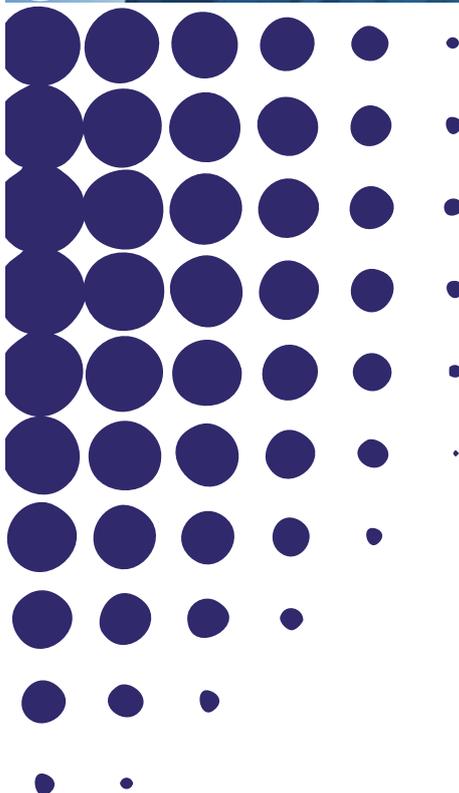


WP4/27 SEARCH WORKING PAPER

Assessment of EU-EECA and EU-Russia research cooperation
under the EU Framework Programmes for Research & Development

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Assessment of EU-EECA¹ and EU-Russia research cooperation under the EU Framework Programmes for Research & Development

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Abstract

The European Neighbourhood Policy (ENP) remains the basis on which the EU works with its neighbours to achieve the closest possible political association and the greatest possible degree of economic integration.

Knowledge creation precisely research and technological development (RTD) is a shaping basis of up-to-date economy and measures focused on responding to the global challenges. International RTD cooperation and transfer of knowledge is essential to reinforce research capacity of involved parties, to share respective resources and risks as well as to lay the foundation for joint innovative activities.

EU RTD programmes are open for participation of scientists from any countries world-wide including the EECA countries and Russia in cooperation with the European researchers. The EU policy actively promotes integration of the EECA and Russian scientists into the European Research Area.

The present paper offers assessment of EU-EECA and EU-Russia cooperation within FP5-7 (1998-2012) classified by country, by discipline and by type of organisation. The conducted assessment is based on the collection and systematisation of data on joint EU-EECA and EU-Russia projects extracted from the EU CORDIS² Project database. The synergy with the FP7 IncoNet EECA³ and FP6 SCOPE-EAST⁴ projects has been used. The part on Russian participation in projects within FP7 includes data presented by the European Commission at the workshops⁵.

The Case-study of 5 functioning EU-EECA thematic research networks was carried out via a specially elaborated questionnaire addressed to EU and EECA partners of ongoing research projects under the 7th EU Framework RTD Programme.

The Case-study contributed to analysis of the effects of EU-EECA thematic research networks, formed in the course of FP7 projects including identification of added value, success stories and barriers to EU-EECA collaboration. It helped to understand what barriers scientists face implementing joint research projects under EU Framework RTD Programme.

¹ Eastern European and Central Asian Countries: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine and Kazakhstan, Kyrgyzstan, Tadjikistan, Turkmenistan, Uzbekistan

² CORDIS, the Community Research and Development Information Service. Source: <http://cordis.europa.eu>

³ "Inventory of EU-EECA S&T Cooperation Patterns, including the Methodological Approach", IncoNet EECA, September 2009

⁴ "Statistical Analysis on Russian and Ukrainian Participation in the Sixth EU Framework Programme, INTAS, ISTC, STCU", SCOPE-EAST, November 2007

⁵ "Russian Participation in FP7", Richard Burger, European Commission, April 2013

The results of the assessment of EU-EECA and EU-Russia cooperation within FP5-7 and of Case-study used to shape recommendations on how to overcome the barriers and improve S&T cooperation among countries involved into international research.

The research leading to these results has received funding from the European Community's Seventh Framework Programme under grant agreement No. 266864 (Project SEARCH).

The conducted study contributes into implementation of the Task 4.5 "The effects of research networks within the EU Framework Program" and its main objectives: investigation of the evolution of European R&D collaborations within the research Framework Programs (Fifth FP 1998-2002 and Sixth FP 2002-2006 and the first half of Seventh FP 2007-2010) as well as assessment of participation within FP of EECA and Russian research centres in order to identify the key tendencies of EU-EECA cooperation.

Abbreviations and Definitions

AC	Countries Associated to FP7 as of December 2012 (Albania, Bosnia & Herzegovina, Croatia, Faroe Islands, Former Yugoslav Republic of Macedonia, Iceland, Israel, Liechtenstein, Republic of Moldova, Montenegro, Norway, Serbia, Switzerland, Turkey)
BIO	Cooperation Programme Thematic Priority “Food, agriculture and biotechnology”
BY	Belarus
EECA	Eastern Europe and Central Asia. The EECA region includes Armenia (AM), Azerbaijan (AZ), Belarus (BY), Georgia(GE), Kazakhstan (KZ), Kyrgyzstan (KG), Moldova (MD), Tajikistan (TJ), Turkmenistan(TM), Ukraine (UA), Uzbekistan (UZ)
EC	The European Commission
ENP	European Neighbourhood Policy
ENV	Thematic Priority “Environment (including climate change)”
ENT	Enterprise
Euratom	European Atomic Energy Community
ERC	European Research Council
EU	The European Union
EU MS	The European Union Member States (as of December 2012): Austria (AT), Belgium (BE), Bulgaria (BG), Cyprus (CY), Czech Republic (CZ), Germany (DE), Denmark (DK), Estonia (EE), Greece (EL), Spain (ES), Finland (FI), France (FR), Hungary (HU), Ireland (IE), Italy (IT), Lithuania (LT), Luxembourg (LU), Latvia (LV), Malta (MT), the Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Sweden (SE), Slovenia (SI), Slovakia (SK), United Kingdom (UK)
FP	Framework Programme
FP5	EU Fifth RTD Framework Programme for the period of 1998 - 2002
FP6	EU Sixth RTD Framework Programme for the period of 2002 - 2006
FP7	EU Seventh RTD Framework Programme for the period of 2007 - 2013
GE	Georgia
GOV	Government
HE	Higher education
HSE	National Research University “Higher School of Economics” (Russia)
INCO	FP subprogramme “International cooperation”
IOF	International Outgoing Fellowship
IO	International Organisation
ICT	Information and Communication Technologies
IPR	Intellectual Property Rights
IRSES	FP7 Marie Curie Action “International Staff Exchange Scheme”
IST	Information Society Technologies
JTI	Joint Technology Initiatives
JRC	Joint Research Centre
KG	Kyrgyzstan
KZ	Kazakhstan

NGO	Non-Government Organisation
NMP	Nanosciences, nanotechnologies, materials and new production technologies
RES	Research
PSA	Priority Scientific Area
RTD	Research and Technology Development
SME	Small-Medium Enterprise
SSH	FP Thematic Priority “Socio-economic sciences and the humanities”
S&T	Science and Technology
STI	Science, Technology and Innovation

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Introduction

The European Neighbourhood Policy (ENP) remains the basis on which the EU works with its neighbours to achieve the closest possible political association and the greatest possible degree of economic integration.

In globalised world cooperation on sector-specific fields is an important and expanding part the EU's external action including the renewed ENP. It covers a wide range of areas including employment and social policy, industrial policy, competition policy, agriculture and rural development, fisheries, climate change, the environment, energy security, transport, integrated maritime policy, the information society, *research and innovation*, education in particular higher education cooperation and mobility (through programmes like Erasmus Mundus, Tempus, Marie Curie Actions), youth cooperation, health, and culture.⁶

Knowledge creation precisely research and technological development (RTD) is a shaping basis of up to date economy and measures focused on responding to the global challenges. International RTD cooperation and transfer of knowledge is essential to reinforce research capacity of involved parties, to share respective resources and risks as well as to lay the foundation for joint innovative activities.

Important steps were made towards the development of the Common Knowledge and Innovation Space. In 2012 the participation of ENP countries in the Seventh Framework Programme (2007–2013) (FP7) increased. The international cooperation call for proposals published in July 2012 included activities specifically targeted to the ENP countries at regional and bilateral levels with the aim to support policy dialogue as well as a special action for bridging the gap between research and innovation. At the end of 2012 the total EU contribution to projects with ENP countries` participation reached EUR 960 million.⁷

The countries of Eastern Europe and Central Asia as neighbourhood regions are important partners of the European Union for the political, economic and social development. According to the Lisbon goal of the EU to become the worldwide leading knowledge based economy development of the European Research Area is a major policy objective. Countries of Eastern Europe and Central Asia have particular potentials in terms of existing research capacity in a variety of scientific disciplines and therefore there is a strong bilateral interest in enhancing the S&T cooperation.

Among the 16 of EU's closest neighbours included into the ENP framework are the following Eastern European countries: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine, which are also covered by the Eastern Partnership. The Black Sea Synergy comprises Russia beside the listed above countries.

Central Asia has a centuries-old tradition of bringing Europe and Asia together. It lies at a strategically important intersection between the two continents. Central Asian countries Kazakhstan, Kyrgyzstan, Tadjikistan, Turkmenistan, Uzbekistan are among crucial European Union partners – economically, politically and culturally.⁸ Research is integral part of the EU-Central Asia cooperation. Programmes of Development Cooperation Instrument (2007-2013) address the EU cooperation with countries of Central Asia like Kazakhstan, Kyrgyzstan, Tadjikistan, Turkmenistan, Uzbekistan and other countries of Asia, Latin America, the Middle East and South Africa.

⁶ Proposal for a Regulation of the European Parliament and of the Council establishing a financing instrument for development cooperation. European Commission. Brussels, 7.12.2011 COM(2011) 840 final. Source: http://ec.europa.eu/europeaid/how/finance/documents/prop_reg_instrument_dev_coop_en.pdf

⁷ Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions European Neighbourhood Policy: Working towards a Stronger Partnership. Brussels, 20.3.2013. Source: http://ec.europa.eu/world/enp/docs/2013_enp_pack/2013_comm_conjoint_en.pdf

⁸ European Union and Central Asia: Strategy for a New Partnership. Council of the European Union General Secretariat. European Communities, 2007. Source: http://www.consilium.europa.eu/uedocs/cms_data/librairie/PDF/EU_CtrlAsia_EN-RU.pdf

In line with the common objectives set out in the EU Central Asia Strategy for a New Partnership adopted in 2007 among specific areas of cooperation with the region of Central Asia such spheres as education, research, innovation and technology address sustainable economic and social growth.

The Russian Federation is one of the most important partners for the European Union. A key priority of the European Union is to build a strong strategic partnership with Russia based on a solid foundation of mutual respect. Russia is the largest neighbour of the EU, brought even closer by the Union's 2004 and 2007 enlargements.⁹ Russia is one of the key players in the common European neighbourhood. The legal basis for EU relations with Russia is the Partnership and Cooperation Agreement (PCA) which came into force on 1 December 1997. Agreement on Cooperation in Science and Technology between the European Community and the Government of the Russian Federation was concluded in 1999 and twice extended in 2003 and 2009. At the St. Petersburg Summit in May 2003, the EU and Russia agreed to set up a 'Common Space of Research and Education, Including Cultural Aspects'. In the area of research and development the objective is to enhance EU-Russia cooperation in mutually agreed priority fields and create favourable conditions, corresponding to the interests of both parties, aimed at:

- structuring a knowledge-based society in the EU and Russia;
- promoting a high rate of competitiveness and economic growth by modernization of the national economies and implementation of advanced scientific achievements;
- strengthening and optimizing the links between research and innovation;
- maintaining small and medium size entrepreneurship in the field of research and innovation.

One of the most established forms of EU-Russia S&T cooperation is the participation of Russian scientists in the EU Framework Programmes for Research and Technological Development, where Russia continues to be the most successful international cooperation partner country in terms of the total number of participations in the programme, the total amount of EU financial contribution received and the number of collaborative actions launched.

From 2007 a new cooperation mechanism of 'coordinated calls' for co-funded research projects between the EU and Russia was introduced. Coordinated calls when EU and Russia in equal proportion contributed to the joint projects have been completed in such areas as health; food, agriculture and biotechnology; ICT; energy; aeronautics; nanotechnologies; nuclear energy.

At the EU-Russia Summit in Brussels in December 2012 the political leaders of the EU and Russia agreed to make 2014 the "EU-Russia Year of Science". This year-long series of events, to be jointly organised across the EU and Russia, will celebrate the vibrant and multifaceted cooperation between the EU, the EU Member States and the Russian Federation in the areas of research, higher education and innovation. Involving scientists, research organisations, universities, innovators and the wider public, the EU-Russia Year of Science will build on Russia's strong involvement in the current EU Framework Programme for Research and Technological Development and on the dynamic cooperation in research between EU Member States and Russia.¹⁰

The EU's international cooperation activities in science, technology and innovation (STI) are realizing through the **EU RTD Framework Programmes**. Although the cooperation in STI between the EU and the EECA partner countries and the EU and Russia is quite strong, there is still area for further development as the conducted analysis has shown.

The assessment of EECA and Russian research centres participation within EU FP5-FP7 by country, by discipline and by type of organisation as well as case-studies and analysis of 5 functioning EU-EECA thematic research networks, formed in the course of FP7 which resulted in highlighting added

⁹ The European Union and Russia: Close Neighbours, Global Players, Strategic Partners. European Commission External Relations. Source: http://eeas.europa.eu/delegations/russia/documents/publications/eu_russia_en.pdf

¹⁰ Source: <http://ec.europa.eu/research/iscp/index.cfm?pg=russia>

value, success stories and barriers of research cooperation have been undertaken in the framework of SEARCH project (Sharinig KnowledgE Assets: InteRregionally Cohesive NeigHborhoods) financed by the European Union under FP7.

Methodology

The analysis has been carried out in order to identify the key tendencies of EU-EECA and EU-Russia cooperation within FP5-7. The work was based on the collection and assessment of data on project cooperation between the EU and EECA and between the EU and Russia within FP5-7 by country, by scientific discipline and by type of participating organisation.

In order to perform the tasks of the analysis, the CORDIS Project database¹¹ has been searched to detect joint projects implemented in EU-EECA and EU-Russia partnership. The analysed EECA countries were Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

The collected project data have been sorted in accordance with FP's 10 priority scientific areas: Health; ICT (information and communication technologies); NMP (nanotechnologies); Space; BIO (food, agriculture and biotechnology); ENV (environment), SSH (socio-economic sciences and the humanities); Energy; Euratom (nuclear fission and radiation protection); Transport; and horizontal subprogramme INCO (international cooperation).

INCO has been included into the analysis as the project performance in this area is aimed at support and encouragement of the international scientific and technological cooperation.

To analyse categories of the entities participated in FP5-7, the following classification by 8 types of organisations has been used: RES (research centres), HE (higher educational institutions), ENT (enterprises), SME (small-medium enterprises), IO (international organisations), GOV (government), and NGO (non-governmental body).

The assessment of the collected data helped to identify the main tendencies of the development of EU-EECA and EU-Russian cooperation.

For the preparation of the report, the synergy with the FP7 IncoNet EECA¹² and FP6 SCOPE-EAST¹³ projects has been used. The part on Russian participation in projects within FP7 includes data presented by the European Commission¹⁴.

It should be mentioned that CORDIS Project database does not contain comprehensive information on types of organisations – FP project partners. HSE undertook additional efforts to identify types of organisations using links to their web-sites.

Overview of 5th, 6th and 7th EU RTD Framework Programmes

FP5 (1998-2002) has a multi-theme structure, consisted of seven Specific Programmes, of which four were Thematic Programmes:

- Quality of Life and management of living resources (Quality of Life);
- User-friendly information society (IST);
- Competitive and sustainable growth (GROWTH);
- Energy, environment and sustainable development (EESD);

and three Horizontal Programmes, which underpinned and complemented the Thematic Programmes by responding to common needs across all research areas:

¹¹ CORDIS, the Community Research and Development Information Service. Source: <http://cordis.europa.eu>

¹² "Inventory of EU-EECA S&T Cooperation Patterns, including the Methodological Approach", IncoNet EECA, September 2009

¹³ "Statistical Analysis on Russian and Ukrainian Participation in the Sixth EU Framework Programme, INTAS, ITC, STCU", SCOPE-EAST, November 2007

¹⁴ "Russian Participation in FP7", Richard Burger, European Commission, April 2013

- Confirming the international role of Community research (INCO 2)
- Promotion of innovation and encouragement of SME participation (Innovation/SMEs)
- Improving the human research potential and the socio-economic knowledge base (Improving).

International cooperation in the field of RTD was pursued under the FP5, through 2 complementary routes:

- a dedicated cooperation programme «Confirming the international role of Community research», which focused on specific RTD activities relevant to certain third countries or regions and not addressed by other programmes of the FP5;
- an international cooperation dimension integral to each of the other specific programmes, which allowed the European research community to benefit from the knowledge and expertise of third countries and institutions, through their participation in projects of the FP5.

Different objectives and approaches have been developed to accommodate the specific nature of the problems in different world regions. For the Central and Eastern European countries (CEECs) as well as the New Independent States (NIS): Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Georgia, Kyrgyzstan, Kazakhstan, Former Yugoslav Republic of Macedonia, Moldavia, Mongolia, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, co-operation directed at specific problems of these regions in transition. The objectives of cooperation with these countries were to support their efforts to develop their research excellence in order to help them solve some of their major economic and societal problems. Activities were aimed at: (i) regional problems linked to the environment and health, structural problems of transition and socio-economic development, and sustainable use of natural resources, through co-operation in areas of mutual interest; (ii) the consolidation of the scientific and technological potential in fields where these countries had a recognized excellence and valuable co-operation potential. Socio-economic research aspects were integrated wherever appropriate. The special call for proposals for these group of countries was announced in the areas of environment and industry; improving health care in a changing society. Research was undertaken mainly by means of shared cost actions.

The main objective of **FP6 (2002-2006)** was to contribute to the creation of the European Research Area (ERA) by improving integration and coordination of research in Europe which is largely fragmented. At the same time research targeted at strengthening the competitiveness of the European economy, solving major societal questions and supporting the formulation and implementation of other EU policies. The main blocks of activities of FP6 were:

- 7 key priority areas of exceptional interest and added value for Europe integrating European research;
- specific research activities for small and medium-sized enterprises (SME);
- specific measures in support of international cooperation with selected groups of countries (Developing Countries, Mediterranean Partner Countries, Western Balkan countries, Russia and the NIS (Newly Independent States of the former Soviet Union)) based on mutual interest and in support of Community external policy;
- support to other Community policies (e.g. the common agricultural policy (CAP), the common fisheries policies (CFP), environment, energy, transport, health, development aid, consumer protection, enterprise policy etc);
- new and emerging scientific and technological areas;
- specific programme structuring the European Research Area (Research and Innovation; Human Resources and Mobility (Marie Curie Actions); Research Infrastructures; Science and Society);
- strengthening the foundations of the ERA.

The FP6 research key priority areas included:

1. Life sciences, genomics and biotechnology for health
2. Information society technologies

3. Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices
4. Aeronautics and space
5. Food quality and safety
6. Sustainable development, global change and ecosystems
 - a. Sustainable energy systems
 - b. Sustainable surface transport
 - c. Global change and ecosystems
7. Citizens and governance in a knowledge-based society.

International co-operation (INCO) represented an important dimension of the FP6. As a contribution to a European Research Area open to the world, it has been implemented through three major routes:

- opening of "Focusing and Integrating Community Research" to third country organisations;
- specific measures in support of international co-operation;
- international activities under the heading of Human Resources.

The first two were implemented through the specific programme "Integrating and strengthening the European Research Area". The third was a part of the specific programme "Structuring the European Research Area".

Specific measures in support of international cooperation involved developing countries, Mediterranean countries (including the Western Balkans), and Russia and the New Independent States (NIS). FP6 supported participation of third-country organisations in the all research key priority areas and in the Specific activities covering a wider field of research.

FP7 (2007-2013) continues to open up the European Research Area to the world focusing on the following activities with regard to international cooperation:

- strategic partnerships with non-EU countries in selected fields of science;
- set up contacts with best scientists & partners in 3rd countries;
- facilitation of access to research environments outside Europe;
- addressing specific problems that 3rd countries face, or that have a global character on the basis of mutual interest and benefit.

Projects with an international component are funded across all specific programmes of FP7. Theme-oriented international cooperation activities are developed under the FP7 'Cooperation' programme, international mobility of researchers under the FP7 'People' programme.¹⁵ The FP7 'Ideas' programme supports excellence in frontier research and provides individual top international researchers with opportunities to participate in European-led teams. Furthermore, the FP7 'Capacities' programme contributes to optimization of use and development of research infrastructures, to enhancement of innovative capacities of SMEs, to support of regional research-driven clusters, to bringing of European society and science closer together, and to implementation of measures facilitating international cooperation. Consequently participation of ENP countries in FP7 became very strong.

The 'Cooperation' programme was sub-divided into ten distinct themes reflected the most important fields of knowledge and technology where research excellence is particularly important to improve Europe's ability to address its social, economic, public health, environmental and industrial challenges of the future:

1. Health
2. Food, Agriculture and Fisheries, Biotechnology
3. Information & communication technologies

¹⁵ Research & Innovation in support of the European Neighbourhood Policy. Edited by Dorian Kalamvrezos Navarro. European Commission. European Union, 2013. Source: http://ec.europa.eu/research/iscp/pdf/neighbourhood_policy.pdf

4. Nanosciences, nanotechnologies, materials & new production technologies
5. Energy
6. Environment (including Climate Change)
7. Transport (including aeronautics)
8. Socio-economic Sciences and the Humanities
9. Space
10. Security

Overview of EECA S&T area

The conducted by SEARCH project's team analysis of EU-EECA collaborative research networks shaped under FP5-FP7 showed that involvement of EECA research organisations into joint projects with EU entities is not very high in comparison with such 3rd countries like Russia, USA, China, etc. One of the explanations of such effect is the fact that within recent years all countries of EECA region suffered significant downsizing of R&D intensity and reduction of R&D personnel including as result of "brain drain" abroad and to other sectors of economy, specifically to business, as well as ageing of scientists. Research organisations across the EECA region face various problems. State funding for modernization of research infrastructure and facilities as well as salary of scientists remains low. At present EECA countries and Russia are at different stages in terms of S&T reforming, recognition of the role of research as a crucial importance for development and economic growth.

Comprehensive information on the EECA and Russia national S&T landscapes, research policies and instruments for international cooperation with the EU has been collected and presented in the "White Paper on Opportunities and Challenges in View of Enhancing the EU Cooperation with Eastern Europe, Central Asia, and South Caucasus in Science, Research, and Innovation" (April 2012)¹⁶ published in the framework of FP7 INCO project "S&T International Cooperation Network for Eastern European and Central Asian Countries" (IncoNet EECA). According to the opinion of the "White Paper's" authors in most EECA countries R&D Gross expenditure is very low. The highest value is observed in Belarus, with an R&D expenditure of 0.65%. The second group, i.e. the countries Georgia, Moldova and Ukraine spend around 0.4% of their GDP on R&D. Lowest R&D expenditure was reported for Armenia and Azerbaijan with less than 0.3%, which is similar to R&D spending in the Central Asian countries Kazakhstan or Uzbekistan. Due to the financial in some cases the spending dropped drastically.¹⁷

Funding for R&D in the five countries of Central Asia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, is generally low and ranges from 0.06% of GDP (TJ) to 0.21% (KG) in 2011.¹⁸ All five countries have in common that science is largely funded from the state budget. In terms of research organisations, in absolute figures Kazakhstan and Uzbekistan have the highest number of active scientists and research organisations and rank among the highest in the CIS countries (on a similar level as Belarus). Turkmenistan, with its 46 research organisations, is in the process of re-opening some institutions after its previous president had closed the Academy of Science and its research institutions.

Science and technology policies are passing through a phase of transition in all countries of EECA and Russia, especially after their independence from the Soviet Union. In the years following independence, all Governments have taken up concrete measures for the progress and development of S&T in their countries. Innovation was named a priority in most of the EE and CA countries. Innovation policies can be found in most of the national strategies.

¹⁶ Sonnenburg, J., Bonas, G. and Schuch, K. (eds.) (2012): White Paper on opportunities and challenges in view of enhancing the EU cooperation with Eastern Europe, Central Asia and South Caucasus in Science, Research and Innovation. Prepared under the FP7 INCO-NET EECA Project, International Centre for Black Sea Studies, (ICBSS), Athens

¹⁷ Ibid. Page 33

¹⁸ Ibid. Page 27

The international cooperation plays an important role in the implementation of the national S&T strategies in all EECA countries and is included in the respective national legislation.

All EECA countries - except Belarus - have Partnership and Cooperation Agreements (PCAs) concluded with the EU. The PCAs legally establish the institutional framework for bilateral relations, set the principal common objectives and call for activities and dialogue in a number of policy areas including S&T. In specific cases (e.g. in AM, MD, UA) the PCA has led to the approval of concrete Action Plans listing precise commitments of the targeted country in order to meet EU standards. The main national objectives of the EECA countries regarding international collaboration include the following aspects: a) exchange of S&T knowledge; b) financial and technical support; c) creation of joint research centres and organisations.

Moreover, in some of the countries the cooperative actions in the national laws and strategies are connected to the economic development and promotion of innovation in the own country. Based on examination of national state S&T strategies and programmes EECA partners of IncoNet EECA project indicated the national research priority fields that should contribute to the socio-economic development of the country:

- Advanced technologies, information and communication technologies (AM, BY, GE, MD, KZ, KG, TJ, TM, UA, UZ);
- Agriculture, biotechnology, soil fertility and food security, land and water management (BY, MD, KZ, KG, TJ, TM, UZ);
- Energy and water technologies, renewable energy resources and energy efficiency (AM, BY, KZ, KG, MD, TJ, TM, UA, UZ);
- Metallurgy and extraction (KZ, KG, TJ, TM, UZ);
- Environmental protection, natural resources management and safety (AM, BY, KZ, KG, TJ, TM, UA, UZ);
- Life sciences, biomedicine, medical equipment and technologies, pharmaceuticals and human health (AM, BY, MD, KZ, KG, TJ, TM, UA, UZ);
- Nanotechnology, industrial engineering, new materials and products, chemical technologies (BY, MD, GE, UA);
- Space technologies, Earth Sciences (AM, BY);
- Oil and gas sector, i.e. physical and chemical extraction and processing (KZ, TM, UZ);
- Socio-economic policy and economic production (TJ, TM, UZ).

The report presents assessment of EU-EECA and EU-Russia collaboration in the implementation of joint projects during FP5, FP6 and FP7 by country, priority research area and type of organisation. The analysis will help to determine in which research areas EU-EECA and EU-Russian partnership in joint FP5-7 projects has been the most intensive, as well as to find out types of organisations of the most active EECA and Russian participants. That will let to identify the directions for further development of the international scientific and technological cooperation.

The paper provides statistical data and examples of active EU-EECA and EU-Russian project partnership in 10 priority scientific areas such as Health; Information and Communication Technologies; Nanotechnologies; Space; Food, Agriculture and Biotechnology; Environment; Socio-economic Sciences and the Humanities; Energy; Euratom (nuclear fission and radiation protection); Transport; and in Horizontal subprogramme - International Cooperation.

The paper consists of four parts: the first part presents assessment data and analysis on EU-EECA cooperation, the second part – on EU-Russia cooperation, the third part - and the fourth part – conclusions on the key tendencies of EU-EECA and EU-Russia research cooperation.

1. EU-EECA Cooperation in FP5-7

1.1. Overall Number of FP5-7 Projects with Participation of EECA

The overall number of joint projects implemented by EU MS/AC and EECA countries within FP5-7 was 511. The number of joint projects implemented in cooperation between EU MS/AC and the majority of EECA countries was constantly growing in each FP. The largest number of projects (215) was launched during FP7. It shows a significant general growth of EECA participations in joint projects with the EU MS/AC since the beginning of FP5.

Considering the total numbers of projects in each FP, project activity of Ukraine increased to a far greater extent than the activity of other countries, although there was still a certain growth in the numbers of projects implemented with their participation. Compared to FP5, some reduction of partnership activity within FP7 is seen in case of Kyrgyzstan. Participation of Uzbekistan in FP7 has dropped down to almost half. Among all the EECA countries, Ukraine was the most active project partner of EU MS /AC. (Table 1-1, Figure 1-1).

Table 1-1

Overall Number of FP5-7 Projects Implemented by EU MS/AC and EECA Countries
Distribution per EECA Country

	BY	UA	MD	GE	AM	AZ	KZ	KG	TM	TJ	UZ	TOTAL
5FP	14	50	9	12	12	3	18	7	2	1	10	138
6 FP	17	76	14	10	5	6	11	6	2	3	8	158
7FP	20	92	16	21	18	11	20	6	4	3	4	215
TOTAL	51	218	39	43	35	20	49	19	8	7	22	511

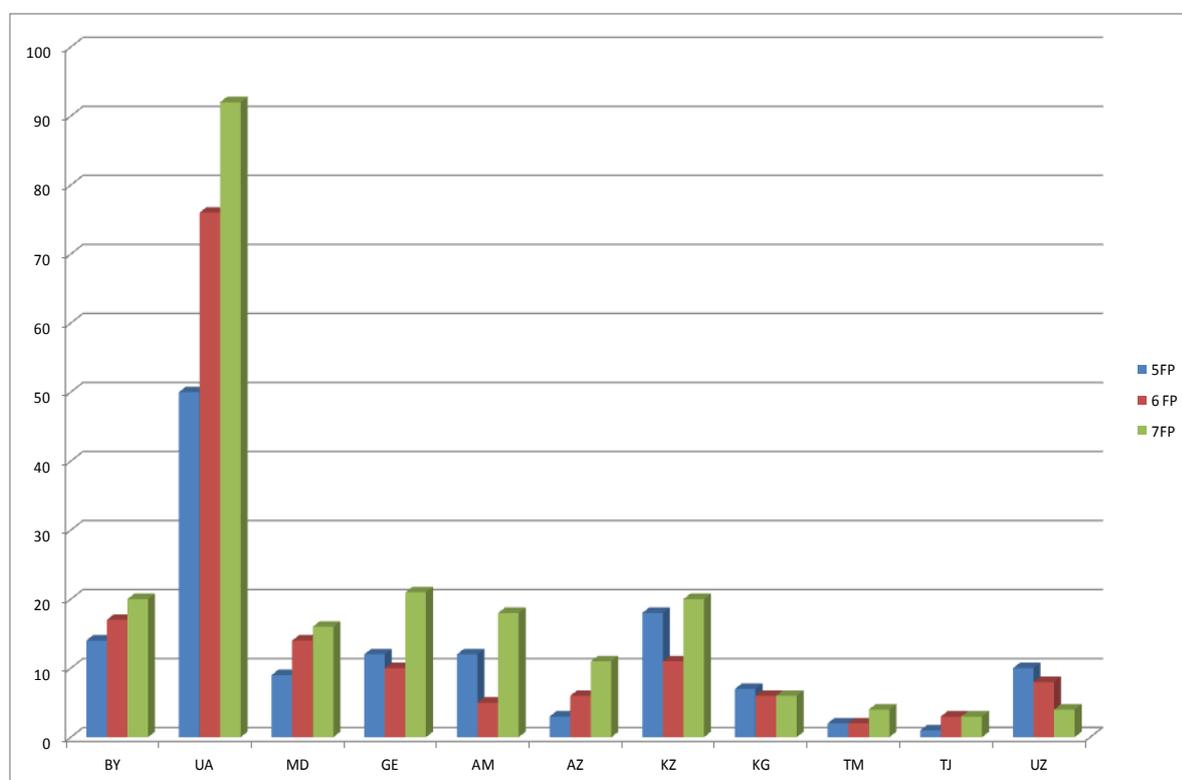


Figure 1-1 Overall Number of FP5-7 Projects Implemented by EU MS/AC and EECA Countries.
Distribution per EECA Country

1.2. Data on EU-EECA Project Performance within FP5-7 by Partner Country

As it is shown in Tables 1-2 and 1-3 and in Figures 1-2 and 1-3 below, such EU MS countries as Germany, Greece, United Kingdom, Italy and France coordinated the largest number of projects carried out in cooperation with EECA countries (90, 50, 49, 44 and 38 projects correspondingly).

Table 1-2

Overall Number of EU MS Coordinators of FP5-7 Projects with Participation of EECA Countries

	AT	BE	BG	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LV	NL	PL	PT	RO	SE	UK	Total
FP5	13	8	2	1	17	2	-	4	7	3	3	-	-	13	-	-	10	5	2	-	1	24	115
FP6	7	2	3	2	38	5	1	11	2	1	17	2	1	8	1	1	6	14	5	-	4	11	142
FP7	9	5	1	8	35	1	-	35	14	2	18	4	-	23	-	-	6	1	1	5	2	14	184
Total	29	15	6	11	90	8	1	50	23	6	38	6	1	44	1	1	22	20	8	5	7	49	441

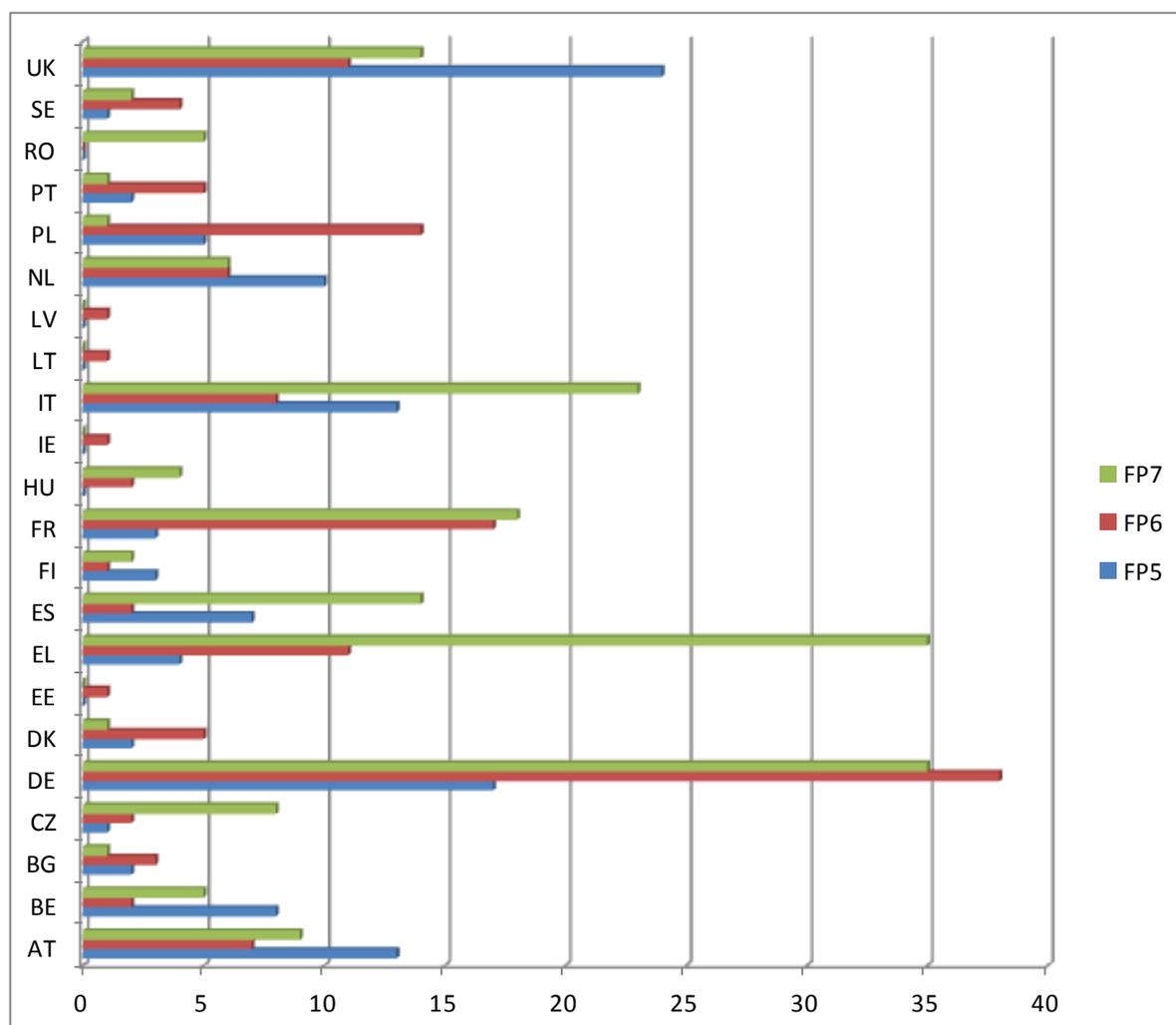


Figure 1-2 Overall Number of EU MS Coordinators of FP5-7 Projects with Participation of EECA Countries

Table 1-3 and Figure 1-3 show distribution of project coordinators from the EU MS by each partner country. During FP5-7, the greater number of projects coordinated by EU MS was implemented with participation of Ukraine (194), Belarus (47), Kazakhstan (39), Georgia (37) and Moldova (35).

Table 1-3

**EU MS Coordinators of FP5-7 Projects with Participation of EECA Countries.
Distribution per Partner Country**

EU MS	EECA											TOTAL
	BY	UA	MD	GE	AM	AZ	KZ	KG	TM	TJ	UZ	
AT	5	7	3	3	1	-	4	2	1	1	2	29
BE	-	8	1	-	1	-	3	1	-	-	1	15
BG	-	4	-	2	-	-	-	-	-	-	-	6
CY	-	-	-	-	-	-	-	-	-	-	-	-
CZ	1	5	1	1	1	-	1	-	-	-	1	11
DE	17	37	5	6	5	4	6	3	1	2	4	90
DK	-	5	1	1	-	-	1	-	-	-	-	8
EE	-	-	-	-	-	-	-	1	-	-	-	1
EL	3	15	6	7	5	5	6	1	1	1	-	50
ES	-	16	1	3	2	1	-	-	-	-	-	23
FI	-	4	-	1	1	-	-	-	-	-	-	6
FR	5	15	5	2	3	2	2	2	1	-	1	38
HU	-	6	-	-	-	-	-	-	-	-	-	6
IE	1	-	-	-	-	-	-	-	-	-	-	1
IT	5	19	1	4	6	1	5	-	-	-	3	44
LT	-	-	1	-	-	-	-	-	-	-	-	1
LU	-	-	-	-	-	-	-	-	-	-	-	-
LV	-	1	-	-	-	-	-	-	-	-	-	1
MT	-	-	-	-	-	-	-	-	-	-	-	-
NL	1	12	1	-	-	2	3	1	1	-	1	22
PL	3	10	2	1	-	-	1	1	-	-	2	20
PT	1	3	1	-	1	-	-	1	-	1	-	8
RO	-	1	1	1	1	1	-	-	-	-	-	5
SE	-	3	-	2	-	-	1	-	-	-	1	7
SI	-	-	-	-	-	-	-	-	-	-	-	-
SK	-	-	-	-	-	-	-	-	-	-	-	-
UK	5	23	5	3	3	-	6	1	1	-	2	49
TOTAL	47	194	35	37	30	16	39	14	6	5	18	441

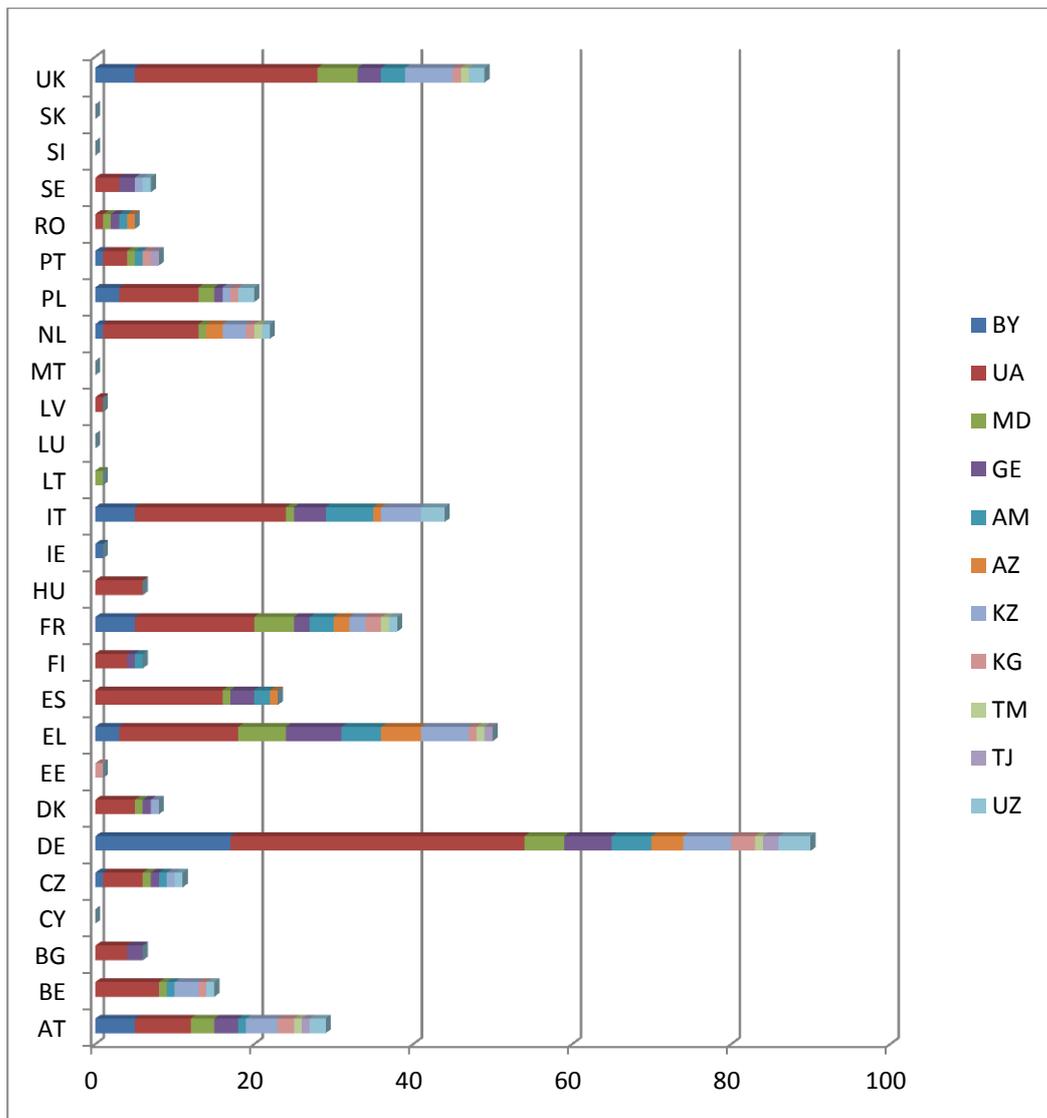


Figure 1-3 EU MS Coordinators of FP5-7 Projects with Participation of EECA Countries. Distribution per Partner Country

As shown in Table 1-4 and Figure 1-4, a significant growth in the number of participations of EU organisations - from 585 to 2513, was seen in FP6 compared to FP5. In FP7, the number of EU partners in joint EU-EECA projects reduced to 2022.

Table 1-4

Number of Participations of EU Organisations in FP5-7 Projects Involving EECA Countries

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK	Total
FP5	38	18	19	2	7	67	14	2	43	29	21	53	10	4	43	4	3	5	1	37	16	6	26	13	7	9	88	585
FP6	70	124	65	25	55	325	81	48	93	154	58	235	43	43	200	33	13	27	19	134	112	42	59	96	56	31	272	2513
FP7	76	81	75	16	61	222	42	41	160	116	47	197	65	11	210	17	5	14	22	81	80	22	94	44	16	7	200	2022
Total	184	223	159	43	123	614	137	91	296	299	126	485	118	58	453	54	21	46	42	252	208	70	179	153	79	47	560	5120

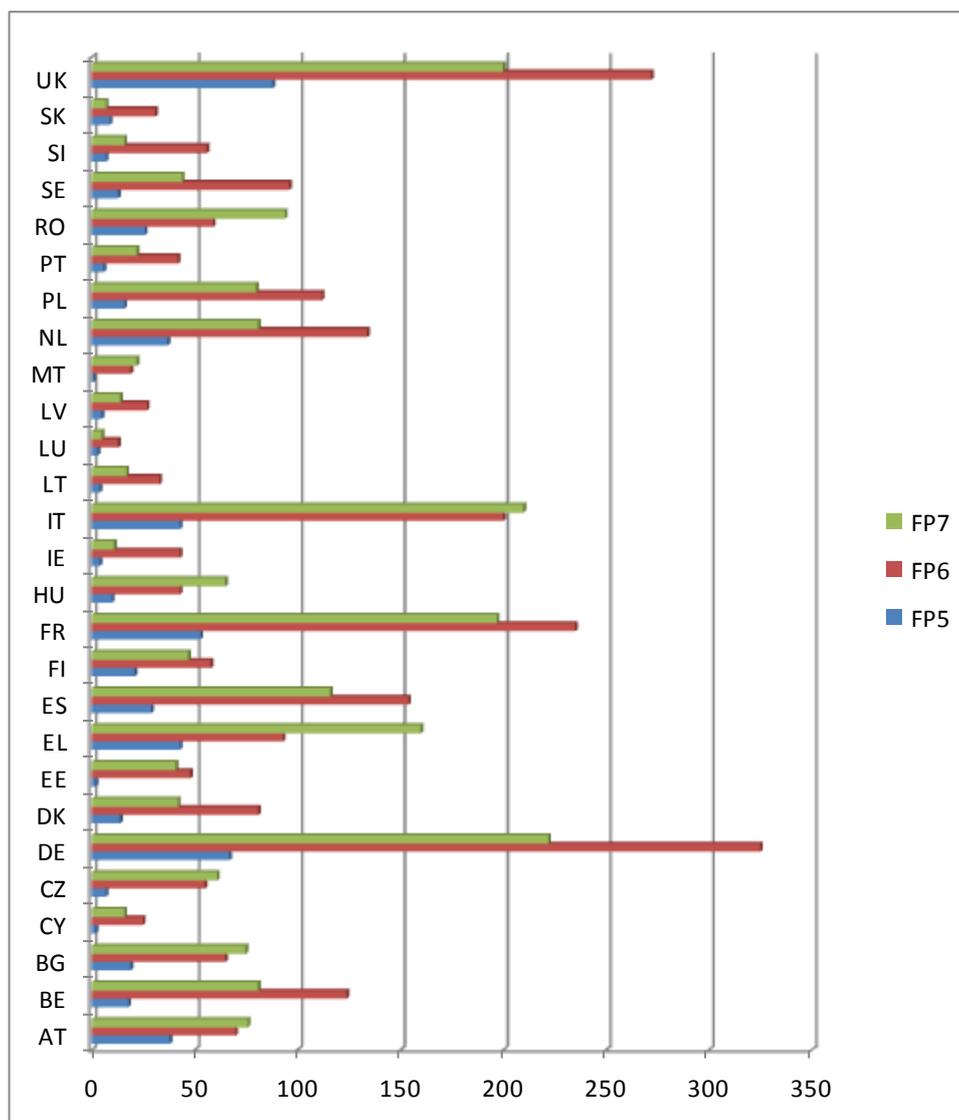


Figure 1-4 Number of Participations of EU Organisations in FP5-7 Projects Involving EECA Countries

1.3. Data on EECA Participation in FP5-7 Projects by Priority Scientific Area and EECA Country

1.3.1. Data on FP5-7 Projects with Participation of EECA Countries by Priority Scientific Area

The overall numbers of projects involving EECA countries in each priority scientific area (PSA) within FP5, FP6 and FP7 are shown in Table 1-5. FP5 projects were completed in 6 of the 11 analyzed areas: INCO, IST, Health, Energy, Environment and Transport.¹⁹ INCO accounted for over 50% of the total number of FP5 projects. Another PSA included a large number of joint projects with participation of EECA countries was IST. In FP6, it is seen a significant reduction in the total number of INCO projects and expanding of EECA project activity in all the other PSAs that led to the growth in the total number of projects in FP6. In FP7, compared to FP5 and FP6, the project performance with EECA became more active in such areas as IST, Health, BIO, Energy, Euratom, and Transport. Project participation of EECA in INCO, and ENV was remaining on the same level. Some reduction in number of joint projects is seen in Space and SSH. In general, it can be noted that the most active EU-

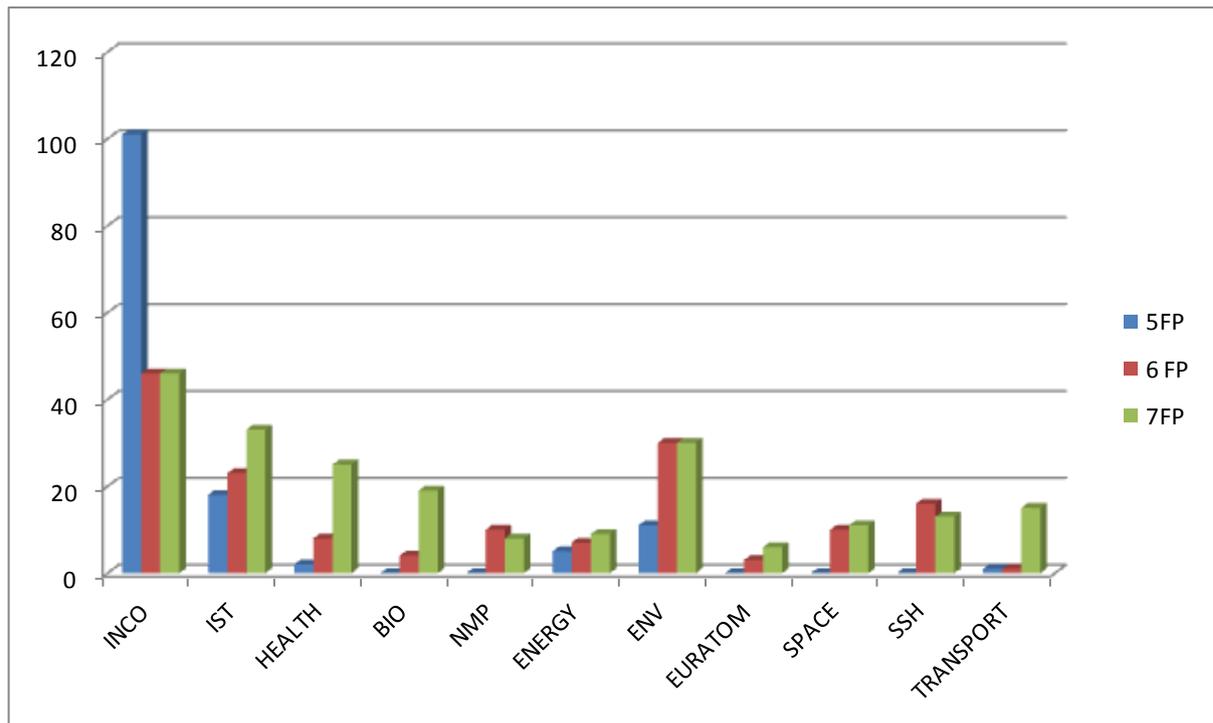
¹⁹ According to CORDIS project data base, such research area as Transport has been included into FP5-GROWTH and FP6-SUSTDEV, and projects implemented in this scientific field during FP5 and 6 were not recorded in that database separately.

EECA project cooperation within FP7 was in INCO, IST, Environment and Health (Figure 1-5).

Table 1-5

**Overall Number of F5-7 Projects with Participation of EECA.
Distribution by Priority Scientific Area**

	INCO	IST	HEALTH	BIO	NMP	ENERGY	ENV	EURATOM	SPACE	SSH	TRANSPORT	TOTAL
5FP	101	18	2	-	-	5	11	-	-	-	1	138
6FP	46	23	8	4	10	7	30	3	10	16	1	158
7FP	46	33	25	19	8	9	30	6	11	13	15	215
TOTAL	193	74	35	23	18	21	71	9	21	29	17	511



**Figure 1-5 Overall Number of F5-7 Projects with EECA Participation.
Distribution by Priority Scientific Area**

Considering the performance of FP5-7 projects with participation of EECA in each PSA, EECA representatives collaborated more often with organisations from Germany (82 participations in INCO, IST – 68, Environment – 137, Health – 89), France (INCO – 67, IST – 60, Environment – 117, Health – 68), Greece (INCO – 77, IST – 60, Environment – 67), Italy (Environment – 115, Health – 93), Spain (Environment – 85), Netherlands (Environment – 78).

Detailed distribution of EECA project participations within FP5-7 by PSA is presented in Table 1-6. During FP5-7 all the EECA countries were mostly involved in the implementation of projects in the areas of INCO and IST. Belarus, Ukraine, Georgia and Kazakhstan had also a great number of projects in the area of Environment, and Belarus, Ukraine, Moldova and Georgia – in Health. In SSH, there were more projects with participation of Belarus, Ukraine, Moldova, Georgia and Kyrgyzstan. Kazakhstan and Ukraine had a more often involvement into projects in the area of BIO. Compared to the other countries, Ukraine had the greatest number of joint projects in every PSA.

**Number of FP5-7 Projects with Participation of EECA Countries.
Distribution per Priority Scientific Area and EECA Country**

	BY	UA	MD	GE	AM	AZ	KG	KZ	TM	TJ	UZ	TOTAL
INCO	16	58	14	13	17	11	11	28	5	5	15	193
IST	15	19	8	9	12	5	1	2	1	1	1	74
HEALTH	4	15	5	4	2			3			2	35
NMP	2	13		1				2				18
BIO	2	11		3	1			5			1	23
ENERGY		17	2					2				21
ENV	6	37	3	8	2	2	3	5	2	1	2	71
EURATOM	1	7						1				9
SPACE	1	15	1	1	1		1	1				21
SSH	3	12	5	3		2	3				1	29
TRANSPORT	1	14	1	1								17
TOTAL	51	218	39	43	35	20	19	49	8	7	22	511

1.3.2. Data on FP5-7 Projects with EECA Participation by each EECA Country

Involvement of each EECA into the performance FP5-7 projects by PSA and each EECA Country is reflected in Figures 1-6 – 1-16 below.

	FP5	FP6	FP7
INCO	11	2	3
IST	2	6	7
HEALTH	-	1	3
NMP	-	1	1
BIO	-	1	1
ENERGY	-	-	-
ENV	1	5	-
EURATOM	-	1	-
SPACE	-	-	1
SSH	-	-	3
TRANSPORT	-	-	1
TOTAL	14	17	20

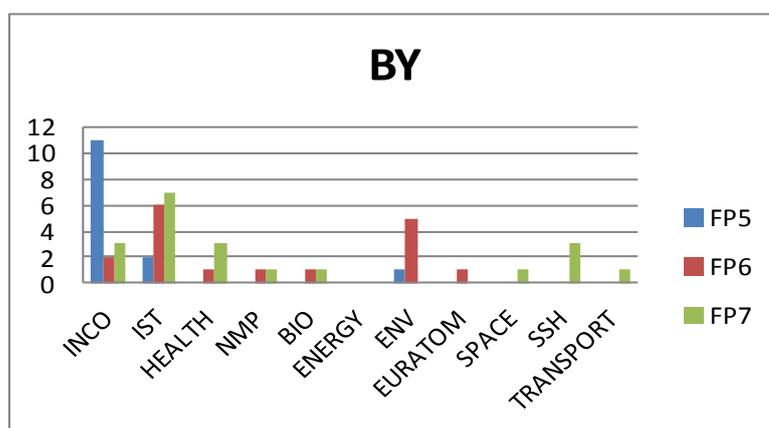
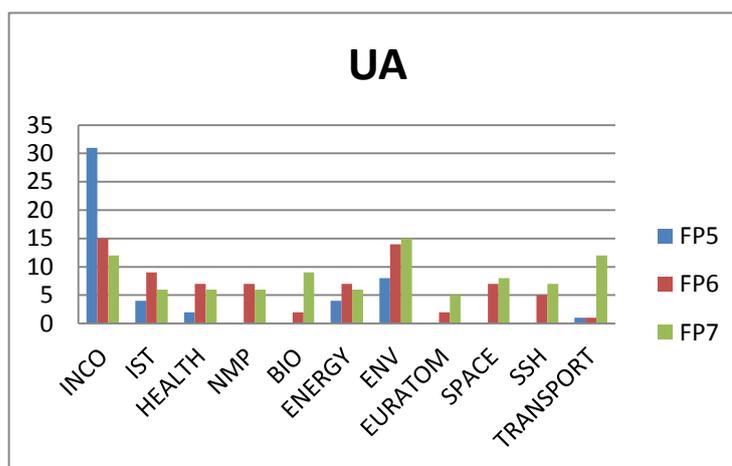


Figure 1-6 Number of FP5-7 Projects with Participation of Belarus. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	31	15	12
IST	4	9	6
HEALTH	2	7	6
NMP		7	6
BIO		2	9
ENERGY	4	7	6
ENV	8	14	15
EURATOM		2	5
SPACE		7	8
SSH		5	7
TRANSPORT	1	1	12
TOTAL	50	76	92



**Figure 1-7 Number of FP5-7 Projects with Participation of Ukraine.
Distribution per Priority Scientific Area**

PSA	FP5	FP6	FP7
INCO	5	4	5
IST	3	2	3
HEALTH			5
ENERGY	1		1
ENV		2	1
EURATOM			
SPACE		1	
SSH		5	
TRANSPORT			1
TOTAL	9	14	16

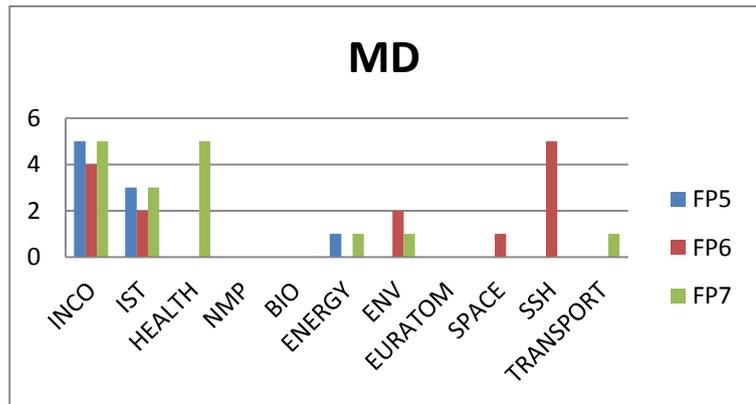


Figure 1-8 Number of FP5-7 Projects with Participation of Moldova. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	6	1	6
IST	4	2	3
HEALTH			4
NMP		1	
BIO			3
ENERGY			
ENV	2	3	3
EURATOM			
SPACE		1	
SSH		2	1
TRANSPORT			1
TOTAL	12	10	21

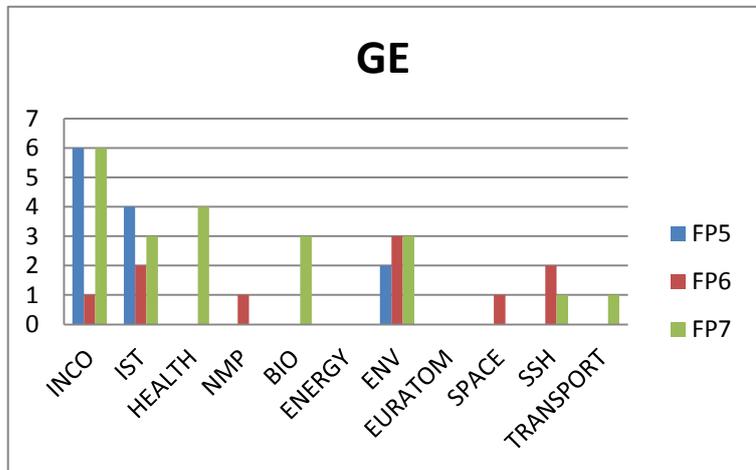


Figure 1-9 Number of FP5-7 Projects with Participation of Georgia. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	8	2	7
IST	4	2	6
HEALTH			2
NMP			
BIO			1
ENERGY			
ENV		1	1
EURATOM			
SPACE			1
SSH			
TRANSPORT			
TOTAL	12	5	18

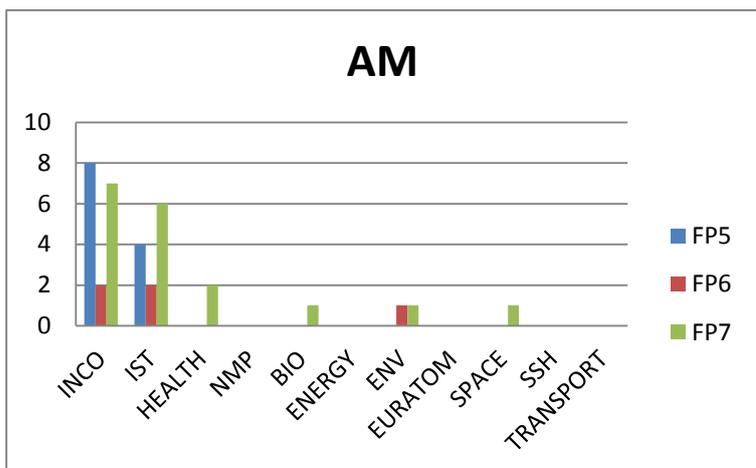


Figure 1-10 Number of FP5-7 Projects with Participation of Armenia. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	2	4	5
IST	1	2	2
HEALTH			
NMP			
BIO			
ENERGY			
ENV			2
EURATOM			
SPACE			
SSH			2
TRANSPORT			
TOTAL	3	6	11

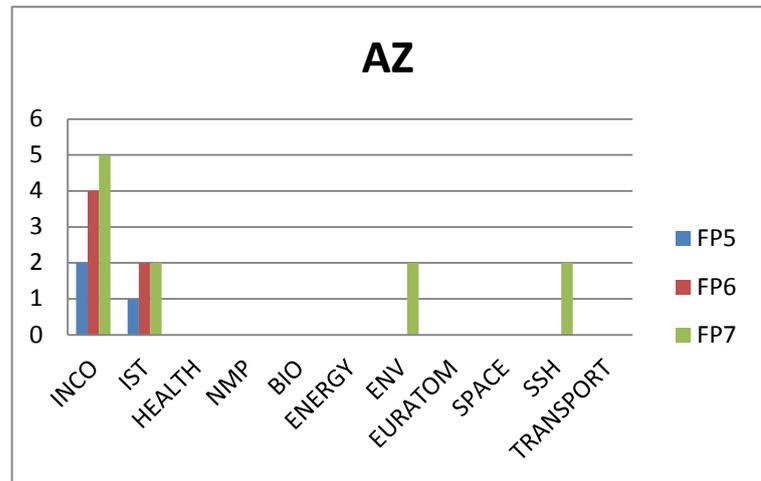


Figure 1-11 Number of FP5-7 Projects with Participation of Azerbaijan. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	7	3	1
IST			1
HEALTH			
NMP			
BIO			
ENERGY			
ENV			3
EURATOM			
SPACE			1
SSH		3	
TRANSPORT			
TOTAL	7	6	6

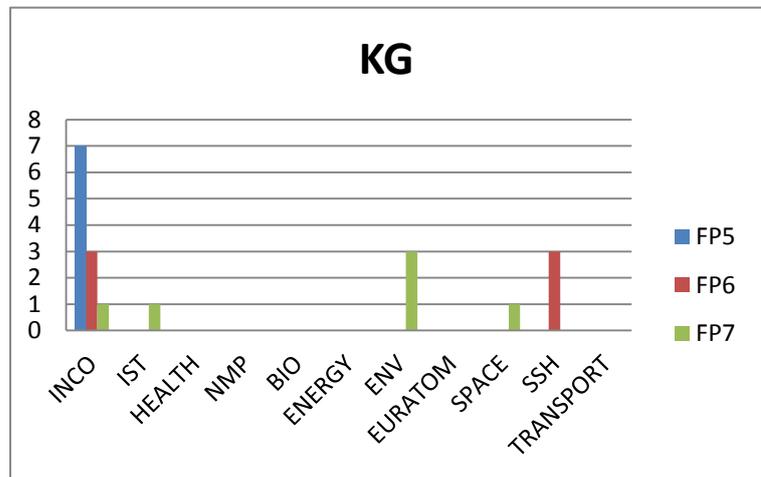


Figure 1-12 Number of FP5-7 Projects with Participation of Kyrgyzstan. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	18	6	4
IST			2
HEALTH			3
NMP		1	1
BIO		1	4
ENERGY			2
ENV		2	3
EURATOM			1
SPACE		1	
SSH			
TRANSPORT			
TOTAL	18	11	20

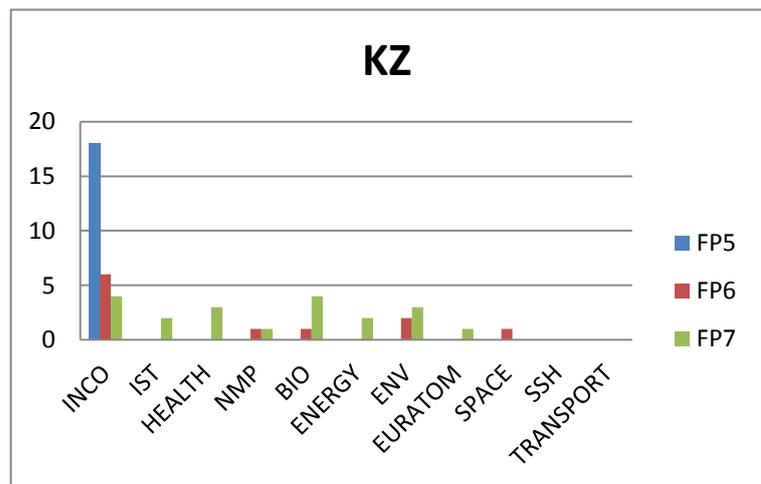


Figure 1-13 Number of FP5-7 Projects with Participation of Kazakhstan. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	2	1	2
IST			1
HEALTH			
NMP			
BIO			
ENERGY			
ENV		1	1
EURATOM			
SPACE			
SSH			
TRANSPORT			
TOTAL	2	2	4

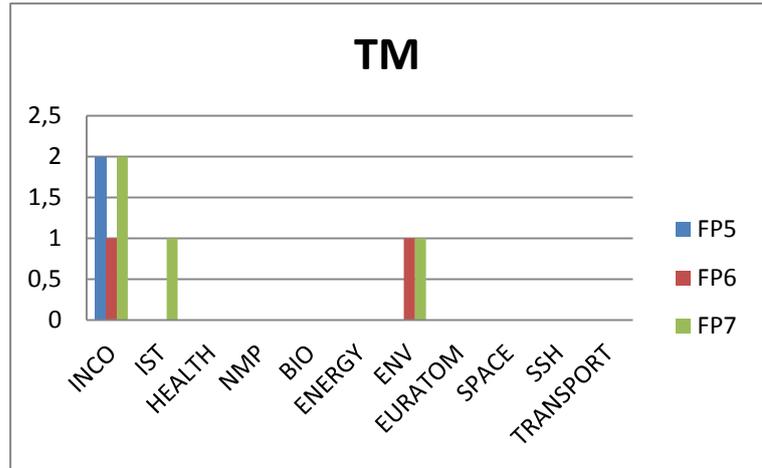


Figure 1-14 Number of FP5-7 Projects with Participation of Turkmenistan. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	1	3	1
IST			1
HEALTH			
NMP			
BIO			
ENERGY			
ENV			1
EURATOM			
SPACE			
SSH			
TRANSPORT			
TOTAL	1	3	3

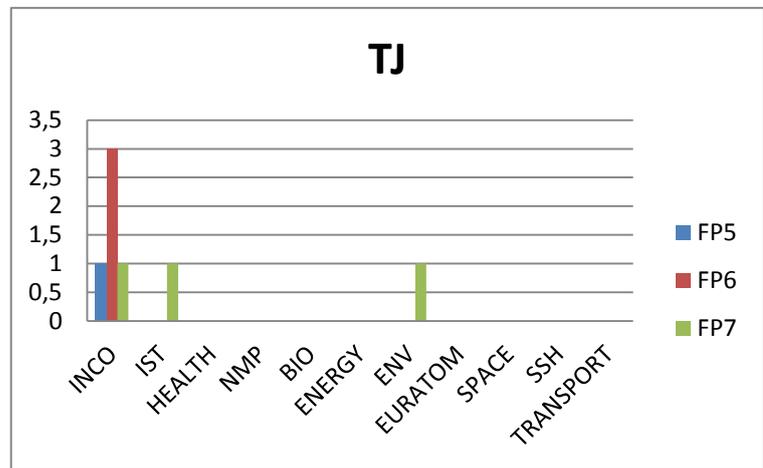


Figure 1-15 Number of FP5-7 Projects with Participation of Tajikistan. Distribution per Priority Scientific Area

PSA	FP5	FP6	FP7
INCO	10	5	
IST			1
HEALTH			2
NMP			
BIO			1
ENERGY			
ENV		2	
EURATOM			
SPACE			
SSH		1	
TRANSPORT			
TOTAL	10	8	4

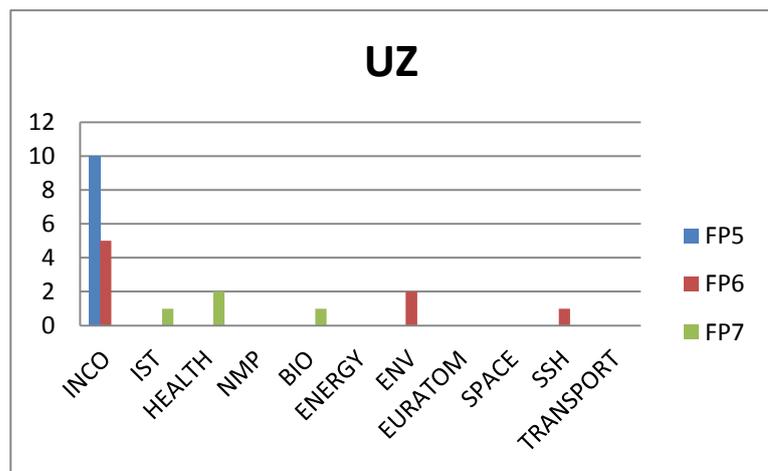


Figure 1-16 Number of FP5-7 Projects with Participation of Uzbekistan. Distribution per Priority Scientific Area

1.4. Data on Participation of EECA Organisations in FP5-7 Projects by Organisation Type and EECA Country

Organisations participated in implementation of EU-EECA projects within FP5-7 have been classified into 8 groups: RES (Research), HE Higher Education (Higher Education), GOV (Government), NGO (Non-Government) and IO (International Organisations), ENT (Enterprises), SME (Small and Medium Enterprises) and Other²⁰.

As seen in Tables 1-7 – 1-8, the overall number of EU organisations participated in FP5-7 projects jointly with EECA entities, was 5002. From this number, the most often participants were RES and HE organisations – 1581 and 1548 correspondingly. As for EECA countries RES (408) and HE organisations (145) also dominated by total number of participations in joint projects with EU within FP5-7. Total 764 EECA organisations took part in FP5-7. It should be noted that another large group of project participants from the both regions were organisations of OTHER type, representing various multidisciplinary institutions – 761 EU entities and 329 EECA entities. Although NGO and ENT of the both regions were not involved into joint projects so often as RES and HE institutions, they still remained significant in the overall alignment of project partners by number of their participations. Within FP6, some decrease was noticed in the project implementation by EECA RES organisations, while participation of HE organisations became more active. During FP7, the frequency of participation of RES organisations of the both regions considerably increased. Project participation of EU HE institutions decreased, and frequency of participation of EECA HE organisations increased. Involvement of GOV, ENT, SME and IO entities of the both regions also developed, although not to the same extent as the involvement of RES, HE, NGO and OTHER organisations (Figure 1-7).

Table 1-7

Overall Number of EU Participations in FP5-7 by Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	229	222	11	3	98	35	9	77	684
FP6	624	779	49	39	204	107	30	430	2262
FP7	728	547	131	31	217	109	39	254	2056
TOTAL	1581	1548	191	73	519	251	78	761	5002

Table 1-8

Overall Number of EECA Participations in FP5-7 by Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	126	31	6	4	8	1	1	19	196
FP6	122	36	3	4	16	5	-	22	208
FP7	160	78	8	19	17	10	2	66	360
TOTAL	408	145	17	27	41	16	3	107	764

²⁰ The group OTHER includes profit and non-profit organisations providing multidisciplinary consulting in non-scientific areas, funding and promotion of S&T cooperation and public services (associations, funding institutions, small private companies, hospitals, agencies, and individual contractors).

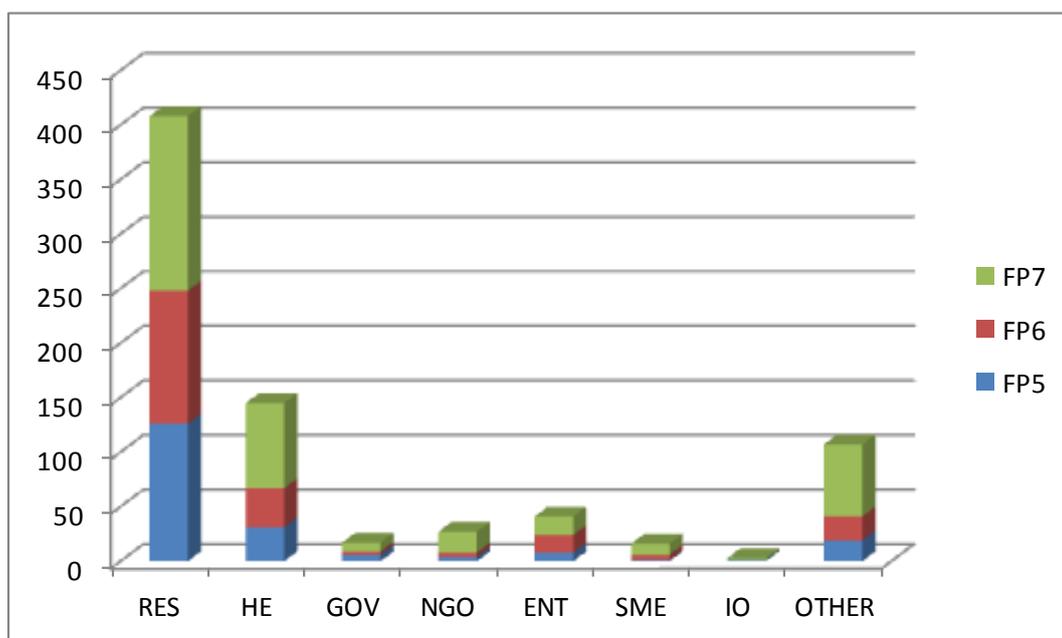


Figure 1-17 Overall Number of EECA Participations in FP5-7 by Organisation Type

On the whole, it should be noted that the cooperation between EECA and EU organisations on joint project performance within FP5-7 was developing. The number of joint contracts was growing despite the downturn in the project participation of EU entities in FP6: in FP5 - 196 (EECA) and 684 (EU) organisations, in FP6 – 208 (EECA) and 2262 (EU MS) organisations, and in FP7 - 360 (EECA) and 2056 (EU) organisations.

Distribution of EECA participations in FP5-7 projects by organisation type and by each EECA country is presented in Tables 1-9 - 1-19. Analysis of types of EECA organisations involved into EU-EECA projects since the beginning of FP5 until December 2007 showed the following:

- RES organisations: Participation of RES organisations of Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine increased; Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan – project participation decreased; Tajikistan – number of participations did not change.
- HE organisations: Belarus, Georgia, Moldova and Ukraine – participation in projects became much more often; Azerbaijan – 1 HE organisation took a part in FP7, and there were no project participations in FP5 and FP6; Armenia, Kazakhstan, Turkmenistan and Uzbekistan – project participation decreased.
- GOV, NGO and ENT: participation of EECA organisations of these types in FP5-7 was not as active as participation of RES and HE organisations, although involvement of ENT entities was more often in comparison with GOV and NGO institutions;
- SME and IO: organisations of these types have been seen only among EU's project partners from Ukraine and Kazakhstan. SME and IO entities of other EECA countries have not been found;
- OTHER: Georgia, Kazakhstan and Ukraine – after RES and HE organisations, OTHER organisations were the next group of the most frequent FP5-7 participants. Armenia, Azerbaijan, Belarus, Moldova, Kyrgyzstan and Turkmenistan – project performance by these organisations was stable; Uzbekistan and Tajikistan organisations of this type were not found among FP5-7 participants.

As it is seen from Tables 1-9 – 1-19 below, Ukraine, Georgia, Kazakhstan and Belarus had the largest number of organisations, involved into the implementation of FP5-7 projects. The most active project participants among those organisations were RES and HE institutions (136 RES and 52 HE entities in Ukraine, 103 RES and 42 HE entities in Georgia, 38 RES and 11 HE entities in Kazakhstan, and 37 RES and 16 HE entities in Belarus).

Table 1-9

Participations of Armenia in FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	5	4	2	-	1	-	-	1	13
FP6	2	-	-	-	2	-	-	5	9
FP7	10	2	1	1	1	-	-	4	19
TOTAL	17	6	3	1	4	-	-	10	41

Table 1-10

Participations of Azerbaijan in FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	1	-	1	-	-	-	-	2	4
FP6	5	-	-	-	1	-	-	1	7
FP7	6	1	2	2	3	-	-	1	15
TOTAL	12	1	3	2	4	-	-	4	26

Table 1-11

Participations of Belarus within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	9	5	-	-	1	-	-	1	16
FP6	15	1	-	-	-	-	-	1	17
FP7	13	10	-	-	1	-	-	1	26
TOTAL	37	16	-	-	2	-	-	3	58

Table 1-12

Participations of Georgia within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	23	8	2	3	-	-	-	5	41
FP6	34	10	2	-	1	1	-	4	52
FP7	46	24	2	7	1	1	-	34	115
TOTAL	103	42	6	10	2	2	-	43	208

Table 1-13

Participations of Kazakhstan within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	24	3	-	-	-	-	1	1	29
FP6	4	6	-	-	1	2	-	2	15
FP7	10	2	1	1	1	3	-	8	26
TOTAL	38	11	1	1	2	5	1	11	70

Table 1-14

Participations of Kyrgyzstan within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	7	-	-	-	-	-	-	2	9
FP6	3	-	1	-	-	-	-	2	6
FP7	5	-	1	1	1	-	-	1	9
TOTAL	15	-	2	1	1	-	-	5	24

Table 1-15

Participations of Moldova within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	4	2	-	-	-	-	-	3	9
FP6	7	2	-	-	2	-	-	3	14
FP7	10	6	-	1	-	-	-	3	20
TOTAL	21	10	0	1	2	0	0	9	43

Table 1-16

Participations of Tajikistan within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	1	-	-	-	-	-	-	-	1
FP6	3	-	-	-	-	-	-	-	3
FP7	1	-	1	2	-	-	-	-	4
TOTAL	5	-	1	2	-	-	-	-	8

Table 1-17

Participations of Turkmenistan within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	3	-	-	-	-	-	-	1	4
FP6	-	2	-	-	-	-	-	-	2
FP7	2	1	-	-	-	-	-	1	4
TOTAL	5	3	-	-	-	-	-	2	10

Table 1-18

Participations of Ukraine within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	41	8	-	-	6	1	-	2	58
FP6	42	13	-	4	7	2	-	4	72
FP7	53	31	-	4	9	6	2	13	118
TOTAL	136	52	-	8	22	9	2	19	248

Table 1-19

Participations of Uzbekistan within FP5-7. Distribution per Organisation Type

	RES	HE	GOV	NGO	ENT	SME	IO	OTHER	TOTAL
FP5	8	1	1	1	-	-	-	1	12
FP6	7	2	-	-	2	-	-	-	11
FP7	4	1	-	-	-	-	-	-	5
TOTAL	19	4	1	1	2	-	-	1	28

Considering FP5-7 projects with involvement of each EECA country and taking into account types of EU organisations participated in those projects, it can be noted that in case of each EECA country, the most frequent partner contacts were established with EU organisations of the following types:

- organisations of Armenia (41) had more frequent partnerships with 50 RES , 42 HE, and 39 ENT entities of the EU;
- Azerbaijan organisations (26) collaborated more frequently with 43 EU RES centers;
- Among the main EU partners of Georgian participants (50) there were 195 EU RES and 146 HE institutions;
- Belarus (58 participants) cooperated actively with a large amount of EU institutions. In particular, the most often partnerships were with 199 RES and 260 HE, and 79 ENT organisations;
- Project partners of Kazakhstan entities (70) were mostly 39 RES and 37 HE and 39 ENT institutions of the EU;
- Kyrgyzstan entities (24) cooperated with 39 RES and 37 HE organisations of the EU;
- The main EU partners of Moldavian project participants (43) were 79 RES, 91 HE and 12 GOV, and 30 ENT organisations of the EU;
- Tajikistan had 8 entities involved into project implementation. Their most frequent partners from the EU were 8 RES, 7 HE and 3 ENT organisations;
- 10 Turkmenistan's entities cooperated mainly with 14 RES and 6 HE institutions of the EU;
- 28 project participants from Uzbekistan had more active collaboration with 39 RES and 54 HE organisations of the EU.
- In comparison with other EECA countries, Ukraine participated in the majority of the projects involving EECA countries and compared to other EU's EECA partners had the largest number of organisations (248) involved into FP5-7 implementation. They cooperated more actively with 839 RES and 822 HE organisations, 278 ENTs and 205 SMEs. Participation of Ukrainian ENTs in the joint projects with the EU became more frequent. It indicates more often involvement of industrial enterprises into the scientific research area that can be considered as the improvement of

innovation activities in the country and an important factor of the economic development. Ukrainian SME, NGO, IO and OTHER organisations did not cooperate with the EU as often as Ukrainian RES, HE and ENT entities. However, their participation was still high by the total number of partners: Gov - 91, NGO - 46, IO - 57 and Other - 239.

2. Russia Participation in FP5-7

The analysis presented below includes the data obtained from CORDIS project database and SCOPE-EAST project materials, as well as the data presented by the European Commission. The statistics contains data on participation of Russian organisations in FP7 including FP7 calls in four Specific Programmes of FP7 (Cooperation, People, Capacities and Ideas) and Euratom FP7, except the International Outgoing Fellowships (IOF) and the International Research Staff Exchange Scheme (IRSES) of the Marie Curie Scheme as of December 2012.

2.1. Number of FP5-7 Projects with Participation of Russia

Russian organisations took a part in 558 research and INCO projects within EU FP5-7. The overall number of projects involving Russia has significantly increased for the period of FP5- FP7: FP5 - 112 (data extracted from CORDIS database as of December 2012), FP6 - 155 (data on FP6 were obtained from the SCOPE-EAST project: “Statistical Analysis on Russian and Ukrainian Participation in the Sixth EU Framework Programme, INTAS, ISTC, STCU “, as of January 2007), FP7 - 223 (Presentation “Russian Participation in FP7” made by Richard Burger, European Commission, at the Information Day, 26 April 2013, Moscow) (Figure 2-1).

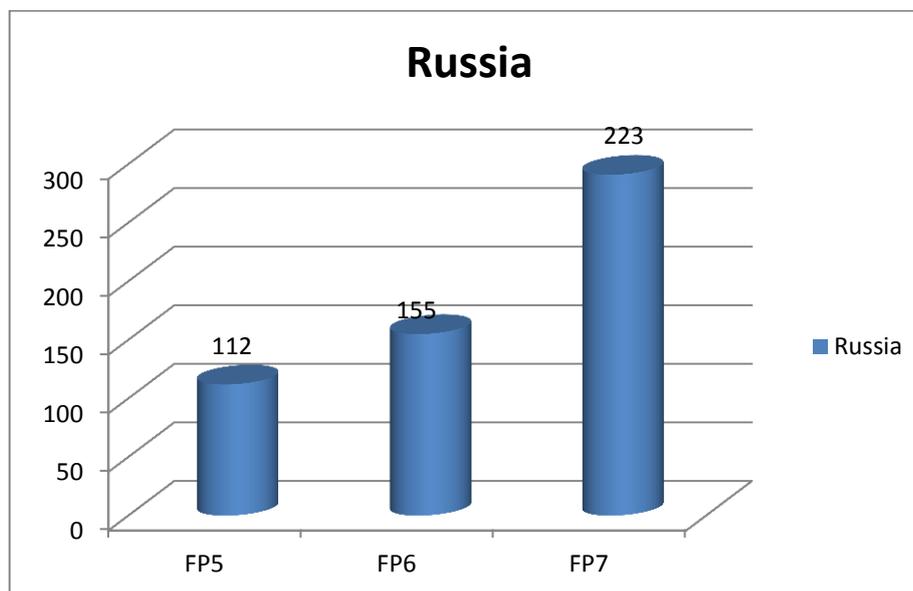


Figure 2-1 Overall Number of FP5-7 Projects with Participation of Russia

2.2. Data on EU-Russia Project Performance within FP5-7 by Partner Country

5th Framework Programme:

The majority of the projects implemented in cooperation with Russia was coordinated by Germany (31), UK (12) and Netherlands (11) (Figure 2-2).

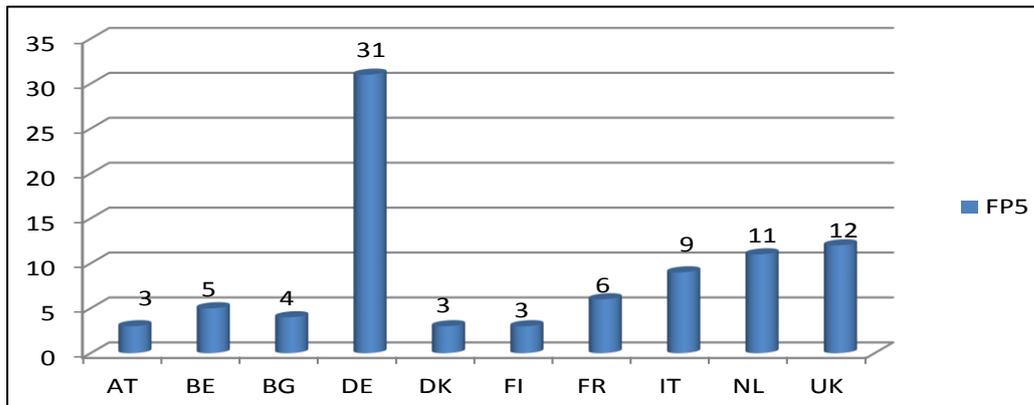


Figure 2-2 EU Coordinators of FP5 Projects with Participation of Russia

The main three partners of Russia in FP5 were organisations of UK (140), Germany (139) and France (119) (Figure 2-3).

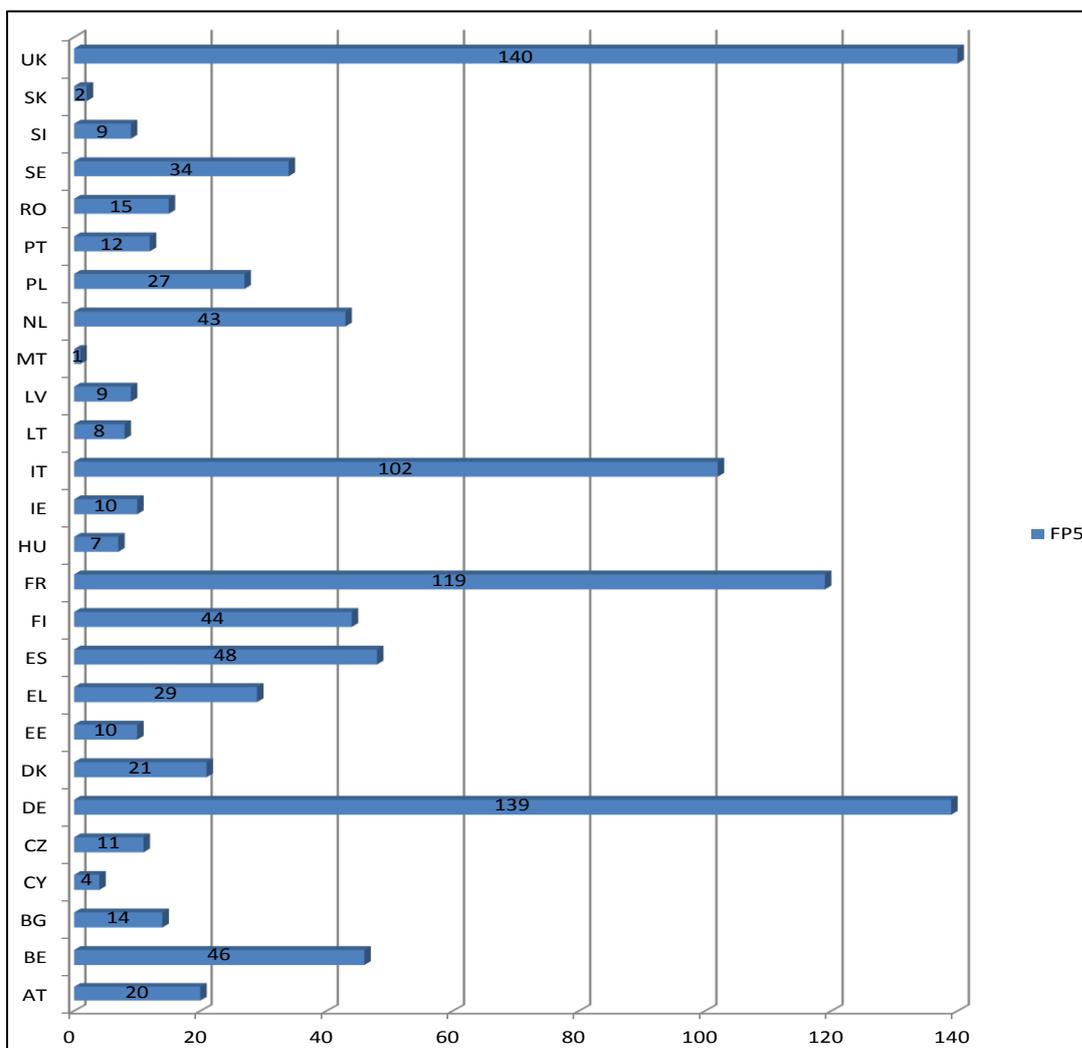


Figure 2-3 Number of Participations of EU Organisations in FP5-7 Projects Involving Russia

6th Framework Programme²¹:

The main partners of Russia in FP6 are shown in Figure 2-4. The eleven countries with which Russia has the greater number of contracts under FP 6 were: Germany, the United Kingdom, France, Italy, the Netherlands, Spain, Sweden, Poland, Belgium, Austria and Greece.

**20 main EU MS partners of Russia in FP6
(Number of Participations)**

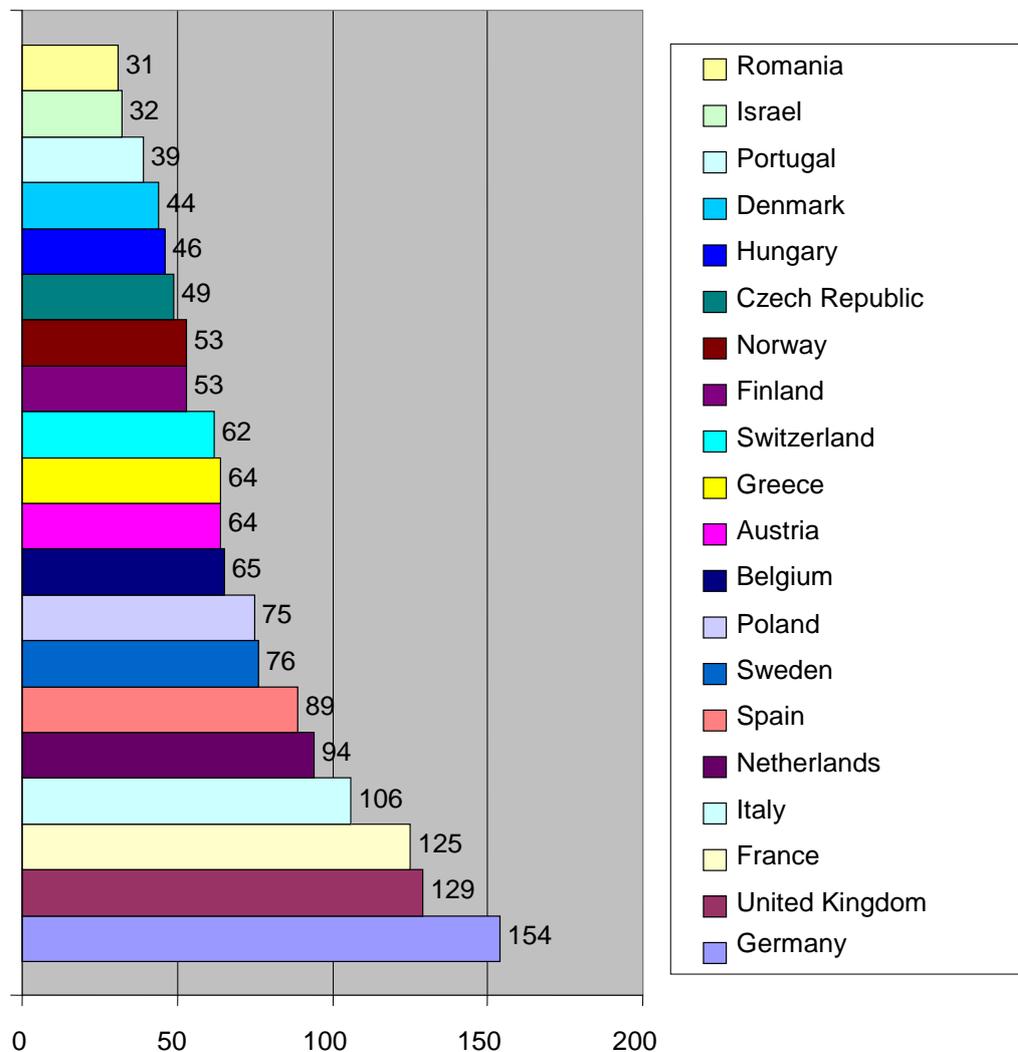


Figure 2-4 Main EU MS/AC Partners of Russia in FP6

7th Framework Programme²²:

Nationality of the coordinators (main actors)²³:

1. **Germany (61 projects)**
2. **UK (35)**
3. **France (33)**

²¹ Report "Statistical Analysis on Russian and Ukrainian Participation in the Sixth EU Framework Programme, INTAS, ISTC, STCU", SCOPE-EAST project, November 2007

²² "Russian Participation in FP7", Richard Burger, European Commission, April 2013

²³ Includes coordinators of return phases of Marie Curie International Incoming Fellowship (IIF) grants

4. Italy (30)
5. Russia (19)²⁴
6. Netherlands (17)
7. Belgium (13)
8. Greece (12)
9. Finland (11)
10. Spain (10)

Main collaborative links:

- 1. Germany (540)**
- 2. France (442)**
- 3. UK (431)**
4. Italy (371)
5. Spain (223)
6. Netherlands (196)
7. Belgium (162)
8. Sweden (150)
9. Greece (118)
10. Switzerland (113)

2.3. Data on Russia Participation in research projects by Priority Scientific Area (PSA)

Distribution of the projects implemented in cooperation with Russia by PSA is shown in Table 2-1 and Figure 2-5. The most projects in cooperation with Russia were implemented in the fields of INCO, IST, NMP, ENV, SPACE, TRANSPORT and HEALTH. Considering overall number of the completed projects, Russian project performance in BIO, HEALTH, ENERGY and EURATOM was not as often as in the listed above areas, but the number of joint projects in this fields increased. At the same time, INCO projects remaining still strong in the whole picture of Russian project performance, significantly reduced during FP6-7.

Table 2-1

**Number of FP5-7 Projects with Russian Participation.²⁵
Distribution per Priority Scientific Area**

	FP5	FP6	FP7	TOTAL
INCO	58	27	8	93
IST	19	22	25	68
HEALTH	5	14	23	42
NMP		24	24	48
BIO		5	22	27
ENERGY	3	31	11	44
ENV	23	2	21	46
EURATOM		4	10	14
SPACE		15	28	43
SSH		11	9	20
TRANSPORT	4		42	46
TOTAL	112	155	223	461

²⁴ Includes 1 coordinator of an FP7 INCO support action, 1 coordinator of an FP7 collaborative research project, and 17 coordinators of return phases of Marie Curie IIF grants

²⁵ Excluding horizontal activities such as SME, Security, SIS, Regions, as well as data in ERC, Infrastructures and Marie Curie Actions. "Russian Participation in FP7", Richard Burger, European Commission, April 2013

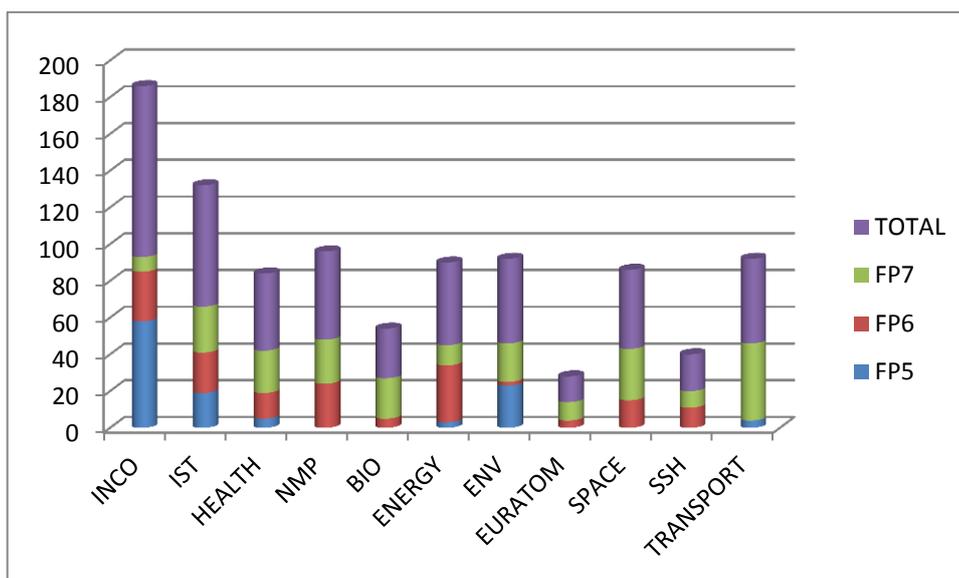


Figure 2-5 Number of Projects with Russian Participation. Distribution by Priority Scientific Area

5th Framework Programme:

Figure 2-5 shows distribution of Russian participations in FP5 projects by priority scientific area. Within FP5, Russia participated in projects in 6 from the 8 selected for the present analysis areas: INCO, IST, Health, Energy, Environment and Transport. The top number of Russian project participations during this period was noticed in INCO area. The other two areas, in which Russia had also many joint projects with the EU, were Environment and IST.

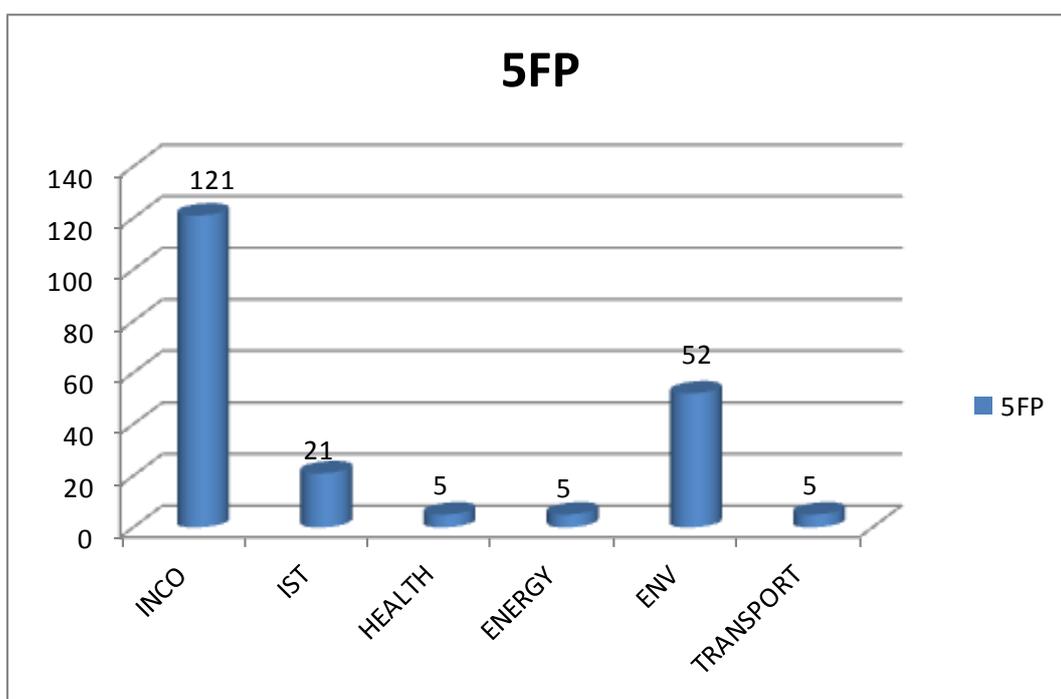


Figure 2-6 Russian Participations in FP5 Projects. Distribution by Priority Scientific Area

6th Framework Programme:

The number of FP6 projects implemented by EU MS jointly with Russia in each selected for the analysis PSA is shown in Table 2-6²⁶.

Four main fields account for more than 50% of the total number of projects (sustainable development, global change and ecosystems, specific measures in support of international cooperation, nanotechnology and nanosciences and information society technology). The following third consists of six priorities (aeronautics and space; life sciences; genomics and biotechnology for health; research infrastructures; citizens and governance in a knowledge-based society; policy support and anticipating scientific and technological needs and human resources and mobility)²⁷

Table 2-2

**Number of FP6 Projects with Participation of Russia.
Distribution per Priority Scientific Area**

Priority Areas	Total
1. Life sciences, genomics and biotechnology for health	14
2. Information society technologies	22
3. Nanotechnologies and nanosciences	24
4. Aeronautics and space	15
5. Food quality and safety	5
6. Sustainable development, global change and ecosystems	33
7. Citizens and governance in a knowledge-based society	11
8. Euratom	4
9. Specific measures in support of international cooperation	27

7th Framework Programme²⁸:

The data on the financed projects shown in Figure 2-7 include not only research areas but also horizontal activities such as SME, Security, SIS, Regions, as well as data in ERC, Infrastructures and Marie Curie Actions which were not analysed for FP5 and FP6 in this report.

²⁶ Projects implemented in such research areas as Infrastructures, JTI, Ideas-ERC, SME, JRC, Policies and within Marie Curie Actions were not analyzed in this report.

²⁷ "Statistical Analysis on Russian and Ukrainian Participation in the Sixth EU Framework Programme, INTAS, ISTC, STCU", SCOPE-EAST project, November 2007

²⁸ "Russian Participation in FP7", Richard Burger, European Commission, April 2013



Figure 2-7 Number of Projects Financed within FP7. Distribution by Priority Scientific Area

The distribution of EU-Russia FP7 joint projects by each PSA presented in Figure 2-7, shows that the top number of projects refers to Transport. Projects in Space and ICT were also prevailing in their number compared to projects in the other areas while they were not as numerous as the ones in Transport.

2.4. Russia Participation in FP5-7 by Organisation Type

During FP5-7, the number of Russia participations in joint projects was steadily growing. Compared to FP5 (209), the largest number of Russia participations was seen in FP7 (463). Among all the Russian organisations involved into the implementation of joint projects within FP5-7, RES institutions were the biggest group: in FP5 - 131, and in FP7 - 258 organisations. The two other large groups - HE institutions (FP5 - 37, FP7 - 103 organisations) and private companies (FP5 - 23, FP7 - 81).

Distribution of Russian participants of FP7 by organisation type is shown in Figure 2-8²⁹ below:

²⁹ “Russian Participation in FP7”, Richard Burger, European Commission, April 2013

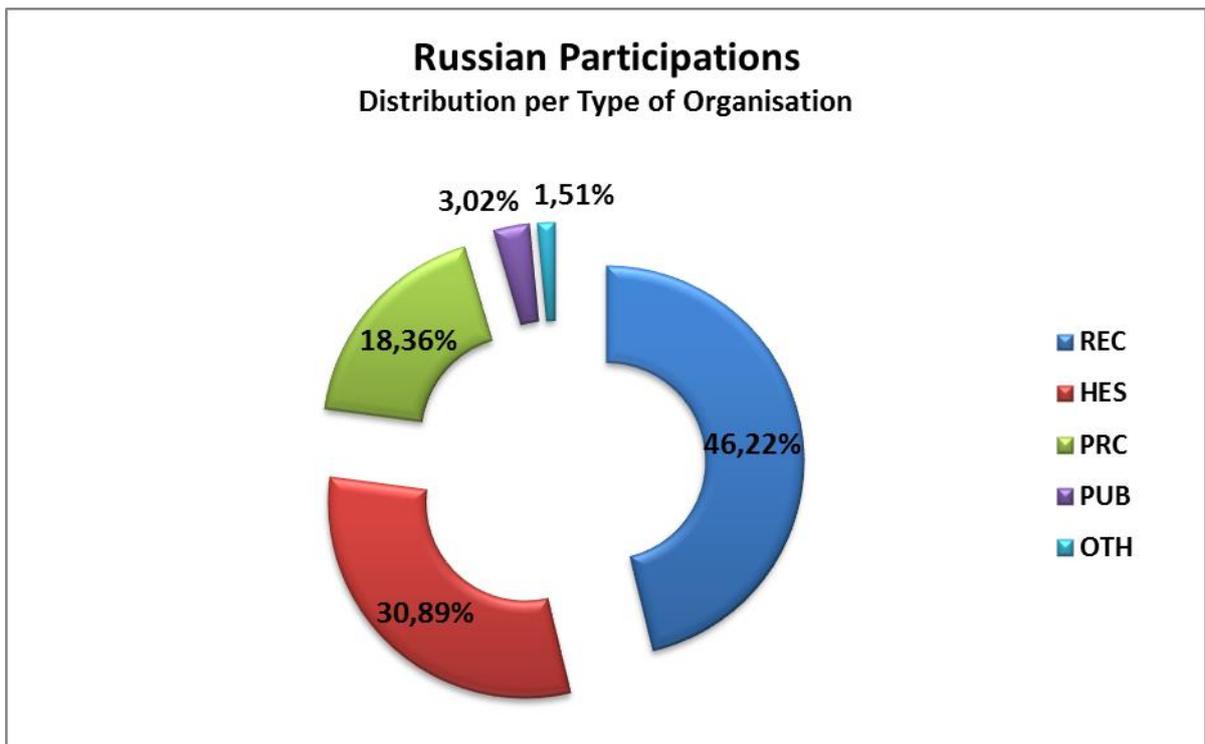


Figure 2-8 Russian Participations. Distribution per Type of Organisation

Among the most active Russian participants of joint research projects are the institutions of the Russian Academy of Sciences (156), Scientific Foundation Nansen International Environment and St. Petersburg Remote Sensing Centre (7) and N.E. Zhukovsky Central Aerohydrodynamic Institute (17); such leaders in Russian higher education and research as M.V. Lomonosov Moscow State University (15), National Research University “Higher School of Economics” (9), St. Petersburg State University (5) and Tomsk Polytechnic University (4); as well as such enterprises as Russian Technology Transfer Network (6), New Technologies and Services (3) and JSC “Aviadvigatel” (2).

3. Case-studies and analysis of 5 functioning EU-EECA thematic research networks

The aim of the Case-study was to analyse the effects of EU-EECA thematic research networks, formed in the course of FP projects including identification of added value, success stories and barriers to EU-EECA collaboration.

The Case-study of functioning EU-EECA thematic research networks was carried out via a specially elaborated questionnaire addressed to EU and EECA partners of ongoing research projects under the 7-th EU Framework RTD Programme.

It contributed to analysis of the effects of EU-EECA thematic research networks, formed in the course of FP7 projects including identification of added value, success stories and barriers to EU-EECA collaboration. It helped to understand what barriers scientists face implementing joint research projects under EU Framework RTD Programme. The results of the Case-study used to shape recommendations on how to overcome the barriers and improve S&T cooperation among countries involved into international research.

Research networks shaped within the following FP7 projects have been studied:

1. Assessment of climatic change and impacts on the quantity and quality of water (ACQWA)

Thematic research area: Environment

Duration period: 2008-10-01 – 2014-03-31

Project coordinator: Universite de Geneve, Switzerland

EU MS&AC partner countries: Austria, Germany, France, Italy, Spain, United Kingdom

EECA partner countries: Kyrgyzstan

Other 3rd partner countries: Argentina, Chile

The project assesses the impacts of a changing climate on the quantity and quality of water in mountain regions.

2. Genetics and physiology of wheat development to flowering: tools to breed for improved adaptation and yield potential (ADAPTAWHEAT)

Thematic research area: KBBE

Duration period: 2012-01-01 - 2015-12-31

Project coordinator: John Innes Centre , United Kingdom

EU MS&AC partner countries: Czech Republic, Denmark, France, Germany, Hungary, Serbia, Spain

EECA partner countries: Kazakhstan

Other 3rd partner countries: Argentina, Australia, Mexico

The project activities addresses short term global and European food security issues and establishes a platform for long term genetic gain and maintenance breeding.

3. Health in times of transition: Trends in population health and health policies in CIS countries (HITT-2008)

Thematic research area: Health

Duration period: 2009-05-01 - 2013-04-30

Project coordinator: Institut fur Hoehere Studien und Issenschaftliche Forschung, Austria

EU MS&AC partner countries: Moldova, United Kingdom

EECA partner countries: Belarus, Georgia, Kazakhstan, Russia, Ukraine

Other 3rd partner countries: Canada

HITT-CIS is an interdisciplinary effort of public health researches supported by social and political scientists. Empirical element includes a large-scale sociological survey in 10 CIS countries and a series of focused qualitative surveys. Additional components include analysis of economic determinants of behavior and policy analysis. HITT-CIS focuses on eight core research themes and produces a series of detailed research reports and policy briefs addressing each of them.

4. Policy dialogue in ICT to an Upper level for Reinforced EU-EECA Cooperation (PICTURE)

Thematic research area: ICT

Duration period: 2011-12-01 - 2014-05-31

Project coordinator: INNO TSD SA, France

EU MS&AC partner countries: Greece

EECA partner countries: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

The overall aim of the project is to engage the EU and EECA stakeholders from across research, academia, industries, government and civil society to enrich and support the EU-EECA ICT Policy Dialogue, and to reinforce strategic partnerships between EU and EECA ICT organisations.

5. Knowledge transfer and research needs for preparing mitigation/adaptation policy portfolios (PROMITHEAS-4)

Thematic research area: Environment

Duration period: 2011-01-01 – 2013-12-31

Project coordinator: National and Kapodistrian University of Athens, Hellas

EU MS&AC partner countries: Albania, Austria, Bulgaria, Estonia, Greece, Romania, Serbia, Turkey

EECA partner countries: Armenia, Azerbaijan, Kazakhstan, Moldova, Russia, Ukraine

The project's aims are the development and evaluation of mitigation/adaptation policy portfolios and the prioritization of research needs and gaps for twelve (12) countries (Albania, Armenia, Azerbaijan, Bulgaria, Estonia, Kazakhstan, Moldova, Romania, Russian Federation, Serbia, Turkey and Ukraine) characterized as emerging economies.

6. Sea Ice Downstream Services for Arctic and Antarctic Users and Stakeholders (SIDARUS)

Thematic research area: Space

Duration period: 2011-01-01 – 2013-12-31

Project coordinator: Nansen Environmental and Remote Sensing Center, Norway

EU MS&AC partner countries: Germany, France, United Kingdom

EECA partner countries: Belarus, Russia

The goal of SIDARUS is to develop and implement a set of sea ice downstream services in the area of climate research, marine safety and environmental monitoring.

3.1. Added value generated in course of the project implementation

EU and EECA partners of joint research projects were inquired to estimate as “*completely*”, “*partially*” or “*not at all*” the following added value (main benefits) generated in course of the project implementation:

- Contribution to solution of a specific problem / societal challenges that your country faces
- Relevance of the project research area to the country S&T priority
- Scientific knowledge advancement in the research area of the project
- Development of new or improved technology, products, processes and services
- Contribution to development of cooperation between research and industry
- Access to complementary knowledge/material/infrastructure
- Establishment of EU-EECA research networks
- Narrowing the gap between the EU and EECA research communities
- Awareness raising on ways to organise research
- Improvement of personnel skills
- Exchange of the best practices
- Promotion of EU Framework RTD Programme in EECA countries.

Among the very important added value of research projects the most part of the *EECA respondents* indicated *establishment of EU-EECA research networks, promotion of EU Framework RTD Programme in EECA countries and relevance of the project research area to the country S&T*

priority (88% - *completely*); awareness raising on ways to organise research (75% - *completely*); exchange of the best practices, narrowing the gap between the EU and EECA research communities and scientific knowledge advancement in the research area of the project (63% - *completely*) (see Table 3-1). As added value generated *completely* improvement of personnel skills has been highlighted by 50% of EECA respondents.

As added value generated *partially* 75% of EECA respondents chose contribution to development of cooperation between research and industry and 63% - contribution to solution of a specific problem / societal challenges that your country faces. Development of new or improved technology, products, processes and services gained equal estimation as *completely* and *partially* (38%) generated added value. 13% of EECA respondents specified establishment of EU-EECA research networks and 25% - development of new or improved technology, products, processes and services as *not at all* added value.

Among the very important added value of research projects the most part of the **EU respondents** (see Table 3-1) indicated ***establishment of EU-EECA research networks*** (100% - *completely*), ***promotion of EU Framework RTD Programme in EECA countries and relevance of the project research area to the country S&T priority*** (86% - *completely*); exchange of the best practices and narrowing the gap between the EU and EECA research communities (71% - *completely*). As added value generated *partially* 71% of EU respondents chose awareness raising on ways to organise research and 57% - contribution to development of cooperation between research and industry. Improvement of personnel skills, access to complementary knowledge / material / infrastructure and scientific knowledge advancement in the research area of the project as *partially* (43%) generated added value.

14% of EU respondents specified development of new or improved technology, products, processes and services; and contribution to development of cooperation between research and industry; and 29% - contribution to solution of a specific problem / societal challenges that your country faces as *not at all* added value.

Both **EECA and EU MS respondents** (see Table 3-1) indicated ***establishment of EU-EECA research networks*** as added value generated *completely* (93%). Opinions of both groups of countries concurred in indication of ***promotion of EU Framework RTD Programme in EECA countries and relevance of the project research area to the country S&T priority*** as *completely* generated added value (87%). 67% of respondents chose contribution to development of cooperation between research and industry as added value generated *partially*. The same estimation was given by 47% of respondents to awareness raising on ways to organise research and 40% - to contribution to solution of a specific problem / societal challenges that your country faces, access to complementary knowledge / material / infrastructure and improvement of personal skills. 20% of respondents consider development of new or improved technology, products, processes and services, and 13% - contribution to solution of a specific problem / societal challenges that your country faces, as *no added value* generated within research network.

Table 3-1

Added value generated in course of the joint research project implementation. Response of EECA and EU MS partners

Added value generated in course of the project implementation	completely	partially	not at all	completely	partially	not at all	completely	partially	not at all
	EECA response (%)			EU MS response (%)			EECA&EU MS response (%)		
Contribution to solution of a specific problem / societal challenges that your country face	38	63		57	14	29	47	40	13
Relevance of the project research area to the country S&T priority	88			86	14		87	7	
Scientific knowledge advancement in the research area of the project	63	25	13	57	43		60	33	7
Development of new or improved technology, products, processes and services	38	38	25	57	29	14	47	33	20
Contribution to development of cooperation between research and industry	25	75		29	57	14	27	67	7
Access to complementary knowledge/material/ infrastructure	63	38		57	43		60	40	
Establishment of EU- EECA research networks	88		13	100			93		
Narrowing the gap between the EU and EECA research communities	63	38		71	29		67	33	
Awareness raising on ways to organize research	75	25		29	71		53	47	
Improvement of personnel skills	50	38		57	43		53	40	
Exchange of the best practices	63	38		71	29		67	33	
Promotion of EU Framework RTD	88	13		86	14		87	13	

3.2 Barriers to research networking and implementation of joint project

Among barriers hampering to setting-up and implementation of international research between the ***EU and EECA FP7 project participants***, the most essential factors were indicated both by EU and EECA respondents (see Figure 3-1) such as the ***lack of financial support for international cooperation*** (36% of the respondents considered it *extremely severe* and 29% *moderately severe*), ***lack of personal contacts in international research networks*** (14% *extremely severe* and 36% *moderately severe*), ***difficult access to international networks and platforms for researchers*** (14% *extremely severe* and 21% *moderately severe*) and ***the lack of information on research programmes open for cooperation*** (43% *moderately severe*). EU and EECA researchers almost do not see such barriers for networking as lack of personal interest for international collaboration (71% - *no barrier to networking*), non-recognition of international R&D cooperation for scientific promotion (64% - *no barrier to networking*) and confidentiality and IPR (57% - *no barrier to networking*).

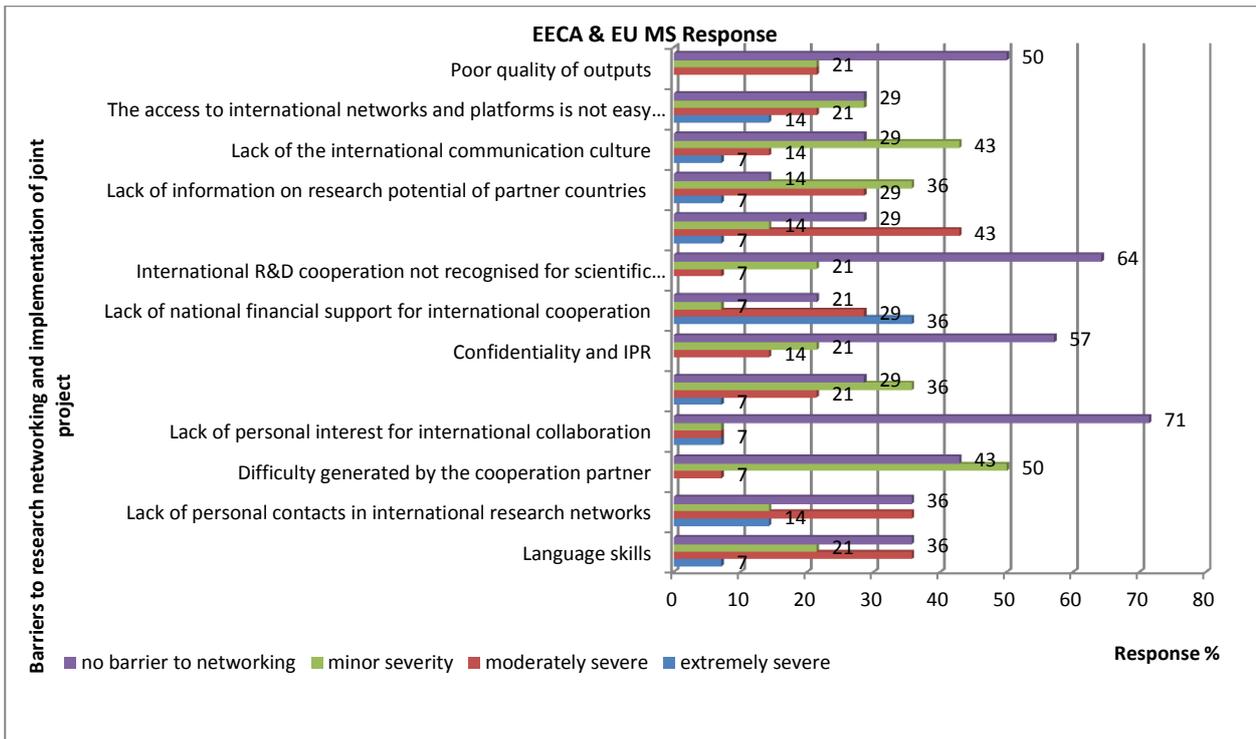


Figure 3-1 Barriers to research networking and implementation of joint project. EECA&EU MS response

In case of **EECA partners** (see Figure 3-2) among the most intensive barriers hampering research networking are highlighted **lack of national financial support for international cooperation** (38% of the respondents considered it *extremely severe* and 25% - *moderately severe*). Other barriers which were stressed are: **lack of personal contacts in international research networks** (13% of the respondents considered it *extremely severe* and 50% - *moderately severe*); **lack of information on research programmes open for cooperation** and **lack of information on research potential of partner countries** (50% - *moderately severe*).

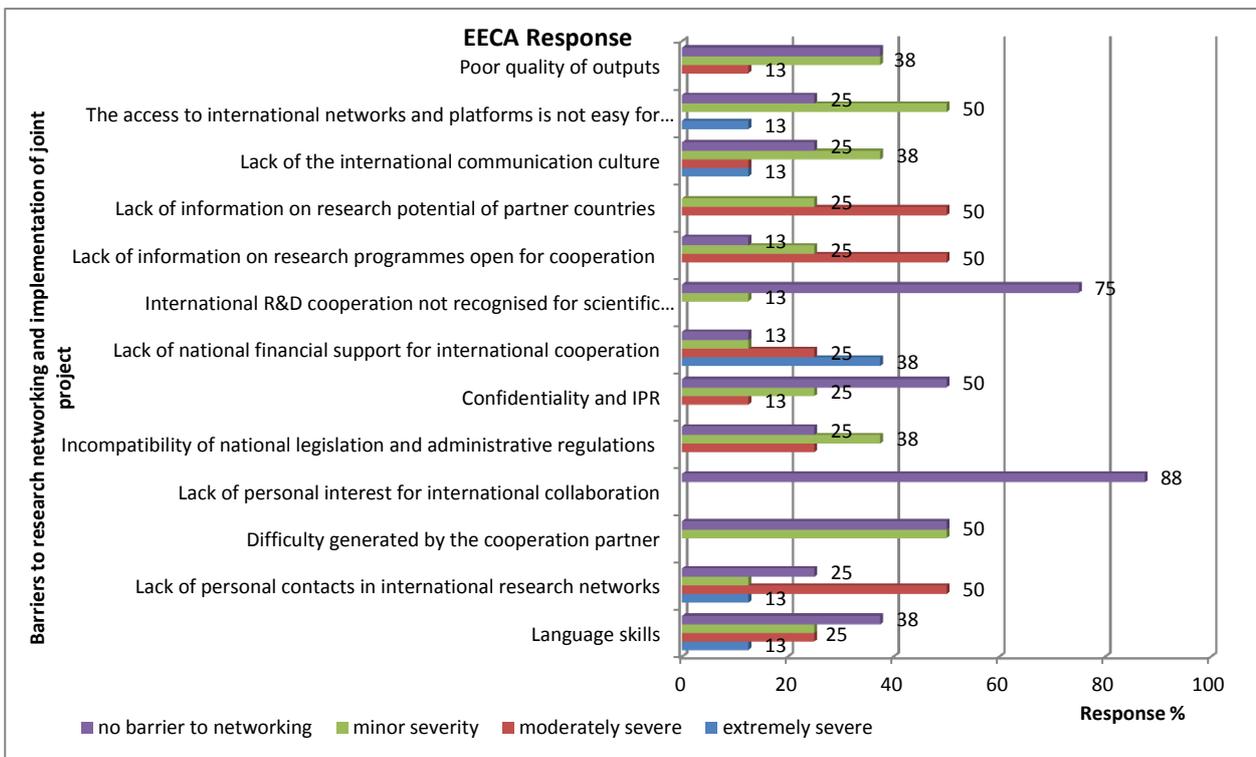


Figure 3-2 Barriers to research networking and implementation of joint project. EECA response

The main part of EECA respondents did not have problems in networking because of lack of personal interest for international collaboration (88% - *no barrier to networking*), non-recognition of international R&D cooperation for scientific promotion (75% - *no barrier to networking*); confidentiality and IPR, and difficulty generated by the cooperation partner (50% - *no barrier to networking*).

EU MS partners of research networks (see Figure 3-3) consider as the most essential barriers hampering research networking ***lack of national financial support for international cooperation*** (33% responses were *extremely severe* and 33% - *moderately severe*). Other barriers which were stressed are: ***difficult access to international networks and platforms for researchers*** (17% of the respondents indicated *extremely severe* and 50% - *moderately severe*), ***lack of information on research programmes open for cooperation*** (17% - *extremely severe*, 33% - *moderately severe*) and language skills (50% - *moderately severe*).

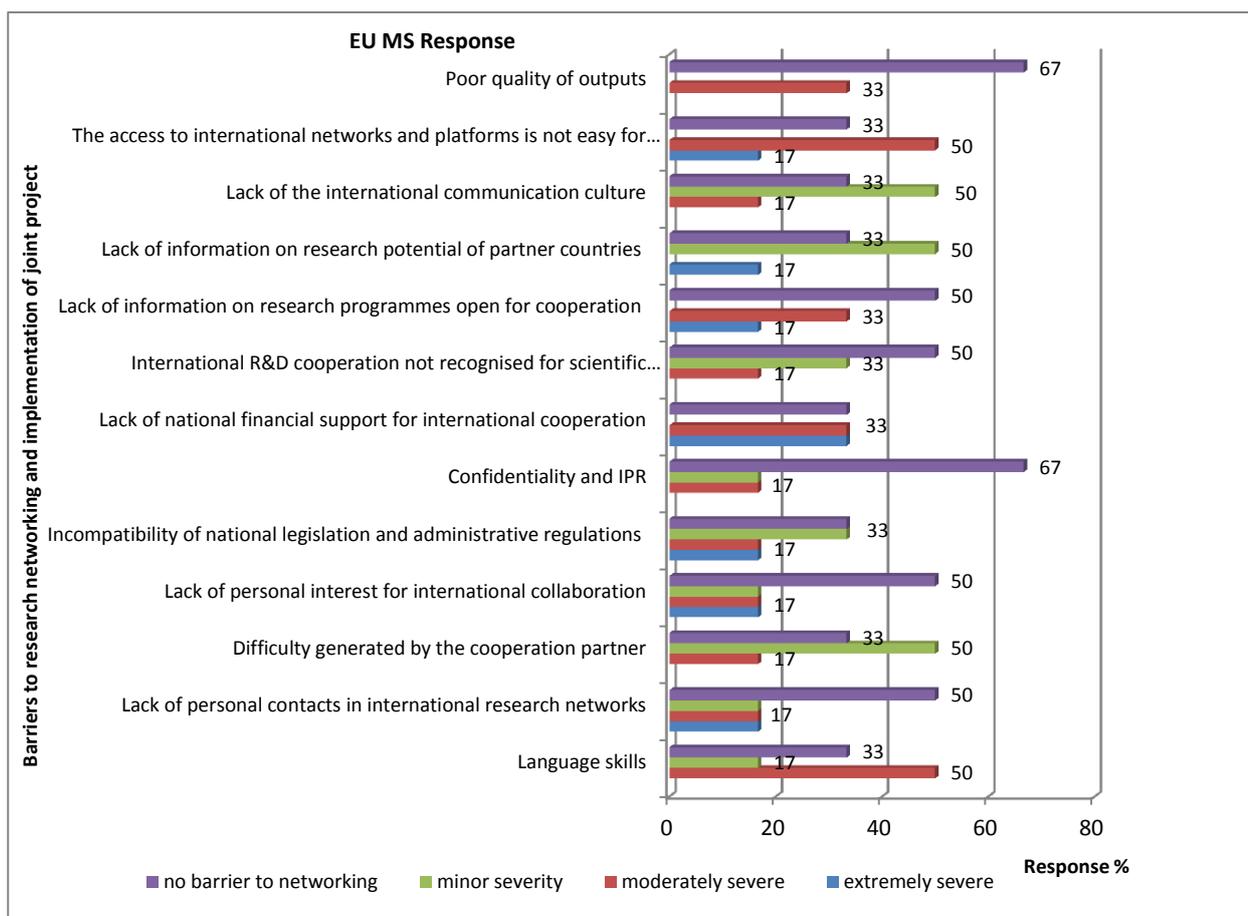


Figure 3-3 Barriers to research networking and implementation of joint project. EU MS response

67% of EU MS respondents consider confidentiality and IPR, and poor quality of outputs; 50% - lack of personal contacts in international research networks, lack of personal interest for international collaboration, non-recognition of international R&D cooperation for scientific promotion as no barriers to networking.

3.3 Success story (impact of the project on team, laboratory, institution, country)

EU MS partners of research networks consider that international collaboration under FP7 allowed to facilitate partnership with EECA researchers and at the same time to increase level of national research. The FP7 provided significant financial support for scientific laboratories. The joint projects provided an access to cutting edge research material and techniques. They also provided the space to explore new scientific methods not implemented before. Joint FP projects support building of a collaborative international network under a good environment. This environment made possible a

fluent exchange of ideas, points of view a while constructive criticism. EU partners obtained skills in coordination of a large-scale collaborative international research programmes created under the FP5 - FP7 projects implementation.

Essential part of networking was knowledge transfer through a number of beneficiary countries and development of cooperation with other international initiatives e.g. the Black Sea Economic Cooperation Organisation and its member states.

EECA partners of research networks

EECA teams have broadened their research connections as well as have improved their understanding of societal processes taking place in transition countries. The joint projects advanced skills of EECA partners in designing and implementing research.

At the team and institution level collaborative projects with the EU partners became a new interesting challenge that provided obtaining of new research skills, developing research networks and collecting new data for further research topics elaboration and publications. At the country level joint projects provided new data and new knowledge filling in the existing gap in the specific research areas.

Within some projects the research networking activities envisaged organisation of exhibitions, forums, workshops and other international events that contributed significantly into knowledge and technology transfer. Such events were held in Kazakhstan, Ukraine and other EECA countries. As a result Kazakh national companies signed 13 memorandum of understanding with representatives of the EU technology companies. An impulse was given to initiation of negotiations between Kazakhstan and the EU regarding the Agreement for cooperation in science, technology and innovations. The event in Ukraine collected representatives from European Technology Platforms and research organisations of EECA countries. The event triggered new momentum for cooperation between the involved ETPs and entities of the EECA region.

3.4 Most important suggestions on how to improve the support of research partnership between the EU and EECA countries

EU MS partners of research networks suggested to think over mechanisms of co-funding EECA teams' participation in joint projects. It is recommended to develop measures in order to increase the number of countries from the EECA region participating in EU RTD programmes. It should be made easier of new projects development. Visa regime for international travel of researchers should become more favourable. More efficient support is desired from the administration of universities and research organisation that host project teams. It is suggested that financial management and administration of EU-funded projects should be improved in EECA research organisations.

It is important to continue supporting international cooperation actions such as FP INCO projects which help to create opportunities to foster research collaboration and increase the number of joint projects in priority scientific areas. INCO projects allow to disseminate information on opportunities and existing research international programmes widely, to exchange data on research potential of partnering countries, to set up links among scientists from different countries and involve more researchers into collaborative networks.

To enhance research collaboration in each research area it is recommended to involve more number of multipliers who could broadly transfer knowledge through research and innovation networks in EU and abroad. Such networks are technology platforms, networks of excellence, clusters, research and industrial associations, important consortiums of researchers and companies which are groups of different organisations working together in a specific application domain – sustainable energy, water management, ICT systems, etc. Mechanisms should be elaborated to interconnect those networks which are focused on internationalisation. The good example one of such networks is European Enterprise Network (Armenia and Russia are participants of this network). Another example of networks are European Technology Platforms that have internationalisation strategy. They consider

internationalisation issues as a way of achieving their goals more efficiently in terms of enlarging the markets where S&T results could be exploited. Many ICT clusters in Europe follow similar internationalisation logic, acting as multipliers for their S&T and industrial organisations. Connection of the networks would require a combination of focused efforts at the European and EECA levels, greater openness of mind, intelligent solutions, but it would also require seed funding to start the networks' interactions. It is important to plan such seed funding since the beginning of the process initiation.³⁰

Among other suggestions of the EU partners of research networks could be highlighted necessity:

- to increase the level of intra-regional cooperation and fill existing knowledge gaps;
- to elaborate more flexible financing mechanisms responding existing transnational problems;
- to encourage involvement of SMEs in Horizon 2020.

EECA partners of research networks suggested to improve information support of international EU-EECA S&T cooperation. It is desired to have easier access to information on existing EU programmes, calls for proposals, projects and institutions in EU countries searching for partners in EECA countries. It could be realised through dedicated web portals (information systems), conferences, workshops, information days and brokerage events. It would be very helpful if some EU organisation will create and maintain a database containing the names of organisations (grouped according to their scientific activity) that took part / would take part in joint projects – with contact data on demand. More number of national informational and contact points (like FP7 NCP) is recommended to be established in EECA countries. Under joint research projects it is proposed to implement more activities envisaged advancing scientific paper writing skills that would allow to publications in peer reviewed journals. Implementation of the following measures has been recommended as well:

- Lowering of administration barriers for research community to cooperate in priority areas (visa, customs, duties and etc.);
- Raising of awareness and implementation of dissemination activities to increase the informational level about EU programs, projects and platforms;
- Improvement of legal basis for cooperation (agreement between country partner and EU in science, technology and innovations);
- Improvement of personnel skills of national research community (language, trainings on participation in EU programmes, projects, platforms, easier access to participation in EU seminars, conferences);
- Support of networking and cooperation of national research communities and EU partners by national and EU governments.

³⁰ Svetlana Klessova. PICTURE in focus. Pan European Networks: Science & Technology 06. Source: www.paneuropeannetworks.com

Conclusions

The overall number of joint S&T projects implemented by EU and EECA countries within FP5-7 has increased. It indicates growing mutual interest of the EU and EECA in the S&T cooperation. The most active S&T cooperation was between EECA and EU MS - UK, Germany and France. The main three EU coordinators of joint projects were Germany, UK and Greece. The analysis showed intensive development of the cooperation in such priority scientific areas as IST, ENV, HEALTH and SSH, as well as in the horizontal area INCO. By the number of implemented joint projects and by the number of partner organisations, Ukraine has been the main EECA partner of the EU in all the areas of S&T cooperation. By the overall number of joint projects, the partnership between Ukraine and the EU was the most progressive in the areas of INCO and Environment. The other three key project partners of the EU have been Belarus, Kazakhstan and Georgia. Considering overall numbers of joint projects implemented in the analyzed scientific areas, cooperation between the EU with Belarus has developed mostly in INCO and IST areas, with Kazakhstan – in INCO, BIO and Environment; and with Georgia – in INCO, IST and ENV. In case of such countries, as Kyrgyzstan, Tajikistan and Uzbekistan, number of projects carried out jointly with the EU has not increased. Moreover, there has been a significant decline in the cooperation between the EU and Uzbekistan – the number of joint S&T projects decreased by half. Active participation of research and higher educational institutions of Ukraine, Belarus, Kazakhstan and Georgia in S&T projects indicates that these states have a more developed than in other EECA countries scientific and higher educational infrastructures that could facilitate to the further development of S&T partnership between them and EU MS. The analysis of types of EU and EECA organisations involved into FP5-7 projects shows that the most intensive S&T collaboration has been between research and higher educational institutions of the EU and EECA. The other two groups of organisations having large number of partner contracts are various multidisciplinary organisations (OTHER) and enterprises. It should be noted that the number of OTHER partner organisations decreased during the implementation of FP7, and the number of enterprises increased. The growth in the number of enterprises among participants of joint S&T projects indicates more active involvement of industrial entities into the S&T cooperation. More close cooperation between EU and EECA research, higher educational and industrial organisations could lead to further improvement of the EU-EECA STI cooperation.

Under FP6 and FP7 Russia continues to be the most successful 3rd international cooperation partner country in terms of the total number of participations in the programmes, the total amount of EU financial contribution received and the number of collaborative actions launched. The overall number of projects involving Russia has significantly increased for the period of FP5-7. Russia cooperated with nearly all the EU MS within FP5-7. The major three partners of Russia were Germany, France and UK. The three top coordinators of joint projects with Russia were Germany, UK and the Netherlands. Since the beginning of FP5, the EU-Russia partnership has considerably developed. On the whole, the most number of joint projects have been implemented in the areas of Transport (Aeronautics), ICT, Space, Health, BIO, NMP and INCO areas, although there is a considerable decline in the EU-Russia project performance in the INCO area within FP7. There is also registered a great progress in cooperation in ENV, Transport, Space and Health areas as well as a tendency of the enhancement of project collaboration in such areas as SSH, BIO and Euratom. The number of Russian participations in joint projects has been steadily growing. Analysis of types of EU and Russian organisations participated in joint S&T projects has shown that the most active have been research, higher educational organisations, and industrial enterprises of the both regions. It also indicates the presence of a high S&T potential in Russia for the further improvement of the international S&T collaboration with EU MS. Especially, taking into account the fact that among the most active participants of EU-Russia S&T projects are the institutions of the Russian Academy of Sciences, Scientific Foundation Nansen International Environment and St. Petersburg Remote Sensing Centre, and N.E. Zhukovsky Central Aerohydrodynamic Institute; such leaders in Russian higher education and research as M.V. Lomonosov Moscow State University, National Research University “Higher

School of Economics”, St. Petersburg State University and National Research University Tomsk Polytechnic University; as well as such enterprises as Russian Technology Transfer Network, New Technologies and Services, and JSC “Aviadvigatel”.

Case-studies and analysis of functioning EU-EECA thematic research networks formed in the course of FP7 projects contributed into identification of the effects of EU-EECA research networking including added value, success stories and barriers to EU-EECA collaboration.

Added value

Among the main three categories of as *added value* generated with research networks both EECA and EU MS partners of joint projects indicated: a) *establishment of EU-EECA research networks*; b) *promotion of EU Framework RTD Programme in EECA countries*; c) *relevance of the project research area to the country S&T priority*. The other group of added value generated in course of joint projects includes: d) *contribution to development of cooperation between research and industry*; e) *awareness raising on ways to organise research*; f) *contribution to solution of a specific problem / societal challenges that participants’ countries face*; g) *access to complementary knowledge / material / infrastructure*; and h) *improvement of personal skills*.

Barriers

Among *barriers* hampering to setting-up and implementation of EU-EECA international research, FP7 project participants indicated as the most essential factors: a) *lack of financial support for international cooperation*, b) *lack of personal contacts in international research networks*, c) *difficult access to international networks and platforms for researchers*, d) *lack of information on research programmes open for cooperation*. EU and EECA researchers almost do not see such barriers for networking as lack of personal interest for international collaboration, non-recognition of international R&D cooperation for scientific promotion, and confidentiality and IPR.

Success stories

Participants of research networks highlighted that international collaboration under FP7 allowed to facilitate partnership among EU and EECA researchers and at the same time to increase level of national research. The FP7 provided significant financial support for scientific laboratories. The joint projects provided an access to cutting edge research material and techniques. They also provided the space to explore new scientific methods not implemented before. Joint FP projects support building of a collaborative international network under a good environment. This environment made possible a fluent exchange of ideas, points of view a while constructive criticism. Essential part of networking was knowledge transfer through a number of beneficiary countries and development of cooperation with other international initiatives e.g. the Black Sea Economic Cooperation Organisation and its member states. Research teams have broadened their research connections as well as have improved their understanding of societal processes taking place in transition countries. Collaborative projects became a new interesting challenge that provided obtaining of new research skills, developing research networks and collecting new data for further research topics elaboration and publications. Joint projects also provided new data and new knowledge filling in the existing gap in the specific research areas. Research networking activities envisaged organisation of exhibitions, forums, workshops and other international events contributed significantly into knowledge and technology transfer through conclusion of memorandums of understanding between EU and EECA companies, as well as initiation of negotiations between governments regarding the agreement for cooperation in science, technology and innovations.

Recommendations

Partners of research networks suggested to policy-makers of EU and EECA to consider elaboration of co-funding mechanisms for joint research projects. It is recommended to develop measures in order to increase the number of countries from the EECA region participating in EU RTD programmes. Visa regime for international travel of researchers should become more favourable. More efficient support is desired from the administration of universities and research organisation that host project teams. It is suggested that financial management and administration of EU-funded projects should be improved in EECA research organisations. It is important to continue supporting international cooperation actions such as FP INCO projects which help to create opportunities to foster research collaboration and increase the number of joint projects in priority scientific areas. INCO projects allow to disseminate information on opportunities and existing research international programmes widely, to exchange data on research potential of partnering countries, to set up links among scientists from different countries and involve more researchers into collaborative networks. An improvement of information support of international EU-EECA S&T cooperation is required. More number of national informational and contact points (like FP7 NCP) is recommended to be established in EECA countries. Under joint research projects it is proposed to implement activities envisaged advancing scientific paper writing skills that would allow to publications in peer reviewed journals. To enhance research collaboration in each research area it is recommended to involve multipliers who could broadly transfer knowledge through research and innovation networks in EU and abroad. Mechanisms should be elaborated to interconnect those networks which are focused on internationalisation. Connection of the networks would require a combination of focused efforts at the European and EECA levels, greater openness of mind, intelligent solutions, but it would also require seed funding to start the networks' interactions. It is important to plan such seed funding since the beginning of the process initiation. Improvement of legal basis for cooperation (agreement between country partner and EU in science, technology and innovations) has been recommended as well by the partners of research networks.

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