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DG INTERNAL POLICIES OF THE UNION

- Directorate A - ECONOMIC AND SCIENTIFIC POLICY

Briefing note on
"Research and education programmes and the EEA"

for the EEA Joint Parliamentary Committee meeting September 2008

1. INTRODUCTION

The Agreement on the European Economic Area (EEA)[1], which came into force in 1994, brought about the inclusion of the EEA EFTA States (Iceland, Liechtenstein and Norway)[2] in the EU Internal Market. The EEA Agreement, however, goes beyond trade and economy, to include a shared solidarity for Europe's future.

The EEA Agreement links the Internal Market and its objective of economic prosperity with the Financial Mechanisms and their objective of economic and social cohesion in the EEA after enlargement in 2004. Through this agreement, the EFTA States have also become active participants and contributors in areas of EU cooperation such as research, education and media.

The main subject matter of this note (research and education) is covered by Article 78 of the EEA Agreement and Protocol 31 to the EEA Agreement (Cooperation outside the four freedoms) - research in paragraph 1 on research and technological development; whilst education in paragraph 4 on education, training and youth. Both areas fall under Subcommittee IV[3].

1.1. EEA EFTA States' participation in EU programmes and agencies

Until the start of the EEA Agreement on 1 January 1994, the EFTA countries based their cooperation with the EU on bilateral agreements covering limited areas. Since, the EEA Agreement ensures participation by the three EEA EFTA States (Iceland, Liechtenstein and Norway) in several Community programmes and agencies. Switzerland on the other hand participates in a number of programmes on a bilateral basis.

The participation of the EFTA States in the EU programmes is one of the best examples so far of good EFTA-EU cooperation in the Internal Market outside the four freedoms. The participation of EFTA States has proven to be beneficial for both sides.

Today, the programmes in which the EEA EFTA countries participate include:

- *Seventh Research Framework Programme (FP7)*
- *Lifelong Learning programme (LLP)*
- *The Competitiveness and Innovation Framework Programme (CIP)*
- *Employment and Social Solidarity - PROGRESS*
- *Daphne - Combating Violence*
- *Health 2008-2013*
- *The Consumer Programme 2007-2013*[4]
- *Youth in Action*
- *Culture 2007*
- *MEDIA 2007*
- *Safer Internet Plus 2005-2008*
- *Data Interchange - IDABC*
- *Marco Polo - Transport*
- *EU Statistical Programme*
- *The Civil Protection Financial Mechanism 2007-2013*
- *Drugs Prevention and Information*

[1] Agreement on the European Economic Area (OJ No L 1, 3.1.1994, p. 3; and EFTA States' official gazettes)

[2] The EFTA States are Iceland, Liechtenstein, Norway and Switzerland, while the EEA EFTA States are Iceland, Liechtenstein and Norway only.

[3] Subcommittee IV on Flanking and Horizontal Policies is one of the five subcommittees to the Standing Committee of the EFTA States, which serves as a forum in which the EEA EFTA States consult one another and arrive at a common position before meeting with the EU in the EEA Joint Committee. For more on EEA Institutions and decision making structure see: http://www.efta.int/content/eea/institutions

[4] Decision No 1926/2006/EC of the European Parliament and of the Council of 18 December 2006 establishing a programme of Community action in the field of consumer policy (2007-2013) (Text with EEA relevance)

Participation in several other programmes is under consideration or preparation for incorporation into the Agreement.

At the Lisbon European Council in March 2000, the EU has set itself the goal of becoming by 2010" the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion". In February 2005 the Lisbon Agenda was re-focused on actions that promote growth and jobs in a manner that is fully consistent with the objective of sustainable development.

With these goals in mind, the EU has recently adopted the new generation of programmes for the programming period 2007-2013, particularly designed to stimulate innovation, economic growth and employment. The programming strategy prioritises policies for sustainable economic progress, solidarity, security and a stronger role for Europe in the world. In these programmes, importance has been placed on research and innovation, which is key to maintaining competitiveness and creating a knowledge society.

One of the objectives of the EU programmes is to stimulate the mobility of people across Europe. By facilitating mobility through intercultural dialogue, exchanges and the joint quest for knowledge and innovation, the new EU programmes are designed to provide key tools for developing a competitive, inclusive and tolerant Europe.

The fact that the new generation of EU programmes has been included in the EEA Agreement in 2007, opens up a wide variety of opportunities for EFTA citizens to cooperate in diverse policy areas such as youth, culture, health, environment, civil protection, energy and gender equality. While allowing EFTA participants to find EU partners, the programmes also provide an opportunity for the EU to benefit from the expertise and best practices of EFTA States, besides the increase in the programmes' budget through the financial contributions of the EFTA States.

Of the new EU programmes, the three with the largest budgets are: the 7th Framework Programme on Research and Development (FP7), the Competitiveness and Innovation Programme (CIP), and the Lifelong Learning Programme (LLP). These three programmes comprise 14 old programmes, reflecting the trend of setting up fewer, but larger and simpler programmes. All three are directly connected to the objectives of the Lisbon Strategy, i.e., to make the EU the most competitive knowledge economy in the world, based on social equality and ecologic sustainability.

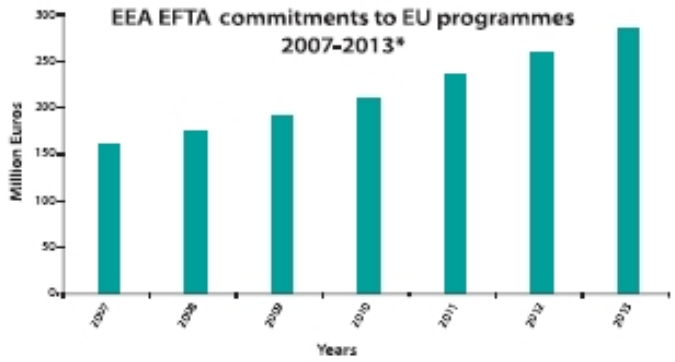
This is also the case for the new programme PROGRESS, which has merged several social policy and employment programmes. However, many of the classical EU programmes, which are well known to EFTA citizens, such as Youth in Action, Public Health, MEDIA, Safer Internet and Daphne, remain. Another relatively small programme, Culture, has had an impact well beyond its size because it supports the translation of hundreds of books into Norwegian and Icelandic from EU languages.

The EFTA national agencies, national contact points, programme offices and project managers are crucial for the administration of the new EU programmes in the EFTA States. These interfaces between EFTA participants and the EU programmes provide information, guidance on application, partner search and are increasingly managing decentralised actions within the programmes.

1.2. EEA EFTA Financial contributions

1.2.1. Financing of EU Programmes[5]

In 1995 the EEA EFTA committed €50 million to EU programmes budget and since then financial contributions have grown. In 2007, EEA EFTA commitments amounted to approximately €160 million. In the years to come, the EEA EFTA contribution is set to increase substantially in parallel with the development of the EU programme budget. Forecasts for 2007-2013 indicate that EEA EFTA commitments to the EU programme budget will reach €284 million in 2013 (Figure 1 below).



* The estimates have been made on the basis of the EEA EFTA proportionality factor of 2007 (2.28%).

The total EEA EFTA commitments to the EU programmes from 2007 to 2013 are estimated at up to €1.5 billion. The breakdown of this total is presented in the table below (Figure 2). The commitments of the EEA EFTA States are equivalent to 2,28% of the total budget of each programme, the so called "proportionality factor" calculated on the basis of the EEA EFTA countries global GDP.

The percentage share of each programme compared to the total budget shows that the FP7 is the main programme in the EEA EFTA contribution. It accounts for more than 75% of the budget. The next programmes in terms of size are LLP and CIP with respectively 11.5% and 5.6% of the total budget.

[5] Source: EFTA Bulletin - Guide to EU Programmes (2007-2013) - November 2007

Figure 2 : EEA EFTA Commitments by programme over the period 2007-2013[6]

EU programmes with EEA EFTA Participation 2007-2013	Total EU commitments 2007-2013 (million €)	Estimated EEA EFTA commitments 2007-2013* (million €)	Share of total EEA EFTA budget
Seventh Research Framework programme (FP7)	50521,00	1151,88	76,10%
Lifelong Learning programme (LLP) incl. Erasmus Mundus	7626,37	173,88	11,49%
The Competitiveness and Innovation programme (CIP)	3714,93	84,70	5,60%
Youth in Action	885,00	20,18	1,33%
MEDIA 2007	756,20	17,24	1,14%
Employment and Social Solidarity (PROGRESS)	743,25	16,95	1,12%
Marco Polo - Transport	450,00	10,26	0,68%
Culture 2007	400,00	9,12	0,60%
Health 2008-2013	365,60	8,34	0,55%
EU statistical Programme	325,30	7,42	0,49%
The Civil Protection Financial Mechanism 2007-2013	189,80	4,33	0,29%
The Consumer programme 2007-2013	156,80	3,58	0,24%
Combating Violence (Daphne)	116,85	2,67	0,18%
Data Interchange - IDABC	89,60	2,04	0,13%
Safer Internet Plus 2005-2008	24,97	0,57	0,04%
Drugs Prevention and Information	21,35	0,49	0,03%
Total	**66387,02**	**1513,65**	**100,00%**

* The estimates have been made on the basis of the EEA EFTA proportionality factor of 2007 (2.28%).

1.2.2. EEA Financial Mechanisms[7]

The EEA financial mechanisms aim to reduce social and economic disparities within the EEA, and to enable all EEA countries to participate fully in the Internal Market.

Through the EEA Financial Mechanism, the three EEA-EFTA States will make a total of €600 million available to the 10 countries that joined the EU and the EEA in May 2004, as well as to Greece, Portugal and Spain. Through the Norwegian Financial Mechanism, Norway will make an additional €567 million available to the 10 countries that joined the EU and the EEA in 2004. The EEA Financial Mechanism will also make available €72 million to Bulgaria and Romania, which joined the EEA in 2007, over a two-year period until 2009.

In total, with the EEA grants and the Norway grants, the EEA EFTA States will contribute with a total of €1.239 billion between 2004 and 2009 to the new EU member countries, as well as to Greece, Portugal and Spain. Both mechanisms run over a five-year period until 2009. Norway, as the largest of the three donors, will contribute with close to €1.14 billion over the whole period (representing 97% of the funding).

[6] Source: EFTA Bulletin - Guide to EU Programmes (2007-2013) - November 2007
[7] Source: EEA Grants - Norway Grants: status report May 2008.

The financial mechanisms support projects in a wide range of priority sectors such as protection of the environment, conservation of the European cultural heritage, health and childcare and development of human resources as well as academic research. Until April 2008, a total of more than €1 billion were made available to applicants across Europe, and so far € 620 million have been committed in grants to over 500 projects. These grants are important tools for promoting cooperation between the EEA EFTA States and the 15 beneficiary states. In the current portfolio of projects, a total of 84 projects involve direct cooperation between parties in the beneficiary states and the three EEA EFTA States.

2. RESEARCH POLICIES AND PROGRAMMES

2.1. Development of EU research policies

Since the Treaty of Rome in 1957 Europe has had an ever increasing cooperation on scientific research. The first research programme for Europe was designed to increase productivity in coal mines in the iron and steel industries. Later developments included magnetic resonance imagery (MRI) in the field of bio medics in the 60s, and the founding of the European Space Agency (ESA) and missions marking advances in space policy in the 70s.

In 1984, the European Union began to operate framework programmes in the area of Research and Technological Development. The objective is to build a common Internal Market and increase the competitiveness of European industry and business. Since the first framework programmes, support has been provided to research and development in the European manufacturing sector through for instance the Brite-Euram programme[8], which set out to stimulate technological innovation; encourage traditional sectors of industry to incorporate new technologies and processes; promote multi-sectoral and multidisciplinary technologies; and develop scientific and technological collaboration.

With FP4 in 1995 the EU research programme massively increased in scope and budget. Since then it has made up around 4% of public spending on research in Europe. It also took up around 5% of the EU budget, making it the fourth largest activity, only surpassed by the common agricultural policy, structural funds and foreign aid. FP5 was launched in 1999 with a substantial budget increase that allowed for nearly 15 000 project contracts to be signed during its 4 years of existence that involved over 75 000 participants from 21 countries. FP4 and FP5 marked a shift from research concentrating largely on technical performance towards research and innovation addressing targeted socio-economic objectives.

FP6[9] (2003-2006) designed new instruments, in particular Integrated Projects and Networks of Excellence, and continued its support for the mobility of researchers and better use of European research infrastructure. FP6 was specially designed to promote the establishment of a European Research Area (ERA) aiming at: (i) ensuring the free movement of researchers, ideas and technology in Europe; (ii) overcoming the fragmentation of European research and creating a critical mass; and (iii) coordinating national and European programmes and policies.

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[8] European Commission, "Brite-Euram: making a lasting impression on Europe" http://ec.europa.eu/research/brite-eu/impact2001/introduction_en.html#1

[9] Decision No 1513/2002/EC of the European Parliament and of the Council of 27 June 2002 concerning the sixth framework programme of the European Community for research, technological development and demonstration activities, contributing to the creation of the European Research Area and to innovation (2002 to 2006).

High quality research, technology development and research-based innovation are vital in order to preserve and strengthen the European social model and to achieve the goals in the Lisbon strategy for a competitive European knowledge-based economy. The 'knowledge triangle' linking research, education and innovation is a core factor in European efforts to meet the Lisbon goals.

The project of creating a European Research Area (ERA)[10], was therefore endorsed by the Lisbon European Council in March 2000 as a central element of the Lisbon Strategy and supported by the European Parliament. Two years later the Barcelona European Council, reviewing progress towards the Lisbon goal, agreed that investment in European research and development (R&D) must be increased with the aim of approaching 3% of GDP by 2010.

One of the key objectives in the establishment of the ERA is to improve the coordination of research efforts in Europe. Under FP6, several initiatives were established to improve not only cooperation and coordination at project level across Europe but also between the national and regional research programmes.

These include:

- the CREST initiative of mutually opening national programmes;
- the introduction of the ERA-NET scheme, designed to step up the cooperation and coordination of research activities carried out at national and regional level in Member States;
- the opening of the use of Article 169 of the Treaty in the field of research, whereby the Community budget supports EU Member States which integrate their research efforts by defining and committing themselves to a joint research programme.

FP7[11] aims to further strengthen and develop the European Research Area and the above initiatives have been taken forward in FP7 through a further development of the ERA-NET scheme and the launch of further initiatives under the Article 169.

2.2. The 7th Framework Programme for research and development

The two main strategic objectives of FP7 are to strengthen the scientific and technological base of European industry and to encourage its international competitiveness. These broad objectives have been grouped into four main categories: cooperation, ideas, people and capacities. For each type of objective, there is a specific programme that corresponds to a main area of EU research policy. All these programmes work together to promote and encourage the creation of European poles of scientific excellence.

The scope of the 4 main specific programmes is:

- **Cooperation:** Core of FP7 and its largest component, this programme fosters collaborative research across Europe according to several key thematic areas. Support is provided in a number of areas corresponding to major fields of knowledge and technology, where highest quality research must be supported and strengthened to address European social, economic, environmental and industrial challenges. The bulk

[10] COM 2000(06) Towards a European Research Area, 18 January 2000
http://cordis.europa.eu/documents/documentlibrary/C001190EN.pdf
[11] Decision No 1982/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)

of this effort will be directed towards improving industrial competitiveness. The overarching aim is to contribute to sustainable development.

- **Ideas:** For the first time an EU research programme finances pure, investigative research at the cutting edge of science and technology. Such 'basic research' is a key driver of wealth and social progress because it opens new opportunities for scientific and technological advancement. It is instrumental to the production of new knowledge leading to future applications and markets.
- **People:** This programme provides support for research mobility and career development. Highly trained researchers are needed in Europe in order to advance science and underpin innovation, and to attract and sustain public and private investment in research. With growing global competition, the development of an open European labour market for researchers and the diversification of skills and career paths of researchers are crucial. Mobility, both transnational and intersectoral, is therefore a key component of the European Research Area. Activities cover all stages of a researcher's professional life, from initial research training to lifelong learning and career development.
- **Capacities:** The programme aims at enhancing research and innovation capacities throughout Europe and ensuring their optimal use. It has a budget of more than €4 million to be used in 7 broad areas: research infrastructures, research for the benefit of SMEs, regions of knowledge and support for regional research-driven clusters, research potential of convergence regions, science in society, support to the coherent development of research policies, international cooperation. This programme aims to support the coherent development of policies, complement the Cooperation programme, contribute to EU policies and initiatives to improve the coherence and impact of Member State policies and find synergies with regional and cohesion policies, Structural Funds, education and training programmes and CIP.

The overall budget for Community financial participation in FP7 is € 50 521 million. That amount is distributed among the activities and actions as follows (in € million):

FP7 Programme	**million €**
Cooperation	32 413
Ideas	7 510
People	4 750
Capacities	4 097
Non-nuclear actions of the Joint Research Centre	1 751

Twenty-five per cent of FP7 activities are new. These include the new and autonomous European Research Council and the two thematic topics: security research and space.

2.3. EEA EFTA Cooperation and participation in EU research programmes

International co-operation is crucial in order to pursue scientific excellence, exploit the opportunities presented by the new generic technologies and find new ways of promoting sustainable development. The cooperation in the field of research and development is by far the largest in financial terms within the EEA Agreement.

The Agreement provides the EEA EFTA States with the possibility to participate in the EU's research Framework Programmes on an equal footing with EU Member States, excluding the nuclear research programme, which is legally based on the Euratom Treaty.

The EEA EFTA States joined the research framework programmes with the EEA Agreement in 1994, while Switzerland joined in 2004 through a separate agreement. In addition, Switzerland participates in the Euratom research framework programme.

With respect to the participation of the EEA EFTA States in FP7, Article 1 of Protocol 31 to the EEA agreement was amended on 15 June 2007 by a decision of the EEA Joint Committee. The Science and Technology Agreement associating Switzerland to FP7 (EC and Euratom) was signed on 25 June 2007. Hence, since June 2007, all four EFTA States have been participating in FP7. Legal entities established in these countries are able to receive Community contributions (retroactively) for contracts/grant agreements signed after 1 January 2007[12].

In addition to participation in EU programmes, EFTA countries make available research grants under the EEA financial mechanisms (see 1.2.2)[13] to support the development of innovative methods and technology. Since 2004, 50 research projects have been awarded close to €50 million in support, with €19 million in additional funding set aside under research funds in the Czech Republic, Estonia, Latvia, Poland and Slovakia.

Poland stands out as the single largest beneficiary of academic research support, with 30 projects already under way. Support is provided to academic research under all priority sectors of the financial mechanisms, with a majority of the projects focusing on environment and health. The approved projects span from research on greenhouse gas emissions in Estonia to a project researching possibilities for prevention and early diagnosis of cancer in Portugal.

Norway is also supporting the substantial €15.3 million Polish-Norwegian research fund, under which Polish and Norwegian researchers will cooperate on health and environmental research. Research funds are also operational in the Czech Republic and Slovakia, and an expert exchange fund has been established in Estonia. Several of the academic research projects involve partnerships, facilitating exchange of practical experience and technical know-how while also building relations between researchers in Iceland, Liechtenstein, Norway and the beneficiary states.

2.3.1. Norway

Participation in collaborative European programmes is a vital instrument in achieving the objective of enhancing the internationalisation of Norwegian research.

The Research Council of Norway (RCN) is the national funding agency for research in Norway. It also plays a key role as an adviser on research policy to the government. The RCN is responsible for the entire spectrum of research activities ranging from fundamental research to innovation. As the Norwegian co-ordinating body for FP7 co-operation, as well as for Eureka and COST, the RCN plays a significant role in strengthening Norway's ties with the European research community. The RCN is involved in an ongoing dialogue with research communities, trade and industry, public administration and other actors, both in Norway and abroad, about future priorities and areas of co-operation.

Norway strongly supports the initiatives to develop the ERA. The RCN already takes part in over 30 ERA-NETs as well as two programmes under Article 169.

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[12] Source: www.efta.int

[13] Source: EEA Grants - Norway Grants: status report May 2008

Sixteen of the ERA-NETs in which the RCN participates have issued or are in the process of issuing joint, transnational calls for proposals with the RCN as one of the actors. In most cases, programme participation entails joint funding announcements as well as the establishment of a research strategy platform for cooperation with European countries that are not formal participants in the programme or with countries in other parts of the world.

Academic research is also an important cross-cutting dimension in the Memoranda of Understanding (MoUs) signed between Norway/the EFTA States and beneficiary countries on the use of funds under the EEA financial mechanisms. An important objective in the MoUs is to strengthen EFTA States/ Norway's relations with the beneficiary states through the EEA financial mechanisms and to increase co-operation on common challenges related to research.

Norwegian research institutions and enterprises are taking part in research projects in the priority sectors and other areas that are in line with the objectives of the EEA Financial Mechanisms. Norwegian institutions also act as host organisations for research fellowships as partners in EU-funded multinational research consortiums and other co-operation arrangements.

In 2005, 46% of all R&D was performed in private companies, while 31% and 23% were performed in higher education institutions (HEIs) and research institutes, respectively. As a share of gross domestic product (GDP), R&D expenditure accounted for 1.52% in 2005 and 2006, down from 1.71% in in 2003 and 1.59% in 2004. In 2005 Norwegian R&D expenditure per capita was €820, while the OECD average was €735.[14]

The main issues to be tackled include

- *Enhance the quality of research:* a number of studies in scientific fields have shown that the quality of research varies strongly, several measures have been introduced to sustain the quality of research, including the establishment of a scheme for centres of excellence.
- *Increase the number of science and engineering graduates*: the number of new S&E graduates in Norway is well below the EU average. The issue of increasing the number of S&E graduates is pervasive in policy debates and documents.
- *Increase the share of knowledge-intensive industries and the knowledge intensity of mature industries:* the R&D intensity of the Norwegian economy is low.
- *The development by higher education institutions of institutional research policies*: fifty per cent of all public funding of R&D is channelled directly to higher education policies and higher education institutions. Having become increasingly more autonomous, these institutions, in the years to come, will have to make stronger efforts to develop effective frameworks for institutional research strategies, based upon assessments of the core strengths and opportunities of each institution.
- *Setting appropriate targets for public and private R&D expenditure*: in 2006, R&D expenditure was at low 1.52%, the same as in 2005. While there have been some increases in budget appropriations in 2006, 2007 and 2008, they will probably barely keep pace with the high increase in GDP, driven in large part by high prices of petroleum.

The RCN also participates actively in the efforts of key European institutions such as the EU Scientific and Technical Research Committee (CREST) (as observer), EUREKA, the European Science Foundation and the European Union's Heads of Research Councils

[14] Source: ERAWATCH Research Inventory - European Communities 2008

(EUROHORC), as well as inter-ministerial efforts to facilitate Norwegian participation in research projects. Norway's active participation in EUREKA, the Europe-wide network for market-oriented industrial R&D, is a step in strengthening the international competitiveness of Norwegian companies. Norway is also involved in EUROCORES, a collaborative research initiative under the European Science Foundation. Further efforts are aimed at promoting increased Norwegian participation in international fellowship schemes and specialised, high-quality, pan-European initiatives such as the European Molecular Biology Laboratories (EMBL), The European Organisation for Nuclear Research (CERN), the European Space Agency (ESA), the European Synchrotron Radiation Facility (ESRF) and the OECD's Halden Reactor Project, as well as greater use of large-scale common infrastructure through the European Strategy Forum on Research Infrastructures (ESFRI)[15].

2.3.2. Iceland[16]

Iceland has a long history of European collaboration in the field of research and technological development. Iceland's participation in the Research Framework Programmes started as early as the 3rd Framework Programme on a project-to-project basis. This encompasses collaboration with agencies like COST, EUREKA, CERN, EMBO/EMBL and the Nordic Council of Ministers. Currently, the total R&D expenditure in Iceland is close to 3% of GDP, with public expenditure more than 1% of GDP.

Icelandic scientists and technicians have played an active role in European collaborative projects within the Framework Programmes, although participation has varied between programmes. The participation of Icelandic scientists in European projects has been successful, with a success rate up to 37% in the 5th Framework Programme and relatively high participation of SMEs.

The Ministry of Culture, Education and Research in Iceland is responsible for Iceland's participation in the Framework Programme but The Icelandic Centre for Research (RANNIS) is the agency responsible for everyday operation of the programme in Iceland. Iceland is represented in Framework Programme Committees and in Brussels, a Science Counsellor is part of the Icelandic Mission to the EU. Iceland is also represented (as observer) in CREST, the Council's scientific advisory committee.

The main challenges for research in Iceland have been enshrined in the two policy declarations of the Science and Technology Policy Council of Iceland: the policy declaration for 2003-2006 and the policy declaration for 2006-2009. These include:

1) Increase the public resources intended for allocation to competitive funds, and co-ordinate their operation in order to develop more synergies and ensure the best quality in research activities;
2) Strengthen the role of universities as research institutions by building up research capacities and encouraging research of high quality; and
3) Review the organisation and working methods of public research institutions in order to ensure more effectiveness and co-operation both with university and companies.

A cornerstone of Icelandic research is its internationalisation. Participation of Icelandic companies and research organisations in international research projects and bodies and the increased opening up of the S&T system in Iceland are integral parts of the science and technology strategy of Iceland.

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[15] The Research Council of Norway - http://www.forskningsradet.no/en/Europe/1138954285297
[16] Source: ERAWATCH Research Inventory - European Communities 2008

2.3.3. Liechtenstein[17]

The public research system of Liechtenstein consists of four university institutes, where both basic research and applied research are performed. The four universities focus research mainly in social sciences. Two of these universities receive basic financing from the Liechtenstein government. Liechtenstein also finances research activities abroad. As Liechtenstein has a strong emphasis on industry, cost-intensive research is done within firms. A Research and Technology Council[18], organised by the Liechtenstein Chamber of Commerce and Industry (LCCI) functions as a platform on research activities for firms. Despite its small size, the tertiary education sector in Liechtenstein is characterized by intensive research activities, both in basic research and in applied research.

In 2004, industrial companies listed in the LCCI invested around 307 million Swiss francs (ca. €233 Mio) in research and development. This corresponds to almost 8.900 Swiss francs (€5.065) per capita. One of the few Liechtenstein-based, internationally known companies is the tool-maker Hilti. The company alone spent 164 million Swiss francs in 2006 on R&D (140 Million in 2004) - which is about half of the total amount of the Liechtenstein's companies listed in the LCCI.

Apart from its participation as an associated country to the Framework Programme, Liechtenstein participates (as observer) in CREST.

2.3.4. Switzerland

Over the years, Switzerland has increased its investment in research. Today, it is one of those countries investing the most in research, since expenditure on research and technological development (R&D) accounts for 2.6% of its GDP mainly concerned with chemicals, pharmaceuticals, and the electrical and metalworking industries[19]. More than two-thirds of Swiss spending on research is accounted for by the private sector, while public expenditures accounted for around 0.71% of GDP in 2004. In October 2006, the field of education, research and innovation was proposed for an increasing average annual growth rate in the federal budget of 6%[20]. The responsibility for research and education is distributed between the Federal Government and Cantonal Governments.

Every four years, the Federal Government issues a Statement to the Promotion of Education, Research and Technology/Innovation (ERT-Message). Most recently in September 2007 (for the years 2008-2011)[21], the most important priorities identified for research were:

- Improve international reputation of the think-tank and work-place Switzerland
- Discover promising future topics and technologies
- Access of young researchers to an academic career
- Attract researchers on an international level

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[17] ERAWATCH Liechtenstein - European Communities - Country report update 28/11/2007

[18] The "Beirat für Forschung und Technologie" (Advisory Council for Research and Technology (ACRT) was founded in 1989 as an innovation circle of the Liechtenstein Chamber of Commerce and Industry.

[19] ERAWATCH Switzerland - European Communities - Country report update 01/04/2008

[20] Education, research and innovation 2008-2011, "*Sustainably securing and improving quality. Increasing competitiveness and growth. The Federal Council's proposed guidelines, goals and funding*", Swiss Confederation, www.sbf.admin.ch

[21] The ERT document can be found on Bundesamt für Berufsbildung und Technologie BBT: http://www.bbt.admin.ch/themen/00488/index.html?lang=de

- International co-operations with strategically important funding organisations and funding programmes at the European level.

The Swiss RTD policy does not formulate specific goals beyond overall policy goals, but formulates goals of the promotion institutions. The largest portion of public research expenditures is oriented to generic research. The public research expenditures are used for the funding of the universities and the federal research organisation, the SNSF[22], the CTI[23] and research directly mandated by ministries. At the federal level national research programmes that are launched mainly through SNSF (basic research) or the CTI (applied research)[24].

Switzerland participation in the research framework programmes goes back to FP3. During FP5, Swiss organisations were able to participate in the EU programme on a "project-by-project" basis and thus without the possibility of Community funding. Switzerland renewed its scientific and technological cooperation agreement with EU research programmes to cover Swiss participation in the FP6 from 1 January 2004. The Federal Decree of 6 June 2002 on the funding of Swiss participation allocated a commitment appropriation of CHF835 million (around €530 million) to finance Swiss participation in FP6 during the period 2003 to 2006. Under the new research agreement concluded, Switzerland will continue its participation in FP7 under the same conditions as hitherto. Switzerland's contribution to the overall FP7 budget is foreseen to amount to around CHF 2.4bn (€ 1.5bn)[25].

By way of example, for FP6, a Swiss research centre participated in the COBRA project which aimed to combat antibiotic resistance. Under FP5, Swiss organisations were also involved amongst others in the following projects: BOJCAS (materials science in the aeronautical field), CERTIMARK (multimedia), CLOUDMAP 2 (research into climate change through the study of clouds) and BioBabel (management of molecular biology databases). Switzerland to date participates in 18 projects under the new FP7[26]. Switzerland participates in CREST as an observer.

An evaluation of the Swiss participation in the FP5 and FP6 was made prior to renewing the association agreement for the FP7[27]. The evaluation showed that Swiss researchers are strongly represented in the fields of life sciences and in ICT. Swiss participation in the fields of support for international cooperation and specific research projects for SMEs was relatively small. Compared to previous programmes the cost-benefit ratio was shown to have deteriorated, primarily due to administrative burdens. The association with the framework programme is however positively assessed by Swiss researchers. Participation was also seen to lead to creation of some new jobs and products and the overall cost-benefit on par with that of other participating countries.

[22] Swiss National Science Foundation
[23] Innovation Promotion Agency
[24] ERAWATCH Switzerland - European Communities - Country report update 01/04/2008
[25] Press release by Schweizerisch Eidgenossenshchaft, "*Negotiations on research agreement between Switzerland and the EC successfully concluded*" on 27.02.2007, www.news.admin.ch.
[26] For a list of the 18 projects see Cordis FP7 find a project - Switzerland, http://cordis.europa.eu/fetch?CALLER=FP7_PROJ_EN&QZ_WEBSRCH=&QM_EN_OC_D=SWITZERLAND&USR_SORT=EN_QVD+CHAR+DESC
[27] Evaluation of the Siss participation to the 5th and 6th Research Framework Programme of the European Union as well as the Swiss information network Euresearch, State Secretariat for Education and Research, SER, 2005.

3. EDUCATION POLICIES

EU cooperation in the field of education and training comprises two main strands: On the one hand, the relevant Community programmes, and on the other hand, cooperation between Member States through the open method of coordination. EFTA states have been participating in both areas, as described in the following chapters.

3.1. The development of EU education and training programmes and policies

EU cooperation in the fields of education and training started more than 30 years ago. The Maastricht Treaty then introduced a legal base for Community action in this area. In accordance with Articles 149 and 150 of the Treaty, the Community's role is to contribute to the development of quality education by encouraging cooperation between Member States and by funding programmes supporting mobility as well as cooperation among European schools and universities.

3.1.1. Community programmes

Following the introduction of this legal base, the Community set up several programmes. Socrates, established in 1995, covered - with its different actions Comenius, Erasmus, Lingua, Grundtvig and Minerva - school and higher education, language learning, adult education, as well as distance learning and ICT in education. Leonardo da Vinci, set up in 1994, aimed at vocational training.

Since 2007, most of these programmes form an integral part of the new 'integrated action programme in the field of lifelong learning' (2007-2013). This new programme comprises four sub-programmes: Comenius (school education); Erasmus (higher education and training); Leonardo da Vinci (vocational education and training); and Grundtvig (adult education). It also incorporates a 'transversal' programme covering four key activities (policy cooperation, the promotion of language learning, e-learning and the dissemination of project results).

The final aspect is the Jean Monnet programme, supporting activities in the field of European integration and institutions and associations carrying out such work. The programme's budget for the period 2007-2013 is EUR 6.97 billion.

Two other programmes have been supporting cooperation with third countries. Since 1999, the Tempus programme has been fostering the modernisation of higher education institutions in the Western Balkans, Eastern Europe and Central Asia, North Africa and the Middle East. In 2003, the Community set up Erasmus Mundus, a programme supporting the mobility of higher education students between third countries and the European Union.

The main focus of the Community's education and training programmes has been to foster mobility and to promote European cooperation in the sector. It might be worth noting that Erasmus is deemed one of the most successful Community programmes. In 2002, the Erasmus programme reached the "millionst Erasmus student" goal. By now, over 1.5 million students have participated in the student exchange programme. 31 countries and nine out of every ten EU higher education establishments currently take part.

3.1.2. European cooperation in the field of education and training

Over the years, cooperation of Member States in the field of education and training has intensified. At the heart of a more intense cooperation in recent years was the awareness of the key importance of high quality education for the future competitiveness of the European Union, especially in the context of globalisation.

The Bologna and Copenhagen Processes

The aims of encouraging mobility and facilitating recognition are also at the heart of the Bologna and Copenhagen Processes, meaning European cooperation in the field of higher education and of vocational training. The Bologna Declaration on the European dimension in higher education of 19 June 1999, signed by 29 countries, marks a turning-point in the development of European higher education. The so-called Bologna process, the process of creating a European Higher Education Area (EHEA), in which 46 countries are already taking part, is aimed at establishing throughout Europe a three-stage system of degree level studies (bachelor, masters and doctorate), introducing a system of credits, encouraging mobility and promoting European cooperation in the area of quality assurance.

In 2002 the Education Ministers of 31 European countries signed the Copenhagen Declaration on enhanced European cooperation in the area of vocational education and training. The declaration calls for concrete action to achieve greater transparency and mutual recognition and improve quality in this field. The so-called Copenhagen process has been introduced in order to implement enhanced European cooperation in, vocational education and training.

The Education and Training 2010 work programme

In order to achieve the Lisbon strategy objective of making the Union the most competitive and dynamic knowledge-based economy in the world, Heads of States and Government stated in 2000 that 'not only a radical transformation of the European economy, but also a challenging programme for the modernisation of social welfare and education systems' was needed. In 2002 the Council and Commission adopted a 10-year work programme, Education and Training 2010 (2002/C 142/01), to be implemented through the open method of coordination.

This work programme provides a new and coherent strategic framework incorporating all action in the field of education and vocational training. With the support of the Standing Group on Indicators and Benchmarks set up by the Commission in 2002, indicators and benchmarks are being developed to monitor progress in achieving objectives. The five benchmarks to be achieved by 2010 aim at reducing the percentage of early school leavers and of pupils with low reading literacy, and at increasing the percentage of people having completed upper secondary education, increasing the number of tertiary graduates in Mathematics, Science and Technology and increasing the participation of the adult population in lifelong learning.[28]

According to a Progress Report published in July 2008, European countries have made progress towards the common goals set under the Lisbon Strategy in all but one area, which is the reduction of the number of pupils with low performance in reading. However, the Progress Report shows that in spite of positive developments, progress needs to be faster if the EU wants to meet the targets set for 2010.[29]

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[28] http://ec.europa.eu/education/lifelong-learning-policy/doc28_en.htm
[29] http://ec.europa.eu/education/policies/2010/progressreport_en.html

Other initiatives

Alongside the above-mentioned programmes, several initiatives were taken to improve mobility. Some of them focus on mutual recognition of academic experiences and of qualifications and on the comparability of skills and qualifications. These are the European Credit Transfer System (ECTS), Europass, the framework on key competences in lifelong learning, the European Indicator of Language Competence and the recently adopted European Qualifications Framework (EQF). The European Quality Charter for Mobility aims to improve the quality of mobility.

3.1.3. The role of the European Parliament

The European Parliament has gained considerable influence over the education and training measures with the introduction of the Codecision procedure into the Maastricht Treaty. In its role as co-legislator, it has been able to increase the budget for several Community programmes. Thus, in 2006, MEPs succeeded in increasing the monthly Erasmus grant through negotiations with the Council. From 1 January 2007 the grant rose to €200 per month, an increase of €50 per month from the previous programme.

However, cooperation in the field of education and training, like the Bologna and Copenhagen Processes or the implementation of the Education and Training 2010 work programme through the open method of coordination, takes place on a purely intergovernmental basis, without any possibility of democratic scrutiny through the European Parliament. The EP has regretted this fact on several occasions.

3.2. EEA-EFTA participation in EU Education and training programmes and policies

Norway, Iceland, Liechtenstein and Switzerland participate in the Community programmes, but they also take actively part in European cooperation processes, with different levels of participation, as is shown below.

3.2.1. Participation in the programmes

EEA-EFTA States

On the basis of Article 78 of the EEA agreement[30] and of Protocol 31, article 4 to the EEA Agreement[31], EEA EFTA States have had the possibility to participate in all education and training programmes from 1 January 1995.

From the very beginning, Iceland, Liechtenstein and Norway participated in the Socrates and Leonardo da Vinci programmes. They are also taking part in the new Lifelong Learning Programme.[32] Detailed information about these countries' participation in the programmes can be found in the evaluation and implementation reports on the different programmes.[33] A database on projects carried out under these programmes indicates where these countries took on a coordinating role.[34]

[30] http://www.efta.int/content/legal-texts/eea/EEAtext/EEAagreement
[31] http://www.efta.int/content/legal-texts/eea/protocols/protocol31.pdf
[32] EFTA Bulletin, Guide to EU Programmes (2007-2013), http://www.efta.int/content/eea/publications/bulletins/bulletin_programmes.pdf
[33] http://ec.europa.eu/education/programmes/evaluation/evaluation_en.html
[34] http://www.isoc.siu.no/socii.nsf/projects?OpenForm&Action=

In 2007, more than 15 000 students from EEA EFTA countries had already participated in Erasmus since the start of the programme.[35] The intensity of mobility between individual EU- and EFTA-countries is obviously very different depending on the region or the language. For instance, EFTA-students may account for the highest percentage of incoming students in some EU-countries. This was the case in 2002/2003 in Denmark, where the highest number of incoming university students were from Norway and Iceland (8.4% and 6% respectively).[36]

In addition to Lifelong Learning, Norway, Iceland and Switzerland also take part in the Erasmus Mundus programme. Information on the levels of this participation can be found in an interim evaluation report published in 2007.[37]

It might be worth noting that EEA states also participate in the Youth in Action programme, which was integrated into the EEA Agreement in 2007.[38] This programme does not concern education and training, but supports extra-curricular exchange projects among young people.

In addition to the common education and training programmes, it could also be noted that EEA EFTA states took part in the EU's Media Training Programme (2001-2006), a programme that aimed to improve the continuous vocational training of professionals in the audio-visual sector, and to encourage co-operation and exchange of know-how and best practice. Under the new generation of programmes, the measures form part of Media 2007. A bilateral agreement with Switzerland on its participation exists and is currently being updated.[39]

Switzerland

Switzerland is not a member of the EEA. This means that if it is to participate in EU education and training programmes as a full member a bilateral agreement must be concluded. In a political declaration of intent in the framework of Bilateral Agreements II (2004), Switzerland and the EU agreed to negotiate Switzerland's full and official participation in the Lifelong Learning Programme as well as the Youth in Action programme.[40] Once the agreement will ensure Switzerland's full and direct participation, the country will be able to take part in the decision-making process for these programmes as well as launch and run its own projects. This is not the case at present.[41]

In the absence of a bilateral agreement, Switzerland has participated in EU education, vocational training and youth programmes on a project basis since the mid-1990s. The Swiss government has allocated financial resources for participation in the different parts of the Lifelong Learning Programme, as well as in the Youth in Action programme. Furthermore, agencies for the Comenius, Erasmus, Leonardo da Vinci and Youth in Action programmes have been set up.[42]

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[35] EFTA Bulletin, Guide to EU Programmes (2007-2013), http://www.efta.int/content/eea/publications/bulletins/bulletin_programmes.pdf, p. 24

[36] *Student Mobility in Secondary and Tertiary-Level Education and In Vocational Training,* Study commissioned by the European Parliament, Lanzendorf, U and Teichler, U, PE 361.212, p. 59. Note that the mobility rate is not always exclusively due to EU education and training programmes, see ibd..

[37] http://ec.europa.eu/education/programmes/mundus/doc/evalreport_en.pdf

[38] http://www.efta.int/content/eea/policy-areas/flanking-horizontal/education-training-youth

[39] http://www.europarl.europa.eu/oeil/file.jsp?id=5206362; http://www.europarl.europa.eu/oeil/file.jsp?id=5520432

[40] http://www.europa.admin.ch/themen/00500/00506/00518/index.html?lang=en

[41] http://www.sbf.admin.ch/htm/themen/international/eu-bildungsprogramme_en.html

[42] http://www.crus.ch/information-programme/erasmus.html?L=2

Switzerland spends around CHF 14 million (8.6 million Euro) on projects in this area each year. Projects include funding of student, trainee and teacher exchange programmes. In 2006, approximately 5,400 young people (about half Swiss nationals in the EU and the other half EU nationals in Switzerland) benefited from this funding.[43]

The 'indirect participation' in Erasmus allows for students to go out of and come into Switzerland with grants of around 120-180 Euros per month. In the academic year 2006/07, 2050 Swiss students went to study abroad, with 2164 foreign students coming to study in Switzerland.[44]

Swiss Universities can also apply for the conclusion of institutional contracts, for projects concerning the organisation of mobility, the mobility of teaching staff, Erasmus teaching fellowships, preparatory visits or the recognition of study periods through ECTS. A total of 30 universities and other higher education institutions took advantage of this possibility in 2007/2008.[45] Even if less important than for Erasmus, the participation in the Leonardo and Youth programmes has also been steadily increasing, from less than 50 respectively 20 participants in 1997 to around 370 respectively 260 in 2005.[46]

3.2.2. Education and training policy cooperation

The Bologna and Copenhagen Processes

All four EFTA States have been full members of the Bologna Process since 1999. Norway has been particularly active in that it hosted the conference of Ministers responsible for higher education in 2005 in Bergen, which issued the Bergen declaration on the progress of higher education reform. Norway also managed the official Bologna Process website from 2003 to 2005.[47] All four countries also take part in the Copenhagen Process on cooperation in the field of vocational education and training.

The Education and Training 2010 Work Programme

Iceland and Norway are also taking part in the Education and Training 2010 Work Programme. As shown in the Progress Report 2008, they exceed the composite objective of the five benchmarks set for 2010 and are progressing in yearly averages. Norway and Iceland are also among the countries which have developed comprehensive and coherent lifelong learning strategies. Their performance in the field of lifelong learning participation of adults is already way above the EU benchmark for 2010. Challenges remain in some other benchmark areas as indicated in the Progress Report.[48]

Other initiatives

Protocol 31 also foresees the strengthening of cooperation in the framework of Community activities which may result from Community acts concerning quality assurance in higher education, European cooperation in quality evaluation in school education, the Quality Charter for Mobility, and key competences in lifelong learning.[49]

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[43] http://www.sbf.admin.ch/htm/themen/international/eu-bildungsprogramme_en.html
[44] Erasmus-Schlussbericht Februar 2008, see http://www.crus.ch/information-programme/erasmus/berichte.html?L=2
[45] http://www.crus.ch/information-programme/erasmus.html?L=2
[46] Erasmus-Schlussbericht Februar 2008, see http://www.crus.ch/information-programme/erasmus/berichte.html?L=2
[47] http://www.bologna-bergen2005.no/
[48] http://ec.europa.eu/education/policies/2010/doc/progress08/part1_en.pdf
[49] http://www.efta.int/content/legal-texts/eea/protocols/protocol31.pdf

Consequently, EEA States have also followed the development of the European Qualifications Framework (EQF). EFTA participation in a new legal framework for educational statistics, in key competences for lifelong learning and in the European Quality Charter for Mobility is also foreseen.[50]

The three EFTA-States that are part of the EEA are also covered by the Eurydice information network, which gathers and provides reliable and comparable information on education and training systems and on the development of policies in this area.[51]

4. SOME FUTURE CHALLENGES

In the field of education, as stated above, the objectives set under the Lisbon Strategy call for a faster modernisation of the Member States' education and training systems. To make the education and training systems both more effective and more equal is urgent given the ever more competitive international environment, the high number of unemployed young people, the unequal situation of young migrants and the needs of the employment market. As shown in the progress report on the Education and Training 2010 work programme, Member States and the participating EEA EFTA States Norway and Iceland can learn from each other in this respect.

Current challenges as underlined in recent policy papers remain the improvement of efficiency and equity in education and training systems, in order to foster both competitiveness and social cohesion.[52] To achieve these goals, several proposals have been made. The European Parliament has stressed, among others, the need to invest into the early stages of education and to support the integration of immigrant children in early education[53]. Parliament has also underlined the need to support initial and further training for teachers[54]. Another item on the agenda is the development of more efficient and better quality adult learning systems[55].

Another issue is the actual mobility of young people. The Erasmus programme is one of the most successful EU programmes and has allowed over 1.5 million university students to study abroad. Compared to these numbers, the number of other groups of young people going abroad is still very low. In this respect, the Commission has recently published the results of the work of an experts group. They make recommendations with a view to making learning mobility an opportunity for all young people, including, for instance, apprentices, secondary school-level students as well as young entrepreneurs, artists and volunteers. The experts recommend creating more synergies between existing programmes fostering mobility, that is, not only the above-mentioned education programmes, but also programmes like Youth in Action, Culture, and Europe for Citizens. The experts also recommend to mainstream mobility into all relevant EU policies, for example into the Framework Programme for Research and Development.[56]

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[50] http://www.efta.int/content/eea/policy-areas/flanking-horizontal/education-training-youth
[51] See www.eurydice.org
[52] See the Commission Communication (COM(2006) 481) on Efficiency and Equity in European Education and Training Systems.
[53] T6-0417/2007
[54] T6-0417/2007, A6-0304/2008
[55] See the Commission Communication (COM(2006) 614) and the subsequent Action Plan on Adult Learning (COM(2007)558).
[56] http://ec.europa.eu/education/doc/2008/mobilityreport_en.pdf

In the field of research, with the new FP7 in place and nearly 25 years after the First Framework Programme, it is time to assess the achievements of the European RTD and innovation policy. Both the Commission and Parliament are working on it.

The Commission has presented its *Green Paper on "the European Research Area: New Perspectives"*[57]. The paper takes a new look at the ERA, signals the progress made since 2000 and also the obstacles still existing, namely in the area of fragmentation of the European public research base. It presents the features of the ERA vision, which is also a good summary of the challenges facing European RTD and Innovation policy:

- An adequate flow of competent researchers;
- World class research infrastructures;
- Excellent research institutions;
- Effective knowledge sharing;
- Well coordinated research programmes and priorities;
- A wide opening of the ERA to the world.

The accompanying Staff Working Document[58] provides a number of facts and figures on Europe's performance in comparison with the US and Japan but also with several Asian economies and concludes that the ERA has yet to reach its full potential. It raises a number of questions on how to deepen and widen the ERA so it fully contributes to the renewed Lisbon strategy by means of an institutional and public debate with a view to preparing initiatives for 2008.

In its latest resolution on the Green Paper on the ERA[59], the Parliament in general called for

- The creation of the ERA should be accompanied by the establishment of the European Area of Higher Education and the European Innovation Area, thus completing the three sides of the so-called knowledge triangle,
- Greater efforts, particularly as regards coordination, needed in all dimensions of EU research: people, infrastructure, organisations, funding, knowledge sharing and global cooperation, in order to overcome the fragmentation of research in the EU and realise the EU's potential therein,
- The need for R&D funding in the EU to reach the Lisbon objective of 3% of GDP, noting that figures for expenditure in the EU currently average only 1.84%.

Within the 6 action areas presented by the Commission in the Green Paper, the Parliament has stressed upon are the following elements:

- *Creating a single labour market for researchers* - the need to prevent a net transatlantic outflow of R&D investment. Also, the need to increase mobility (possibly through research vouchers), joint research supervision and integrated information systems.
- *Developing world-class research infrastructures* - a legal framework to facilitate creation and operation of major Community research organisations and possibly involvement in existing European institutions and agreements.

[57] COM(2007)161 final, of 04.04.2007.
[58] SEC(2007)412, of same date as the green paper.
[59] T6-0029/2008 of 31.01.2008

- *Strengthening research institutions* - the importance of the regional dimension of ERA and the development of regional clusters, suggesting an European forum working with major pan-European initiatives.
- *Sharing knowledge* - the need for legal certainty in the field of IPR and the need for a Community Patent.
- *Optimising research programmes and priorities* - the need to make national research policies complementary and programmes reciprocal open. The need to ensure optimal funding for national & regional activities.
- *Opening up to the world: international cooperation in science and technology (S&T)* - the importance of aligning EU scientific co-operation policies with EU foreign policy and development aid programmes. The need to attract third country researchers.

In 2007 the EFTA Working Group on Research and Development[60] focused on the start up of FP7 and the Commission Green paper on a European Research Area (ERA), where the Working Group prepared an EFTA Comment.

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ANNEX I - EXAMPLES OF BEST PRACTICES

Water matters – the Poseidon project in Switzerland[61]

Antibiotics are an essential part of human and veterinary medicine because they contribute significantly to our quality of life. Knowledge of what happens to their active organic ingredients after use is limited. Upon excretion from humans, they are released through the waste water system into the environment – and eventually back into the drinking water supply. But the degradation of the active compounds during this process has never been quantified. We know that over the last decade, Europe has consumed, on average, 12 500 tonnes of antibiotics per year, and that their use is increasing. Recent findings confirm their presence in municipal waste water and agricultural waste. This problem is not limited to antibiotics. Other medicines, such as birth control pills and painkillers, and many personal care products, contain persistent organic compounds. Grouped as pharmaceutical and personal care products (PPCPs) these compounds are used in the home and discharged directly into municipal waste water systems.

Measurements at sewage treatment plants (STPs) across Europe have identified 36 different PPCPs in effluent and more than 30, including antibiotics, in rivers and streams.

The Poseidon project developed methods to reduce the uncontrolled releases of PPCPs to the environment via wastewater. Further, the project intends to enhance efficient and unpolluted water supply and to specify the potential risks of PPCPs to the environment. The Poseidon project includes the Swiss Federal Institute of Environmental Science and Technology, and was supported by the EU Research programme.

European Science Awards 2007: Norwegian winner of Descartes Prize

The Norwegian Polar Institute was among the winners honoured at the EU's European Science Awards in 2007 for their contribution to a European Project for Ice Coring in Antarctica (EPICA). The European Science Awards are considered Europe's most prestigious research prizes.

Dr. Elisabeth Isaksson of the Norwegian Polar Institute heads the Norwegian team in EPICA. The Norwegian Polar Institute is a key partner in EPICA and contributes with expertise in both deep ice core research and glaciology.

The EPICA project is one of the most important climate projects of our time which enables researchers and students to conduct vital climate-related research as part of a diverse international group. The recognition that the Descartes Prize brings will serve to further intensify this close research collaboration.

The EPICA project is one of the European Science Foundation's most successful and longest running Research Networking Programmes. Very appropriately, the Descartes Prize was awarded to the project during the International Polar Year (IPY), which lasts from March 2007 to March 2009.

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Three prize categories of European Science Awards: The European Science Awards are presented for three categories. First, the Descartes Prize for Transnational Collaborative Research is given to international research teams that achieve exceptional breakthroughs as a result of collaborative work. This year featured three prize-winners in this category, each with a long tenure of participation in the EU Framework Programmes for Research and Technological Development.

The other two prize categories are the Prize for Science Communication, awarded for excellence in disseminating research to the public and especially children, and the Marie Curie Awards, which reward the best examples of researcher mobility.

Youth in Action - Youth Mosaic in Liechtenstein

From 11 to 18 of February 2007, young people from Belgium, Austria and Morocco gathered in Liechtenstein not only to discover the famous carnival parties, but also to enjoy dialogue between youth cultures[62]. Discovering different religions, talking about extremism or learning Arabic were some of the highlights. Young people from different cultural, religious and economic backgrounds spent one week together – and had much fun. This project received support from the EU Youth programme, from the Liecthenstein Authority (Amt für Soziale Dienste) and from private sponsors.

[62] http://www.colorida.li/