

# Monitoring the contribution of the FP7 Specific Programme 'Capacities' to the EU's SD objectives

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## Summary

### In a nutshell: the FP7 Specific Programme 'Capacities'

The Specific Programme (SP) 'Capacities' of the EU's Seventh Framework Programme (FP7) aims to enhance research and innovation capacities throughout Europe and to ensure their optimal use. This policy brief analyses the contribution of the three parts SCIENCE IN SOCIETY (SIS), REGIONS OF KNOWLEDGE (RK) and RESEARCH INFRASTRUCTURES (RI) to the 78 operational objectives of the EU Sustainable Development Strategy (EU SDS) over the whole programme period 2007-2013.

### EU policy context: the EU Sustainable Development Strategy

### How does SP 'Capacities' contribute to EU SDS objectives?

Overall, 12 % of the research projects carried out under the SP 'Capacities' have a positive impact on at least one of the 78 operational objectives of the EU SDS<sup>1</sup>. However, in terms of budget, the share of co-financing by the European Commission (EC contribution) provided to research projects addressing EU SDS objectives accounts for only 8 % (€ 138 million out of € 1.65 billion).

### How do the three SP 'Capacities' parts contribute to SD?

Among the different parts of SP 'Capacities', REGIONS OF KNOWLEDGE comprises the largest share of topics (58 %) contributing to sustainable development (SD). However, it has to be noted that this high share also reflects a rather small number of topics called for in this part. In monetary terms, the part RESEARCH INFRASTRUCTURES provides the largest amount of co-funding to SD-related research projects, with € 70 million, followed by SCIENCE IN SOCIETY with € 38 million.

### How big is the EU financial contribution to SD across the SP 'Capacities' parts?

### How are the EU SDS operational objectives addressed by SP 'Capacities'?

SD-relevant research carried out in the SP 'Capacities' mainly relates to "social inclusion, demography and migration", "climate change and clean energy" and "public health". Within these topics, the EU SDS objectives "increasing the labour market participation of women" and "raising the share of renewables" are addressed most.

### How did the contribution of SP 'Capacities' to SD change over time?

Between 2007 and 2012, the share of SP 'Capacities' topics with positive expected impacts on SD fell from 26 % to 9 %, only to jump to 50 % in 2013 (due to an exceptionally low number of topics called for this year).

### Where are the centres of excellence for research within SP 'Capacities' contributing to EU SDS objectives?

Cross-country comparisons reveal that most SD-related projects are coordinated by organisations from Germany, France, the UK, Italy, Austria Netherlands and Spain. Notably, Eastern European countries are also well integrated and are benefiting from research within SP 'Capacities'.

<sup>1</sup> In this policy brief, terms such as "SD-relevant" or "contributing to sustainable development" are used synonymously for "contributing to at least one of the 78 objectives of the renewed EU SDS".

## In a nutshell: the FP7 Specific Programme 'Capacities'

### SP Capacities aims to enhance research capacities throughout Europe

The Specific Programme (SP) 'Capacities' is one out of four programmes in FP7, provided with a budget of € 4.1 billion (out of the overall FP7 budget of € 50 billion) over the period 2007 to 2013. The SP 'Capacities' consists of seven broad areas ("parts") in order to achieve its objectives of supporting research infrastructures, research for the benefit of small and medium enterprises (SMEs), and the research potential of European Regions, as well as stimulating the realisation of the full research potential of the enlarged Union and building an effective and democratic European Knowledge. Additional parts cover "support to the coherent development of research policies" and "international cooperation".

The analysis presented in the policy brief relates to the parts RESEARCH INFRASTRUCTURES, REGIONS OF KNOWLEDGE and SCIENCE IN SOCIETY only.

**Table 1:** Overview of the three parts of SP 'Capacities' analysed in this policy brief<sup>2</sup>

Parts of SP 'Capacities'	Number of topics	Number of projects	Number of project participations	Total project cost (€ mio)	Total EC contribution (€ mio)
RESEARCH INFRASTRUCTURES	151	320	4904	2131.3	1409.6
REGIONS OF KNOWLEDGE	12	15	199	35.1	30.2
SCIENCE IN SOCIETY	161	136	1510	262.2	213.1
Total	324	471	6613	2428.6	1652.9

## Analysing the contribution of SP 'Capacities' to EU SD objectives

### Science and research are necessary to provide technologies for tackling societal challenges and knowledge for decisions in policy making

As outlined in the EU Sustainable Development Strategy (EU SDS), science and research are keys to tackling societal challenges like climate change and resource scarcity, particularly when used to develop technologies that decrease natural resource use or reduce pollution and other risks to health and safety. Furthermore, the role of science and research, in line with the precautionary principle, is to provide knowledge to help identify the nature of uncertainties and risks associated with decisions in the policy making process.

The FP7 Specific Programme 'Capacities' supports achieving the goals of the EU SDS by enhancing research and innovation capacities throughout Europe and ensuring their optimal use. Usually, research funded by SP 'Capacities' does not directly contribute to sustainable development objectives (as it is the case for SP 'Cooperation'<sup>3</sup>), but sets the basis upon which other projects (e.g. from SP 'Cooperation') can unfold their SD-related impacts. This is reflected in the way that the programme offers the capacities, space for ideas, and ensures a framework for action in science and research in order to tackle societal problems.

<sup>2</sup> Data on topics refer to the Work Programmes 2007-2013, all other data refer to projects funded up to November 2012.

<sup>3</sup> SP 'Cooperation' is at the core of FP7, representing about two thirds of the overall FP7 budget (i.e. € 32 billion out of € 50 billion) over the period 2007-2013. It fosters collaborative research across Europe and other partner countries, through projects by transnational consortia of industry, academia and civil society, in ten thematic areas.

## How does SP 'Capacities' contribute to EU SDS objectives?

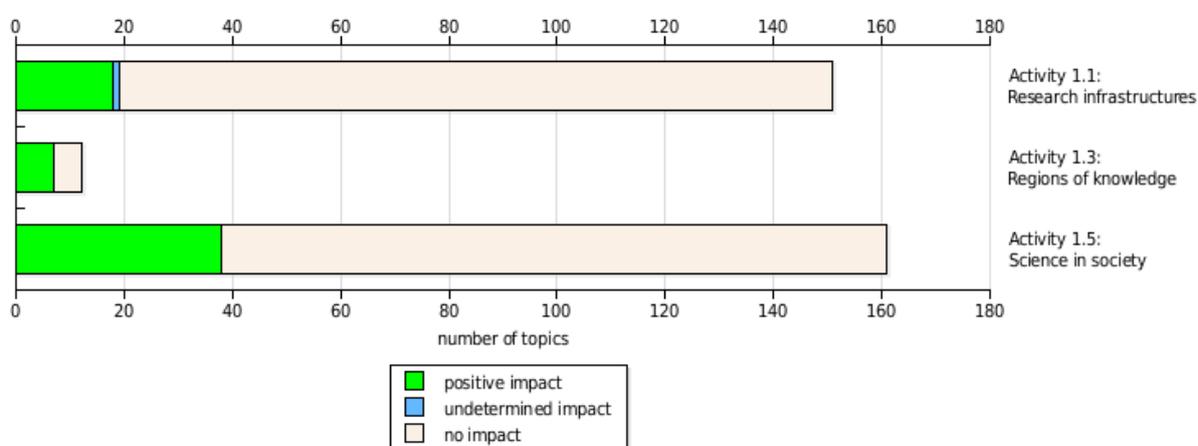
**About 12% of FP7-funded research projects account for SD-relevant research**

Overall, about 12 % of the projects (i.e. 57 out of 471) that have been funded by FP7 under the SP 'Capacities' Work Programmes 2007 to 2012<sup>4</sup> impacted at least one of the 78 EU SDS operational objectives. However, when looking at the number of topics covered (as called for in the annual Work Programmes) the impact is higher (19 %, i.e. 63 out of 324 topics), though the amount of funding provided by FP7 (total EC contribution) to SD-relevant projects accounts only for 8 % (i.e. € 138 million out of € 1.65 billion). This variation can be explained by differences in the number and size of projects funded by the individual parts of SP 'Capacities'.

### How do the three 'Capacities' parts contribute to SD?

**The part SCIENCE IN SOCIETY comprises the largest number of topics with impacts on EU SDS objectives**

Among the three parts, SCIENCE IN SOCIETY accounts for the largest number of topics with positive expected impacts on EU SDS objectives (38 topics), followed by RESEARCH INFRASTRUCTURES with 18 topics. REGIONS OF KNOWLEDGE includes only 7 topics with positive impacts on SD, but due to the very low number of total topics called for (12) it outperforms SCIENCE IN SOCIETY (23 %) and RESEARCH INFRASTRUCTURES (12 %) with a share of 58 % of SD-relevant topics.



**Figure 1:** Number of topics with expected impacts in the three 'Capacities' parts<sup>5</sup>

### How big is the EU financial contribution to SD across the 'Capacities' parts?

The pattern of SD-relevant research in the three SP 'Capacities' parts analysed here (see Figure 1) changes substantially when looking at the amount of co-financing ("total EC contribution") provided by FP7 (see Figure 2 below).

**The entire amount of**

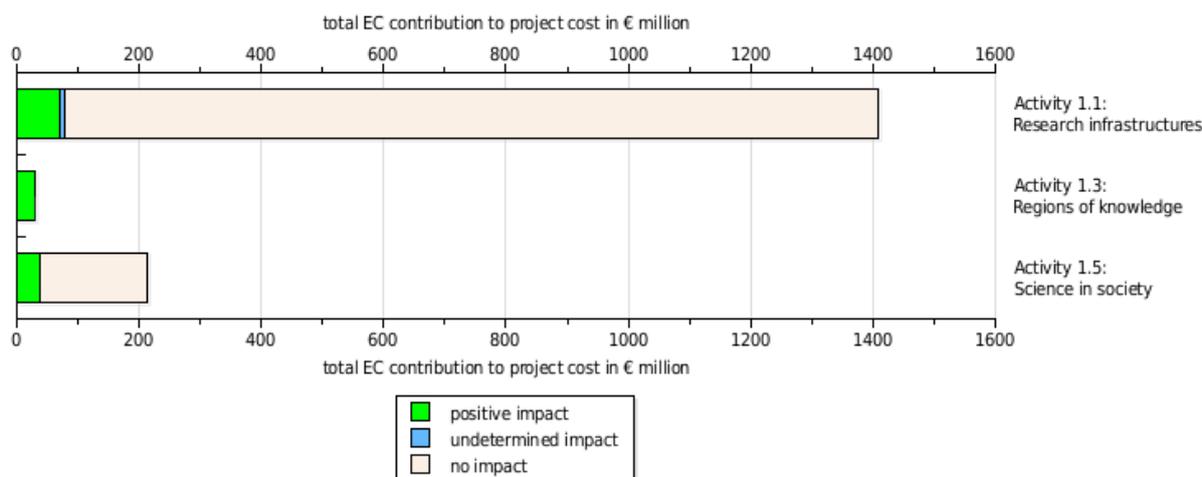
The biggest share of EC contribution with positive impact to EU SDS objectives is attributed to RESEARCH INFRASTRUCTURES with € 69.5 million

<sup>4</sup> Data refer to projects funded within SP 'Capacities' up to November 2012.

<sup>5</sup> Typology of impacts: "positive": supporting the EU SDS objectives; "undetermined": impacts that due to a lack of scientific evidence cannot yet be categorized as positive, negative or neutral; "no impact": no expected impacts on EU SDS objectives.

**EC contribution in the part REGIONS OF KNOWLEDGE contributes to EU SDS objectives**

However, these are only 5 % of the total EC contribution dedicated to this part, meaning that the remaining 95 % of the funding granted by the EC is received by projects with no expected impacts on sustainable development. The second biggest share of EC contribution with positive impact to EU SDS objectives is the part of SCIENCE IN SOCIETY with € 38.5 million, accounting for only 18 % of the total budget provided by the EC. When looking at REGIONS OF KNOWLEDGE it is evident that the full amount of € 30.2 million of EC contribution is having a positive impact on EU SDS objectives/ or: is invested in SD relevant objectives.



**Figure 2:** Total EC contribution to projects with expected impacts on the EU SDS objectives from the three 'Capacities' parts

## How are the EU SDS operational objectives addressed by 'Capacities'?

**SP 'Capacities' contributes considerably to "social inclusion, demography and migration", "climate change and clean energy" and "public health"**

As shown in Figure 3, EU SDS objectives related to "social inclusion, demography and migration" are addressed most prominently (33 topics) by SP 'Capacities', followed by objectives related to "climate change and clean energy" (18 topics) and "public health" (13 topics). The picture changes when looking at the funding (EC contribution) provided to projects (see Figure 4): "climate change and clean energy" and "social inclusion, demography and migration" receive the highest EC contribution, with € 69.3 million and € 44.4 million respectively, followed by "public health" accounting for € 40.7 million. This variation can be explained by the fact that projects from the social sciences domain usually have a lower project budget, since it is mainly staff costs that need to be covered. Research from more "technical" disciplines (i.e. where it is necessary to also cover costs for technical equipment) typically involves larger projects (in terms of budget), which is clearly the case here for "climate change and energy".

**Issues like increasing the labour market participation of women and raising the share of**

At the level of the EU SD strategy's operational objectives, the objectives "increasing the labour market participation of women" (23 topics) from the key challenge "social inclusion, demography and migration" as well as "raising the share of renewables" (9 topics), followed by "other expected impacts" (8

renewable are most prominently addressed

topics) from the key challenge "climate change and clean energy" are addressed most prominently by SP 'Capacities'.

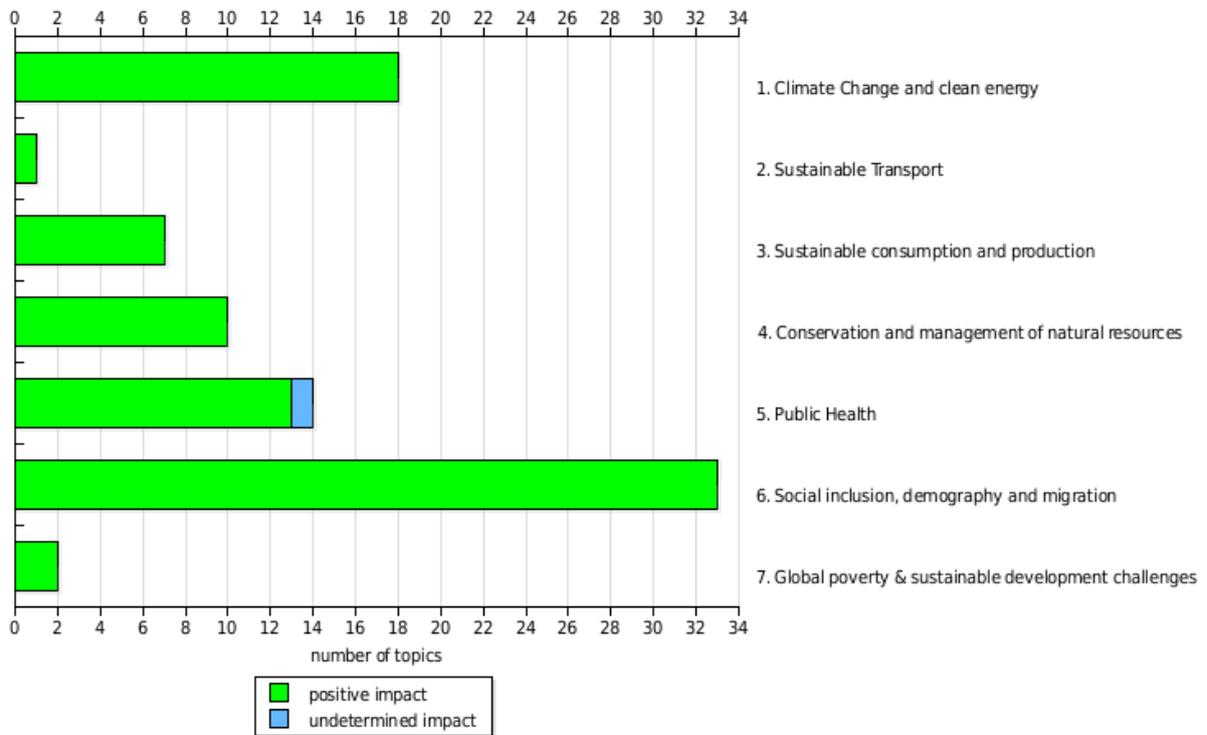


Figure 3: Number of topics with expected impacts on EU SDS objectives in the corresponding challenges

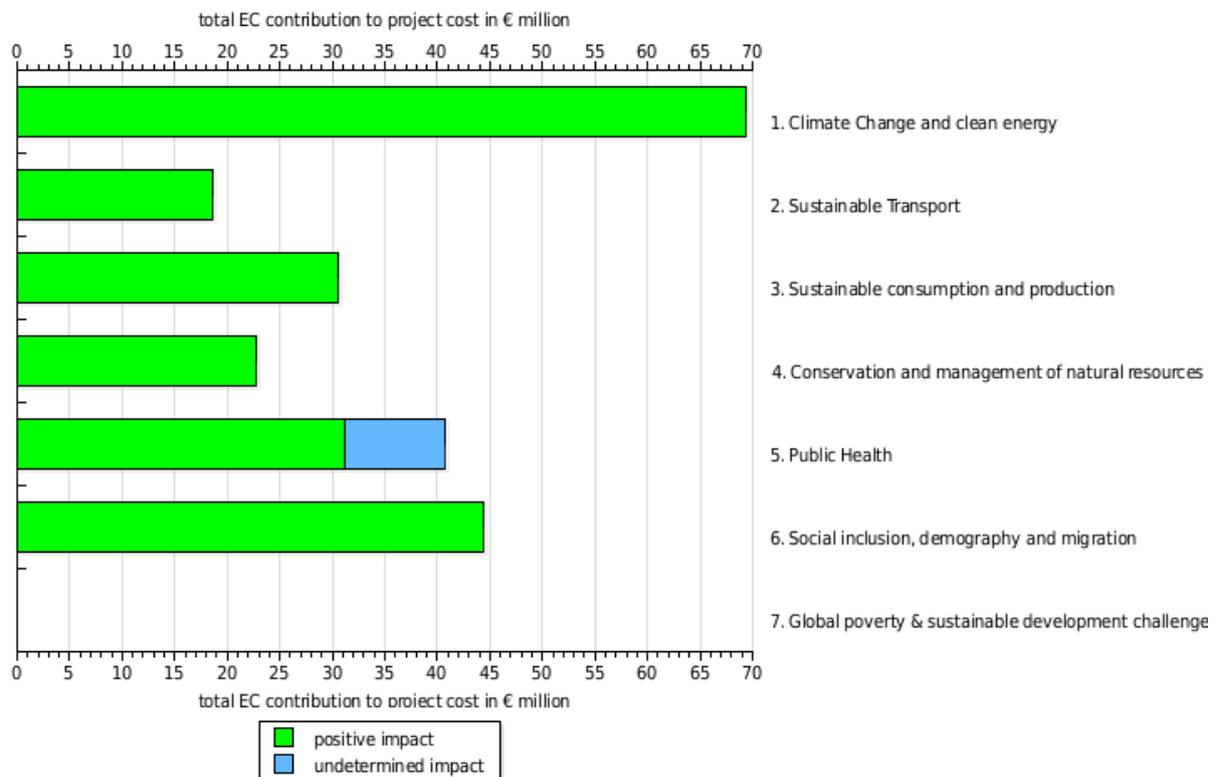
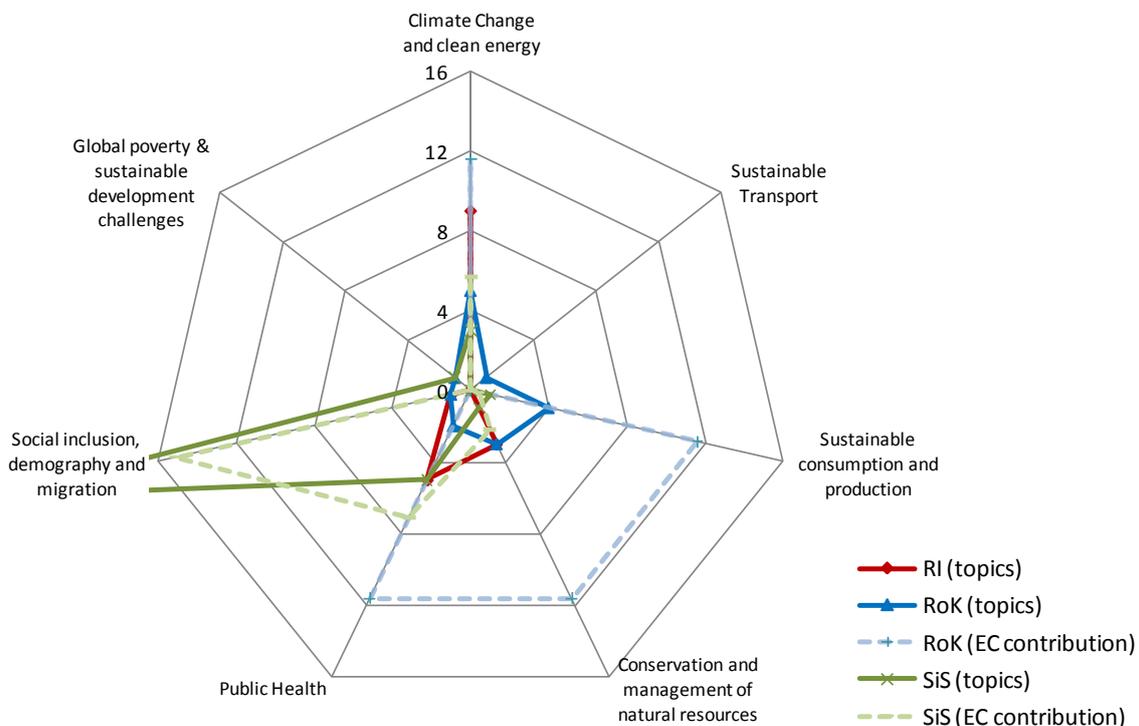


Figure 4: Total EC contribution to projects with expected impacts on EU SDS objectives in the corresponding challenges

**The three parts of SP 'Capacities' address different aspects of sustainable development**

**SCIENCE IN SOCIETY mainly addresses the social dimension of SD**

As shown in Figure 5 below, the amount of EC contribution and the number of topics addressing EU SDS objectives as well as their correlation to each other varies considerably among the three parts of SP 'Capacities'. The diversity of impacts on different topical EU SDS objectives is highest in the part REGIONS OF KNOWLEDGE, with at least one topic in each of the EU SDS challenges, and with funded projects (indicated through the EC contribution) impacting on the EU SDS challenges "climate change and clean energy", "sustainable consumption and production", "conservation and management of natural resources" and "public health". The part SCIENCE IN SOCIETY mostly focuses on the social dimension of the EU SDS, with the number of topics and the EC contribution being highest in relation to the EU SDS challenges "social inclusion, demography and migration" and "public health". The third part, RESEARCH INFRASTRUCTURES, addresses EU SDS objectives in a less diverse way due to the fact that most of the topics impact objectives from "climate change and clean energy", "public health" and "conservation and management of natural resources".



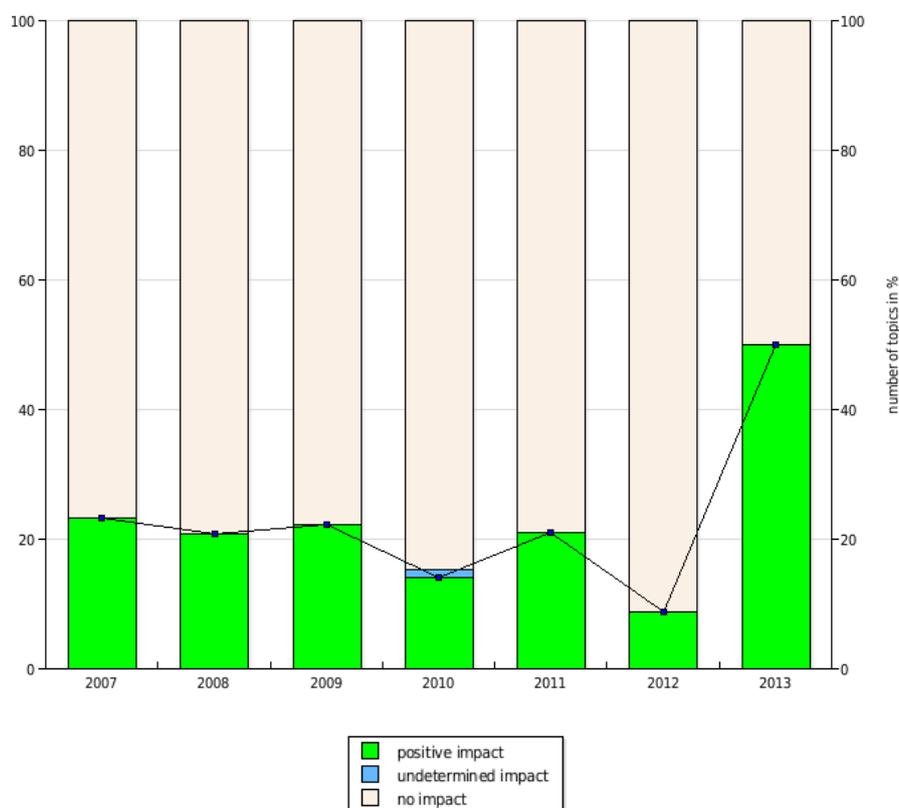
**Figure 5:** Number of topics and amount of EC contribution (€ mill.) to EU SDS operational objectives (RI = RESEARCH INFRASTRUCTURES, RoK = REGIONS OF KNOWLEDGE, SIS = SCIENCE IN SOCIETY)<sup>6</sup>

<sup>6</sup> SCIENCE IN SOCIETY addresses the key challenge "social inclusion, demography and migration" with 24 topics (not shown due to layout issues).

## How did the contribution of 'Capacities' to SD change over time?

**The share of topics with positive expected impacts more than doubled between 2007 to 2013**

As indicated in Figure 6, the share of topics in SP 'Capacities' contributing to EU SDS objectives more than doubled during the Work Programmes (WP) 2007 to 2013. The share of topics with positive expected impacts rose from about 23 % in 2007 to 50 % in 2013. However, the total number of topics varied substantially between 18 in 2009 and reaching its peak with 85 in 2010, thus steadily soaring to 46 in 2012 and respectively 12 in 2013. The WP 2012-2013 contributes 10 topics with positive impacts on the EU SDS objectives, where as 9 of them stem out of SCIENCE IN SOCIETY, the remaining one from RESEARCH INFRASTRUCTURES.



**Figure 6:** Share of topics with expected impacts on EU SDS objectives during the Work Programmes 2007 to 2013

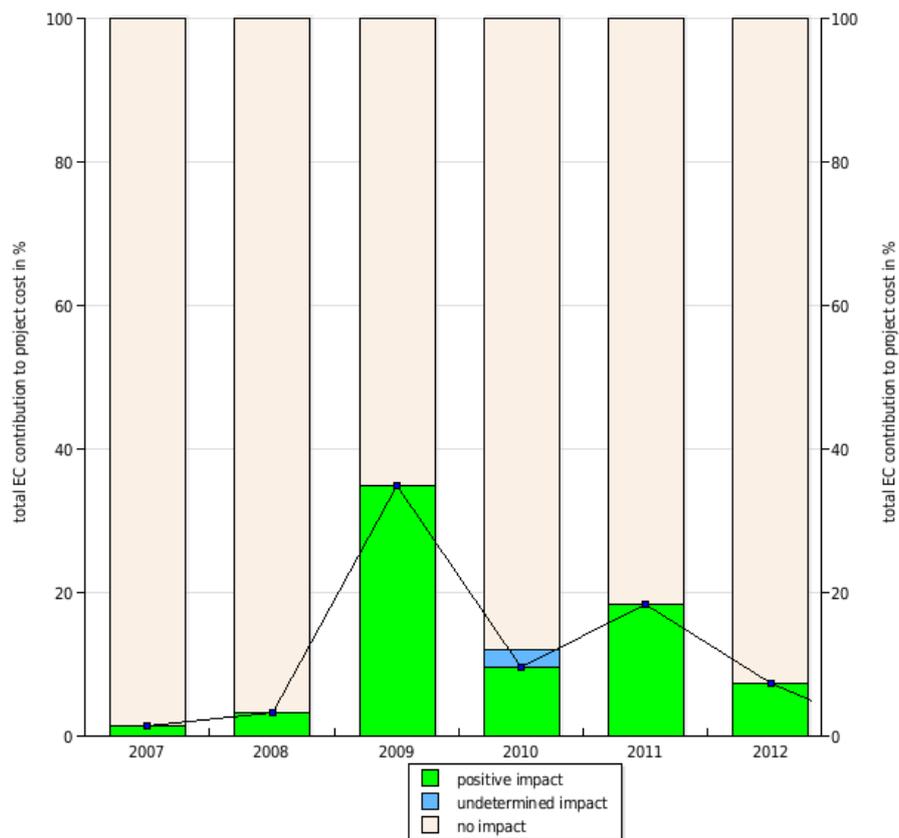
**The share of EC contribution addressing projects with positive impacts on 'Capacities' continuously increased over time**

Figure 7 shows that despite an overall decline of EC contribution to projects from about € 593 to € 158 million during the WPs 2007 and 2012<sup>7</sup>, the share of EC contribution to projects with positive impacts increased substantially from 1.4 % in 2007 to 35 % in 2009. This trend was followed by a drop in 2012 to 7 %. This decrease was mainly driven by a strong increase in funding not having a positive impact in the part RESEARCH INFRASTRUCTURES with only 6 % having a positive impact on EU SDS objectives (€ 7 million out of € 122.5 million) in 2012.

In 2007, RESEARCH INFRASTRUCTURES was responsible for the largest

<sup>7</sup> Data refer to projects funded within SP 'Capacities' up to November 2012.

amount of EC contribution (€ 570.4 million, i.e. accounting for more than 95 %) allocated to the three parts analysed here. However, due to the fact that so far none of the projects in RESEARCH INFRASTRUCTURES contributed to EU SDS objectives, the overall share of EC contribution addressing EU SDS objectives was rather small. In 2012, the part RESEARCH INFRASTRUCTURES held only 6 % positive impacts on EU SDS objectives with regards to EC contribution, REGIONS OF KNOWLEDGE had no EC contribution allocated to it and SCIENCE IN SOCIETY was granted for 4.5 million € for EU SDS objectives with positive impacts accounting for 12.5% EC contribution.

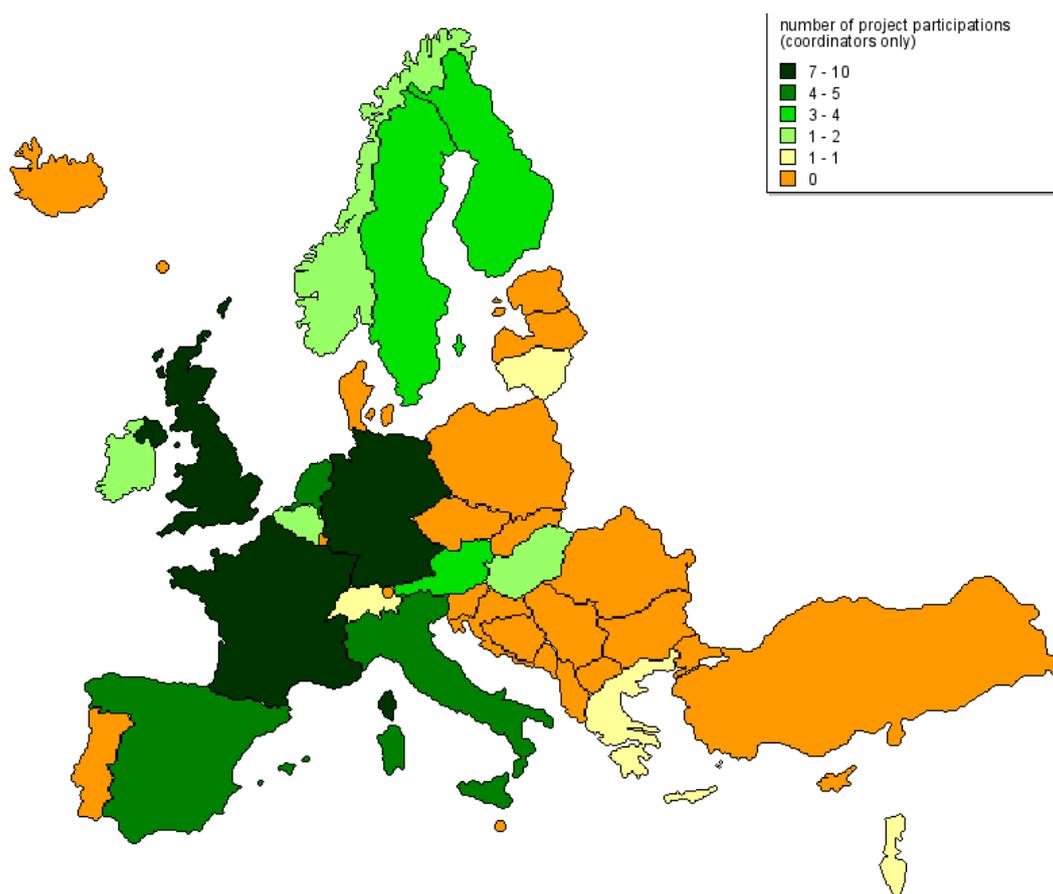


**Figure 7:** Total EC contribution to projects with expected impacts on EU SDS objectives during the Work Programmes 2007 to 2012

## Where are the centres of excellence for research within SP 'Capacities' contributing to EU SDS objectives?

**Germany, France, UK, are key players concerning SP 'Capacities' projects contributing to EU SDS objectives**

The EU Member States contributing most EU SDS objectives through projects in SP 'Capacities' are Germany and France followed by the United Kingdom, and Italy, Austria and Netherlands and Spain (see Figure 8)<sup>8</sup>. Germany and the France account for 10 and 8 coordinated projects respectively, and organisations from the UK (7 projects), Italy (5 projects), Austria Netherlands and Spain coordinate 4 projects each.



**Figure 8:** Geographical representation of coordinated projects impacting on EU SDS objectives in EU Member States and associated countries

**For Bulgaria, Malta, Slovakia, Lithuania, Greece and Slovenia the ratio of EC contribution to national R&D expenditure in million € is highest**

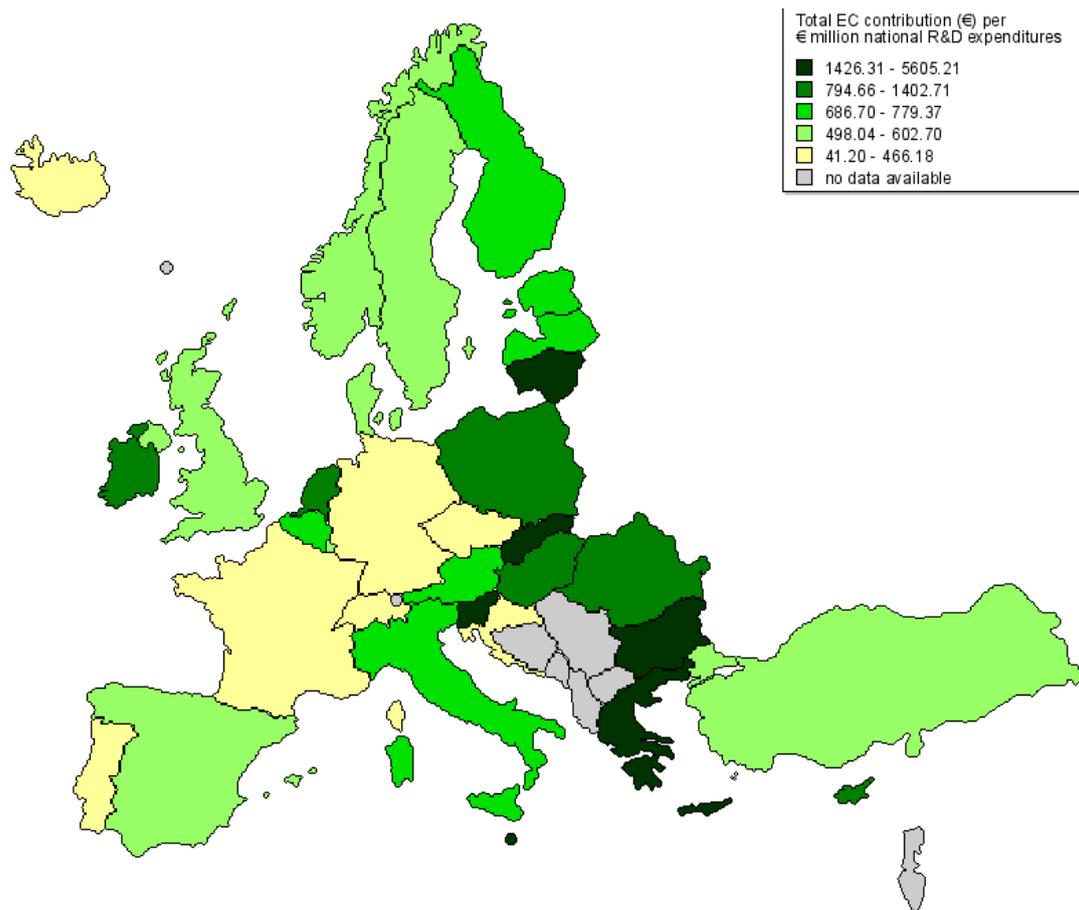
As indicated in Figure 9, Bulgaria (€ 5,605 million), Malta (€ 4,813 million), Slovakia (€ 2,800 million), Lithuania (€ 2,145 million), Greece (€ 1,902 million) and Slovenia (€ 1,426 million) are countries with a relatively high ratio of EC contribution to national R&D expenditures. The co-financing provided by SP 'Capacities' is rather high compared to the European average. The underlying reason for a rather high ratio of total EC contribution per € million national R&D expenditure is either a relatively low national R&D expenditure and/or a

<sup>8</sup> The assumption has been made that institutions from countries which are responsible for coordinating a project are characterized by an exceptional scientific knowledge base and the essential coordination skills to implement the respective project. Therefore countries with a high number of coordinated projects can be seen as leaders in the respective field of research.

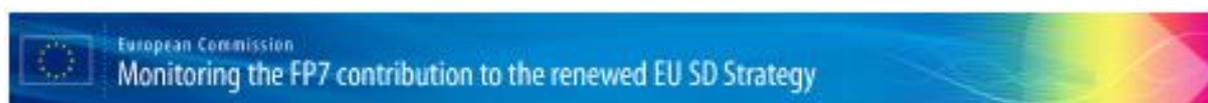
high number of projects contributing to EU SDS objectives.

**Eastern European countries are integrated in SP 'Capacities' research contributing to EU SDS objectives**

With regard to the participation of Eastern European countries in SD-relevant research in SP 'Capacities', Figure 8 illustrates that they are not among the centres of excellence driving research and development. However, as described above, Figure 9 reveals that these countries are well integrated in European research within SP 'Capacities'. This finding is in line with the aim of the European Union to establish a European-wide research area.



**Figure 9:** Geographical representation of total EC contribution (€ million) per € million national R&D expenditures of Member States and associated countries contributing to EU SDS objectives (2007 to 2012)<sup>9</sup>



<sup>9</sup> Data refer to projects funded within SP 'Capacities' up to November 2012.