systems and their components such as cloud computing; assess the vulnerability and standardisation of crypto-currencies and distributed ledgers; develop data analysis tools and techniques for dimensioning the connectivity of urban-wide sensor networks;

d) **interoperability of e-infrastructures** — provide technical support for the interoperability of e-infrastructures (helping to modernise the digital public services) and open access (supporting open science); use the convergence of big data with online tools (supporting citizen science) and assess the interoperability of energy services (in support of digitisation of the energy system); analyse the impact of interoperability and standardisation on intellectual property rights.

## 3. A resilient Energy Union with a forward-looking climate change policy

See General Objective 3 in the body of the document for an overview.

### 3.1. Climate action

#### 3.1.1. Mitigation

a) **economic and climate modelling/assessments** — design and implement domestic and international climate policies and strategies to keep global warming well below 2 °C; maintain and further develop integrated set of models that cover relevant sectors and greenhouse gases in the EU and other relevant world regions for applications such as (i) socio-economic analysis of scenarios consistent with climate policy goals; (ii) development of in-house energy models; (iii) assessment of contributions of related sectors; (iv) analysis of GHG emissions trends and drivers and emissions projections of non-ETS sectors per Member States;

b) **GHG and air pollutants emissions modelling** — monitor, report and verify energy-related, agricultural and forestry (Land Use, Land-Use Change and Forestry, LULUCF) emissions to meet legal obligations at EU and international level; model and analyse how to integrate the assessment of these emissions into EU and international legislation;

assess GHG emissions and mitigation options in agriculture; compile global emissions inventories which include short lived climate pollutants (black carbon and methane);

c) **vehicle emissions** — provide technical support to the 2018 mobility packages for implementing and developing policy measures to decarbonise the transport sector; specifically, support the further development of the CO<sub>2</sub> certification procedures for light and heavy-duty vehicles, including effective market surveillance mechanisms such as in-service conformity testing; analyse real world fuel consumption and CO<sub>2</sub> emissions of light- and heavy-duty road vehicles; support the development of advanced consumer information systems in relation to CO<sub>2</sub> and fuel consumption (also exploring feasibility to include air pollutant emissions); assess eco-innovation CO<sub>2</sub> savings and derogations for small-volume manufacturers of cars and vans and assess innovation scenarios for smart mobility technology;

d) **alternative fuels for transport** — assess the environmental sustainability, technological development and costs of bioenergy and biofuels and associated savings on GHG and pollutant emissions, including 'well-to-wheel' analyses and support for alternative fuels legislation; support the Commission's work on alternative fuels for aviation;

e) **support the operations of climate innovation funds** — support the operation of the knowledge-sharing facility of the NER 300 funding programme and the management of NER 300-related communication activities and help to design and implement its successor, the Innovation Fund.

### **3.1.2. Adaptation**

a) to support the review and update of the EU adaptation strategy and to meet the objectives of the Sendai framework for disaster risk reduction<sup>4</sup> and the sustainable development goals, **assess the economic and non-economic impact of climate change, vulnerability, resilience, and options for adapting** in the EU and globally. In collaboration with the knowledge centres on disaster risk management, on migration and demography, and on territorial policies, **assess the impact of weather extremes, study the links between climate change and displacement/migration, and urban resilience** (including support for the adaptation activities under the Covenant of Mayors for Climate and Energy<sup>5</sup>, further covered under key orientation 3.2.d).

### **3.1.3. Climate science, research and observations**

a) advance our understanding of how climate change interacts with other parts of the Earth's system; in particular the vulnerability of the Arctic region to climate change and translate the findings into specific strategies for mitigation, adaptation and sustainable developments.

## **3.2. Energy**

a) **energy-climate-economy modelling and the Energy Union governance** — develop, validate, and run models for a climate-energy-economy system (including POTEnCIA model), including the development and maintenance of necessary databases

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<sup>4</sup> The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) is the first major agreement of the post-2015 development agenda, with seven targets and four priorities for action. It was endorsed by the UN General Assembly following the 2015 Third UN World Conference on Disaster Risk Reduction (WCDRR).

<sup>5</sup> The Covenant of Mayors for Climate and Energy brings together local and regional authorities voluntarily committing to implementing the EU's climate and energy objectives on their territory.

or other available energy models for the Commission; carry out relevant techno-economic analysis, in particular mapping the latest evidence on techno-economic costs for energy supply, demand and storage technologies; provide support for impact assessments and carry out energy modelling at national, regional and European level and analyse the results meeting reliability, credibility and transparency criteria; including as far as possible quantification of the impact of the policies and measures on air quality and on emissions of air pollutants; develop the capacity to contribute to the design of future energy-climate reference scenarios by ensuring the adequate representation of national and European policies and make available to European stakeholders the tools to use or develop energy system modelling; timely support to the Commission by using analytic tools (modelling and/or other type of quantitative analysis), in its assessment of the national integrated energy and climate plans, required from the Member States in the Commission's proposal for a governance of the Energy Union;

b) **energy security** — carry out security assessments of the EU energy supply system, and safety, risk and techno-economic analyses for certain energy sources, taking into account the resilience of the supply system to the adverse impacts of climate change. This work covers security of supply, transmission and distribution of gas and of electricity, as well as the safety of offshore oil and gas operations, including tools for accident reporting and capacity building measures. Analyse privacy and cybersecurity in the energy sector;

c) **internal energy market** — assess the development of energy infrastructure and energy markets in the EU, including design of the retail market, new deal for energy consumers and protection of vulnerable consumers, short-medium and long-term storage of renewable energy, integration of LNG and gas storage, super power grids, smart power grids (including interoperability and smart-metering), flexibility requirements and gas networks, and the new market design initiative; support measures for digitisation of energy markets; develop methodologies for the economic valuation of energy security in the evaluation of energy infrastructure projects, including projects of common interest; assess the value and role of energy storage, also in what concerns sector coupling;

d) **energy efficiency and local climate and energy action** — support the implementation of EU energy efficiency legislation, including on energy performance of buildings and on efficient heating & cooling; provide technical support for the development of the legislative framework for after 2020; analyse the development and deployment of energy efficiency technologies; assess technology innovation in energy-intensive industries; support the Covenant of Mayors for Climate and Energy in the EU and beyond, including by assessing plans on energy efficiency, renewables, emissions reduction, climate adaptation and access to energy, as well as assessing and reporting on the results and (potential) impact of the initiative with a view to contributing to policy orientation; perform modelling and cost-benefit analyses; develop and maintain the European Energy Efficiency Platform (E3P);

e) **low-carbon energy technologies** — analyse deployment trends of renewables and their impact on climate change mitigation and on other policies such as air pollution; carry out techno-economic assessments of renewable energy technologies and their cost-effective deployment, including by using geo-spatial tools and by analysing relevant renewable energy scenarios and supporting the implementation of the revised directive; perform pre-standardisation work on photovoltaic and other renewable energy technologies;

f) **energy research, innovation & competitiveness** — help to implement the research and innovation and competitiveness (RIC) dimension of the Energy Union by managing relevant knowledge and available scientific data; support the integrated strategic energy technology SET plan through a strengthened information system and the accelerating clean energy innovation strategy. Develop indicators that monitor the progress of energy

technology innovation as an input to the annual State of the Energy Union report. Support the development of indicators and intelligence through relevant techno-economic analysis.

### 3.3. Safe and secure use of nuclear energy

a) enhancement of **safety of nuclear reactors and nuclear fuels**:

- **collect, analyse and assess the operational experience of nuclear power plants** worldwide, and disseminate information to the Member States' regulatory authorities;
- perform research on structural materials for analysis and modelling of **ageing of components and structures** to improve residual lifetime assessment techniques;
- improve the **safety assessments of innovative reactor designs** in synergy with the Generation IV International Forum (GIF);
- generate **reference samples and scientific data** on the safety performance and **develop codes and models for safety assessment** of both conventional and innovative nuclear fuels in operational, transient and accident conditions;
- carry out studies to support the development of **European small modular reactors**, including identification, technical assessment and key areas for development (safety, economics and licensing) of European small modular reactor concepts;
- support the **EU's internal policy on nuclear safety** by providing technical and scientific assistance for the implementation of the related EU directives and related EU policy.

b) enhancement of **safety of spent fuel, radioactive waste management and nuclear decommissioning**:

- develop techniques for **spent fuel and radioactive waste characterisation** and study the physicochemical mechanisms relating to the long-term storage of spent fuel and disposal of radioactive waste;
- carry out studies for the reduction of the radiological toxicity of wastes through advanced separation and transmutation and for the **safety assessment of recycling technologies**; determine scientific data and prepare reference samples of spent fuel;
- develop and assess innovative technologies and techniques applied to **nuclear decommissioning**; exchange and disseminate knowledge developed, findings and information.

c) improvement of **nuclear emergency preparedness and response (EP&R), environmental monitoring, radiation protection and radioecology**:

- support Member States and Commission departments on the exchange of information in case of radiation emergency and on routine and emergency **radiological monitoring of radioactivity levels in the environment**. This includes hosting, maintaining and developing the related rapid alert, information exchange and database systems, ensuring their availability;
- develop severe accident modelling, radiological source term evaluation, accident management of nuclear power plants and enhance **preparedness for nuclear or radiological incidents** through benchmarking of dispersion models;

- support Commission departments by assessments of radiation and radioactive contamination measurement methods.

d) assurance and improvement of **nuclear safeguards**

- pursue the technical and scientific development of **safeguard tools and technologies, destructive and non-destructive methods** and techniques (verification and IT systems, analytical services, training, special equipment, etc.) and **standards and reference materials** to support the Euratom safeguards system;
- operate the **safeguards on-site laboratories** and provide in-field operative support for Euratom inspections;
- develop and test **containment and surveillance approaches** for the nuclear fuel cycle process, from enrichment facilities to geological final disposal.

e) **promote excellence in the nuclear science base for standardisation:**

- develop an understanding of the **fundamental properties and behaviour** of innovative nuclear and structural materials for safety assessment and model validation;
- provide support for the **standardisation and harmonisation of nuclear safety assessment and radiation measurements** in the EU and support collaboration with key partner countries and international organisations (IAEA, OECD-NEA) in the field.

f) development of **knowledge management, training and education:**

- monitor EU trends in **human resources in the nuclear energy** field and facilitate their mobility throughout the EU;
- develop tools for **knowledge management** and transparency and the dissemination of information;
- preserve, aggregate and **disseminate specific scientific and technical knowledge** on radiation and nuclear safety, safeguards and security by providing operational support and training (including training of Commission staff) and by increasing **access to the JRC nuclear laboratories** for researchers from Member States and international organisations.

g) development of **nuclear science applications and use of radioisotopes:**

- develop techniques for medical radiotherapy and radio-diagnosis;
- contribute to a resilient and sustainable **supply of medical radioisotopes in the EU;**
- develop industrial and **space applications** of nuclear science.

#### **4. A deeper and fairer internal market with a strengthened industrial base**

See General Objective 4 in the body of the document for an overview.

##### **4.1. Internal market, industry, entrepreneurship and SMEs**

- a) **strengthening the industrial base in the EU single market** — provide support to industrial policy development, notably to support standardisation, reference measurements and materials (including nanomaterials); support the proper functioning

of the single market for food products (key orientation 7.1.b); contribute to material efficiency and circular economy; analyse advanced manufacturing and key enabling technologies; SMEs and innovative companies, industrial competitiveness; analyse industrial sectors (e.g. steel and process industries) to improve their environmental efficiency, energy performance, resilience to climate change, and achieve reductions in GHG and other pollutant emissions; provide data and analyses on bio-based industries, as part of the Bioeconomy knowledge centre (key orientation 1.7); further develop and improve vehicle emission test procedures for testing in the laboratory and on the road; support the monitoring of the European vehicle market and its compliance with European regulations on emissions; support European and international regulation and standardisation efforts through performance and safety evaluation of energy storage devices, including batteries for electromobility;

b) **space strategy** — provide support for Galileo and the European global navigation satellite systems, including signal, receivers and technical support for policy development and the management of R&D assets and resulting intellectual property rights; provide technical support for applications, implementation and further development of services, including Galileo Public Regulated Service and security, spatial information analysis and data dissemination tools for Copernicus and EU contributions to civil and international space dialogues. Services and products of the Copernicus programme also contribute to common agriculture policy implementation (key orientation 1.1.a), marine environment monitoring (key orientation 1.3.1a), atmosphere monitoring (key orientation 1.3.3.b), the monitoring of greenhouse gas emissions (key orientation 3.1.1.b) and other climate change-related information and climate services (key orientation 3.1.3.a), indices and quantitative analyses of economic, social and environmental cohesion and development (key orientation 1.6.b), maritime security (key orientation 1.4.b), the fight against illegal immigration and trafficking in human beings (key orientation 8.1.a), disaster resilience, emergency and crisis management (key orientation 9.1.1.a) and international cooperation and development (key orientations 9.2.2.a and 9.2.3.b).

c) **medical devices and cosmetics** — provide scientific and technical support in regard to the revised medical devices and in vitro diagnostic medical devices regulatory framework; provide technical support to the cosmetics regulatory framework which includes promoting alternative methodologies to animal testing.

d) **raw materials** — help to implement actions and EU policies and monitor the progress of the implementation plan for the European innovation partnership on raw materials. Monitor and analyse primary and secondary raw materials at European and global levels, contributing to the raw materials scoreboard and circular economy indicators. Support the management of the EU knowledge base on raw materials by developing the raw materials information system in collaboration with European and global stakeholders and partners. Develop methodologies and provide data for assessing the raw material flows in the economy and the trade flows for raw materials. Contribute to the criticality assessment for raw materials and to the analyses of the security of raw materials supply, addressing in particular energy applications such as dual-use. Assess the potential to substitute and recycle materials and components as important mitigation measures to increase resource efficiency and increase EU resilience.

e) **EU defence research** — support the future EU defence research programme through relevant security and dual-use research activities.

#### **4.2. Customs risk management policy and the fight against fraud**

a) **customs risk management and the fight against fraud** — carry out research and analysis, and develop and test new technologies, prototype applications as well as data infrastructure and systems to help manage safety, security, financial and other customs risks connected with the cross-border movement of goods, combat fraud and other types

of criminal activity, e.g. enhance customs risks analysis and anti-fraud investigation by using trade data on the status and movement of cargo containers and customs declarations in cooperation with Commission departments and the customs authorities, support the fight against evasion of customs duties and quotas and against trafficked, smuggled or counterfeited goods, and analyse unknown substances; standardise analytical data and create libraries of analytical data for illicit substances, support an increased use of handheld equipment by customs officers on the field; provide reference systems and certified reference materials.

## **5. A deeper and fairer Economic and Monetary Union**

For the European Semester, the JRC supports the coordination of economic policies by helping to monitor Member States' economies and fiscal policies. This involves developing models and tools to assess the resilience and fairness of these policies.

The JRC also contributes to the integration of capital markets and the **completion of the Banking Union**. On capital markets, the JRC will identify the bottlenecks and possible medium to long-term impact of a **Capital Markets Union** and how it effects financial integration and risk-sharing in Europe. In line with the Capital Markets Union mid-term review, the JRC will contribute to policies supporting alternative financing sources for firms. Following the Commission's call for evidence on post-crisis reforms, the JRC will provide analysis on existing and upcoming financial regulation including banking rules and the European Deposit Insurance Scheme. It will also monitor financial stability, detect emerging risks, and identify changes in market dynamics.

In support of the Commission's taxation agenda, JRC will extend its modelling capacities around EU corporate tax reforms. It will also develop tools to capture the tax implications of the digital economy in support of the initiative on **fair taxation in the digital economy**.

### **5.1. Economic and Monetary Union**

a) Model and carry out socioeconomic analyses to improve **macroeconomic, budgetary, structural, and financial** developments and policies in the EU.

### **5.2. Financial stability, financial services and Capital Markets Union**

a) carry out quantitative analyses and behavioural studies for the development of the **Capital Markets Union** and completion of the **Banking Union**;

b) assess initiatives related to the **regulation of the financial sector** and to new dynamics and risks, notably sustainability issues; maintain and further develop a data infrastructure for analyses of the EU financial sector. The assessment of initiatives includes support with the development of impact assessments in terms of quantification and modelling.

### **5.3. Taxation**

a) **corporate taxation** — perform modelling to support the action plan for fair and efficient corporate taxation in the EU and the Communication on a tax system in the digital single market; carry out analyses of the effects of corporate taxes and in particular develop modelling tools for assessing the impact of anti avoidance rules, the harmonisation of specific rules, changes in tax treaties and future EU policy initiatives;

b) **fiscal policies** — perform modelling and economic analyses of tax policies using the EUROMOD<sup>6</sup> microsimulation model.

## **6. A balanced and progressive trade policy to harness globalisation**

### **6.1. Trade policy**

a) provide support (methodological, modelling, and analytical) for **impact assessments of free trade agreements** and the socioeconomic and environmental implications of external trade especially on agri-food markets and raw materials (see Sections 1.1. and 4.1); help to analyse foreign direct investment (FDI) flows into the EU.

## **7. An area of justice and fundamental rights based on mutual trust**

The JRC contributes to the two main strands of work of **the European agenda on security**. Under the strand 'counter-terrorism initiatives and the fight against organised crime', the JRC helps to develop new capacities for assessing and countering hybrid threats, develop operational systems for securing borders, find innovative tools to fight cybercrime, online child sexual abuse and cyber-enabled crime, including providing for digital forensic solutions to decrypt encrypted files, improve biometric automatic processes, and perform targeted communication interception.

Under the strand 'strengthening resilience', the JRC works on disaster risk management with a dedicated knowledge centre, the protection of critical infrastructure and soft targets such as public spaces, early warning and information systems to detect natural disasters, health emergencies, humanitarian crises and conflicts, and nuclear safety and security.

The JRC has developed a number of global tools used by the EU and internationally, such as the index for risk management and the global conflict risk index. The latter serves as the starting point in the EU's conflict early warning system (EWS) to identify countries at high risk of conflict and countries for which the risk is worsening significantly. This will support the **EU Civil Protection Mechanism**.

The JRC's work also supports the efforts of several Commission departments to strengthen the security dimensions of their policies (e.g. maritime and aviation, energy, research and innovation, customs, space, etc.), and the JRC supports the future EU defence research programme through relevant security and dual-use research activities.

### **7.1. Justice, consumers and gender equality**

a) **consumer markets** — analyse statistical indicators and methodologies to monitor consumer behaviour and market performance; develop data collection systems and their interoperability for product safety and market surveillance; apply behavioural insights;

b) **dual quality of food products** — develop a robust harmonised testing approach and guidelines that could be used in potential further investigations including a harmonised sampling and testing approach and data evaluation; supervise a comparative exercise involving several Member States to check whether certain quality-relevant characteristics of food products that are sold in the single market under the same brand and same packaging are indeed different.

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<sup>6</sup> EUROMOD - Tax-benefit microsimulation model for the European Union



## 7.2. Home affairs and security

a) **critical infrastructure and soft target protection** — help to strengthen critical infrastructure and protect soft targets such as buildings, urban centres and public spaces; contribute to standardisation activities leading to security; understand and model vulnerabilities and interdependencies, including through: synthesis and sharing of knowledge, exchange of good practice, exercises and networks for critical infrastructure operators, and training and awareness programmes for national authorities and operators of critical infrastructures;

b) **CBRN-E** — help to implement action plans on chemical, biological, radiological, nuclear and explosive materials (CBRN-E) and implement Regulation EU 98/2013 on explosives precursors. This support includes scientific support and research. Support the standardisation process for CBRN-E related detectors and other equipment. Exchange good practice among users and manufacturers of CBRN-E detectors and related equipment. Develop a single market for security products and certifications of security-related systems and their components such as industrial control systems;

c) **hybrid threats and resilience** — support community resilience against all threats; understand and develop methodologies to counter emerging threats, such as hybrid threats and insider threats; understand how new technologies such as social media, mobile apps and virtual reality can be used to improve citizens' security and the security perception; provide support in the development of open sources policies and strategies (e.g. Europe Media Monitor);

d) **law enforcement** — provide technical support, intelligence techniques and research to improve operational cross-border cooperation and assist the European Police Office (EUROPOL) and Member State authorities in law enforcement in areas such as cybercrime and child sexual exploitation, digital forensics, the collection of digital evidence from smart environments, open source intelligence, and new psychoactive substances, including support for early warning and risk analysis;

e) **border protection and document security**- increase security of external borders (e.g. help to design and implement the EU entry-exit system, contribute to the protection of external borders and the effective processing of Schengen visas); strengthen the capacity of FRONTEX to carry out border controls, risk analysis and joint operations at external borders; provide technical support and research to strengthen large EU information systems, including for the free movement of EU citizens (e.g. interoperability, new biometric arrangements, resident permits, digital identity management, smart card security, etc.); and close information gaps;

f) increase the **security and defence dimension of other EU policies** (e.g. maritime (key orientation 1.4.c), aviation (key orientation 1.8.e), energy (key orientation 3.2.b), research, etc.).

JRC work on disaster resilience, emergency and crisis management, including its internal dimension, is summarised in the section 9.1.1.

## 8. Towards a new policy on migration

The Commission's European agenda on migration outlined an immediate response to the refugee crisis and set out a longer-term approach to managing migration. This included implementing of the hotspot approach, relocating asylum-seekers, reforming of the common European asylum system, reinforcing external borders, a new policy on legal migration, more coordinated return policies and reinforcing partnerships with countries of origin and transit.

To help implement the **EU Agenda on Migration**, the JRC has strengthened the analytical capacities of its Knowledge Centre on Migration and Demography which provides policy-relevant knowledge and evidence-based analysis to support EU policy making. It will focus on migration monitoring and early warning, analysis of root causes (including land degradation aspects) and impacts of migration.

## **8.1. Migration**

- a) support the partnership framework and the new global compacts and improve the effectiveness of migration-related EU actions and resources;
- b) facilitate the protection of children in migration by improving data and methods for biometric registration and assessment of their age;
- c) support EU policies addressing push and pull factors of migration and other population displacements;
- d) analyse the impact of admission and integration policies; examine factors enabling integration; measure the impact of migration on economic growth, the labour market, employment, wages, health, welfare, education, research, wellbeing, and demographics and explore the local dimension of integration (e.g. cities where most of the integration issues arise); and assess likely scenarios for demographic changes in Europe;
- e) support early warning, risk analysis and projection for greater situational awareness of migration flows;
- f) operate the **Knowledge Centre for Migration and Demography**, provide policy-oriented research, evidence-based analyses and observatories, increase the uptake of research, and strengthen partnerships and outreach.

The JRC will ensure complementarity and synergies with its work on migration and the other significant programme of work on this under Horizon 2020 work programme 2018-20.

## **9. A stronger global actor**

See General Objective 9 in the body of the document for an overview.

### **9.1. Global safety and security**

#### **9.1.1. *Fight against security and safety threats, crisis management and disaster resilience***

- a) **disaster resilience, emergency and crisis management** — provide scientific and analytical services, develop tools and build capacity to support the entire disaster risk management cycle (disaster prevention, preparedness, response and recovery), including via a dedicated Knowledge centre for disaster risk management, and the damage assessment of natural disasters in the context of application for Solidarity Fund assistance, and provide assistance for risk vulnerability and crisis assessment to improve the knowledge base for humanitarian emergencies and disasters in accordance with the Sendai framework and the 2030 agenda (SDGs);
- b) **resilient societies** — apply the resilience knowledge and tools to understand the level of resilience of European societies. Help to develop new measures to make societies more resilient to external long-term crisis and conflicts. Support defence operations to improve resilience in Europe and beyond;

c) **fight global, trans-regional and emerging threats** — support activities contributing to stability and peace (including analysis, the provision of methods and tools, capacity building and collaborating with international partners to monitor precious raw materials), ensure maritime security and counteract global and trans-regional threats, including climate change; develop early warning systems and capacity building activities.

### **9.1.2. Global nuclear safety and security**

a) provide technical assistance and scientific **support to EU partner countries and international institutions** to help implement the Instrument for Nuclear Safety Cooperation, the Commission support programme to the IAEA and the Instrument contributing to Stability and Peace, and participate in related international working groups;

b) develop methods, technologies and standards to **detect nuclear and radioactive materials outside regulatory control** and to fight the illicit trafficking of such materials;

c) provide technical and statistical support to the modernisation of EU dual-use export control policy, and the development of an EU export control network; analyse open source information a contribution to the **EU nuclear non-proliferation**; provide training and operational support for Member States and international organisations;

d) help Member States, partner countries and international institutions (IAEA, etc.) to increase **technical knowledge of nuclear security** using the European Nuclear Security Training Centre.

e) contribute to safeguards, proliferation resistance, and the physical protection of **innovative designs of nuclear reactors in collaboration with the GIF**.

## **9.2. International cooperation and development**

### **9.2.1. 2030 agenda on sustainable development**

a) under the new European consensus on development, help to monitor and implement the SDGs by developing and integrating knowledge management tools and organising information on related policies, indicators, methods, and data. In doing this, make it easier to incorporate the social, economic, and environmental information needed to achieve the SDG targets, identifying interlinkages (trade-offs and co-benefits) and taking into account international monitoring frameworks and indicators and national monitoring efforts, and collaborate with relevant international Earth monitoring and observation programmes.

### **9.2.2. Food security and nutrition, rural development and sustainable agriculture<sup>7</sup>**

a) monitor agricultural resources, analyse situations of food and nutrition insecurity (including food poverty) through a food system approach; provide support with economic and biophysical modelling and information systems to help build communities that are more resilient, especially to the impacts of climate change. Provide an advanced knowledge base to help achieve zero hunger in 2030; forecast crop yields and production

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<sup>7</sup> This key orientation focuses specifically on JRC projects contributing to development policies on food and nutrition security, rural development and sustainable agriculture'. The orientation is intrinsically linked to 'agriculture and rural development' policy.

to support global food security (European food security is covered under key orientation 1.1.c).

### **9.2.3. *Climate change, environment, natural resources, and water***

a) carry out analysis, help build capacity, and provide data, maps and methodologies on the extent of and vulnerability to climate change in developing countries; inform the preparation and implementation of programmes aimed at climate change adaptation and actions under the global Covenant of Mayors for Climate and Energy, building on the experiences with the EU Covenant of Mayors;

b) monitor, provide scientific advice, develop ICT tools, disseminate information and build capacity for partners in third countries to support multilateral or bilateral agreements on natural capital and sustainable management of natural resources, with a focus on forestry, land, and land use change, soil, biodiversity, ecosystem services, agriculture, air and water, where appropriate in cooperation with relevant international organisations and conventions, including the FAO, the UN environment programme, the UN Economic Commission for Europe, UNCCD, IPBES and the International Resource Panel.

### **9.2.4. *Energy***

a) map out and monitor activities, develop geographical information system tools, support sustainable energy planning and the implementation of the Covenant of Mayors, share best practice and build capacity in support of international, bilateral, and regional energy cooperation initiatives, including on energy efficiency and renewable energy.

### **9.2.5. *Horizontal policies: aid effectiveness, transparency and policy coherence***

a) develop methodologies, indicators and ICT tools, and carry out macro and microeconomic analyses of development issues in support of the agenda for change, policy coherence for development and aid effectiveness; focus on measuring the impact of EU aid.

## **10. A Union of democratic change**

The JRC will contribute to building an EU based on transparency and dialogue between the Commission and its major stakeholders.

### **10.1. Methodological support for better regulation**

a) **Competence Centre on Modelling** — contribute to high quality impact assessments of policy proposals and policy options, and promote a responsible use of modelling at EU and Member State level;

b) **Competence Centre on Microeconomic Evaluation** — provide technical advice, methodological support, specialised training and exchange on counter-factual impact evaluations;

c) **Competence Centre on Composite Indicators and Scoreboards** — help to develop monitoring and benchmarking tools.

### **10.2. Support for innovative policy-making**

a) **support innovation in EU policy-making** by developing generic tools and processes, taking into account anticipation, behavioural insights, design for policy, citizens' engagement, media monitoring, data and text mining.

## **11. A stronger knowledge management capacity**

### **11.1. Tools and skills for knowledge management**

a) **translation of knowledge into policy** — develop knowledge management methods, concepts and skills to translate data, information and knowledge into better EU policies, including through training and the collecting and sharing of country, regional and local knowledge;

b) **knowledge management methods and tools** — develop common platforms for the use and sharing of data, information, and knowledge in support of policy making; contribute to ensuring existing and new platforms and information systems interoperability; provide access to knowledge sources and maximise the use of data and information for better policy-making; facilitate communities of practice and improve knowledge-based communication; create a culture of knowledge sharing and learning.

### **11.2. Intellectual property rights**

a) manage the JRC's and the Commission's **portfolio of intellectual property rights**; advise and assist the Commission on intellectual property matters; increase awareness of intellectual property rights within the Commission and in the European Parliament;

b) promote **collaboration** on intellectual property rights and technology.