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# Review of the Science and Technology Cooperation between the European Community and the United States of America 2003 - 2008

## Final Report

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## EXECUTIVE SUMMARY

The EC-US S&T agreement is an important and efficient tool for the regular S&T policy dialogue between the European Community and the Government of the United States. The EC-US S&T agreement should be extended possibly considering new areas and forms for cooperative activities.

The aim should be to intensify the EC-US S&T cooperation in mutually agreed areas of common strategic importance. Furthermore, the exchange of information on new developments and good practice in the area of S&T policy is important.

It is recommended to support staff exchanges between US agencies and the research directorates of the European Commission.

In general, the S&T agreements have the potential to play an important role also in the frame of the implementation of the strategic European framework for international S&T cooperation especially in the context of further moves towards strategic partnerships with key third countries. Ways and means of setting targets and implementing activities have to be further developed accordingly.

Compared to 1998-2003, meetings of JCG are greatly improved regarding scientific content and participation of high level stakeholders. The preparation of road map documents is a real advancement and should be further developed.

Member states and S&T experts should be better informed of the agenda and outcomes of JCG meetings, and where appropriate invited to provide inputs. In formats that are in accordance with the rules of the JCG, information on the main outcomes of JCG meetings should be widely spread amongst S&T stakeholders of the Member states. The road maps could be used for that purpose.

Also in the present reviewing period, the prime implementation tool for EC-US S&T cooperation was the EC RTD Framework Programme. Strategies for a balanced use of EC and US funding instruments for supporting EC-US S&T cooperation have yet to be further developed. Future initiatives for funding of EC-US S&T activities could learn e.g. from the example of best practice in health research, where as of 2009 FP7 and NIH funding opportunities will be reciprocally open. Opportunities for similar approaches in other areas and with other research promotion actors should be systematically explored.

In the further development of a European strategic framework for international S&T cooperation, the whole spectrum of possible arrangements should be explored and utilized in complementary ways: EC-US cooperation in the Framework Programme, coordinated calls and joint EC-US S&T programmes defined in implementing arrangements, cooperation in variable geometry between groupings of Member states and US partners (e.g. ERA-NET actions), and bilateral cooperation between Member states and the US.

The Science, Technology and Education Section of EC Delegation to the US shows an excellent performance but lacks sufficient human resources for acting as the bridgehead of EC S&T activities in the US. All possible ways of strengthening the STE Section should be explored such as e.g. using external contractors and mobilising resources of other DGs of the research family.

Participation of US partners in European research activities and vice-versa is still low and there is a huge potential for further development. However, for an assessment defined targets and criteria would be necessary. This is an issue to be addressed by the new Strategic Forum for International S&T Cooperation.

Means for promoting the EC-US S&T cooperation should be strengthened. This applies to targeted activities of National Contact Points in Europe, but also to strengthening information and assistance for US researchers. The new BILAT scheme will have an important role to play there. Coordination with activities of the EC Delegation will be necessary. Success stories should be systematically identified and used for promoting the EC-US S&T cooperation. AAAS Annual Meetings are most appropriate for presenting Framework Programme and opportunities for EC-US cooperation.

The Marie Curie actions are the most important scheme in the EC-US S&T relations. Existing deficits in the implementation of the scheme should be removed. Strategies for achieving a balance between researcher flows to and from the US should be developed. The IRSES scheme is particularly important.

European Technology Platforms (ETPs) and Joint Technology Initiatives (JTIs) will be able to play important roles in the transatlantic S&T cooperation. As a basis for strategy development studies on the international dimension of ETPs and JTIs should be prepared.

The Ideas specific programme has the potential to attract researchers from the US – both US nationals and others – to Europe. Therefore, the considerations of the ERC Scientific Council to develop an internationalisation strategy are most welcome.

A comparative study on the regional distribution of the US participation in the Framework Programme and the distribution of US federal, NSF, NIH funding would be interesting.

A decisive effort by the Commission and the US partners is necessary to reduce the administrative and legal barriers for the EC-US S&T cooperation. In addition, common arrangements should be developed in order to ensure that both EU and US partners in collaborative activities that are selected receive adequate funding. The approach developed between DG RTD and NIH in the Health theme should act as a model also for other areas.

The problems related to IPR issues should be further analysed by the Commission and the US counterparts in order to develop a mutually acceptable solution.

It is recommended that a study is performed to produce an overview of Member states individual and possibly also joint activities and to review their coherence with EC-US S&T activities.

In order to raise the visibility of European S&T in the US the idea of establishing a "House of European S&T" in the US should be explored in close consultation with the Member states. Also appropriate EC funding schemes like CSA could be used for such an initiative. This is an issue that should be discussed in the newly established Strategic Forum for International S&T Cooperation[1].

The present is a particularly opportune time for realising the potential of cooperative S&T activities between the EU and USA. The present road map lists a wide spectrum of cooperative opportunities so it is recommended that the JCG discusses whether and how these should be prioritised. The experts recommend a move towards a strategic approach in areas of common interests and mutual benefits.

[1] A Strategic European Framework for International Science and Technology Cooperation. Commission of the European Communities. COM(2008) 588 final, Brussels, 24.09.2008

# 1 Context and background to the review

## 1.1 Terms of Reference for the review

An Expert Group has been established by DG Research of the European Commission to conduct a review of EC-US cooperation in the field of science and technology (S&T), assessing in particular the implementation and impact of the S&T Cooperation Agreement concluded between the European Community and the Government of the United States of America (the EC-US S&T Agreement) and taking into account similar Agreements between EU Member states and the USA.

The objective of the expert group is *"to review the EU-US cooperation in the field of research, assessing in particular the implementation and impact of the S&T Cooperation Agreement (STA) concluded between the European Community and the Government of the United States of America (EC-US S&T Agreement) and taking into account similar Agreements between EU Member states (MS) and the USA. The expert group also has to identify outstanding issues related to the implementation of the EU-US cooperation agreements in the field of research (both at EC and where appropriate MS level) and where appropriate make recommendations. It also is tasked with highlighting and comparing the impact of EU-US cooperation agreements by means of appropriate indicators (e.g. in terms of increase in level, intensity or quality of EU-US cooperative activities over the period 2003-2008)."*

As part of the work undertaken the expert group was involved in the following activities as part of the review exercise:

- identifying **success stories and flagships** amongst EU-US S&T cooperative activities and highlighting where appropriate underpinning reasons for success;
- analysing the S&T cooperative activities over the period (2003-2008) in relation to the different specific programmes/thematic priorities of the EC Research Framework Programmes so as to draw up a **pattern of cooperative activities** both in terms of areas/topics and types of research, and highlighting meaningful trends in comparison with the previous period (1998-2003);
- identifying the S&T areas/topics/actors for which there is a clear **prospect for further developing S&T cooperation**;
- identifying and documenting **bottlenecks and administrative/legal/institutional obstacles** to on-going S&T cooperative activities or their further development;
- broadly reviewing **EU Member states bilateral cooperative activities with the US**, assessing their relative contribution and added-value in the wider EU-US S&T cooperation;
- assessing **complementarities/synergies and overlaps between the different EU-US cooperative activities** (as steered by the EC and Member states);
- analysing the extent to which the EU-US S&T cooperation is **mutually beneficial.**

## 1.2 The EC-US S&T Agreement

The EC has concluded S&T Agreements with various third countries. These agreements constitute a framework and a privileged forum to identify common interests and priorities, to ensure a regular policy dialogue, and to develop the necessary tools and instruments for S&T collaboration.

S&T Agreements are in force between the European Community and the following third countries Argentina, Australia, Brazil, Canada, Chile, China, India, Egypt, India, Korea, Mexico, Morocco, Russia, South Africa, Tunisia, Ukraine, and the USA. The agreement with New Zealand was signed on 16 July 2008 and should enter into force in 2009. Currently, the Community is negotiating or considering negotiating S&T agreements with Japan, Jordan and Algeria.

S&T Agreements (STA) offer a political, legal and administrative framework for coordinating and facilitating S&T cooperative activities between European legal entities and international partners, thereby strengthening the international dimension of the European Research Area. Under the umbrella of certain agreements "Implementing Arrangements" can be signed between the European Commission and third countries' funding agencies to better organise collaboration in specific areas of research. These have been a particular feature of the EC-US STA.

The EC-US STA was originally signed in December 1997[2]. It aims at fostering transatlantic research cooperation, notably through implementing arrangements between the EC and US research funding agencies.

The EC-US STA does not include specific provisions regarding the funding of cooperative research activities (which remains subject to the respective applicable laws/regulations, policies and programmes of the two Parties to the agreement). In article 3, it does, however, set the principles for conducting cooperative activities:

a) mutual benefit based on an overall balance of advantages;
b) reciprocal opportunities to engage in cooperative activities;
c) equitable and fair treatment;
d) timely exchange of information which may affect cooperative activities.

The areas of cooperative activities listed under STA Article 4 largely correspond to the thematic programmes of the Fifth Community Research Framework Programme. A separate agreement on the peaceful uses of atomic energy (including research) between EURATOM and the USA entered into force in 1996.

The forms of cooperative activities foreseen under Article 5 are essentially twofold: co-operation at intergovernmental level (i.e. Implementing Arrangements between government-controlled or funded research entities and programmes) and co-operation through joint research projects (i.e. participation in each other's research programmes on a project-by-project basis - see Terms of Reference for this study

[2] Agreement for scientific and technological cooperation between the European Community and the Government of the United States of America. Official Journal of the European Communities, L 284/37-44, 22.10.98

p2). Both of these have indeed been a feature of activities under the auspices of the STA over the past five years. Examples of such activities are dealt with elsewhere in the report.

The forms of cooperative activities foreseen under Article 5 of the EC-US STA cover the whole spectrum of collaborative arrangements:

- coordinated and joint research projects,
- joint task forces and joint studies
- seminars, conferences, symposia and workshops,
- training of scientists and technical experts,
- exchange or sharing of equipment and materials,
- visits and exchanges of scientists, engineers or other appropriate personnel;
- exchange of scientific and technological information as well as of practices, law, regulations and programmes relevant to cooperation under this agreement,

"Where appropriate, such cooperative activities shall take place pursuant to implementing arrangements concluded between the Parties' executive agents, or their scientific and technological organisations and agencies" (e.g. between NIST and JRC).

Article 6 states that *"The coordination and facilitation of the cooperative activities under this Agreement shall be accomplished on behalf of the Government of the United States of America by the Department of State and on behalf of the Community by the European Commission, acting as Executive Agents. The Executive Agents shall establish a Joint Consultative Group (JCG) for the oversight of the S&T cooperation under this Agreement."* For the EC, the European Commission acts as executive agent; the executive agent for the Government of the US is the Department of State. The European Community is usually represented by the Director-General for RTD and/or the Director of the Directorate for International Cooperation as well as representative directorates of the research family as appropriate

The principles for managing and protecting the intellectual property created or furnished in the context of cooperative research activities under the Agreement or implementing arrangements are defined in a special annex to the Agreement. Addressing potential IPR issues and problems related to handling and development of intellectual property is also one of the tasks of the JCG.

The main financial instrument to support and implement the Community's policies in the area of science, research and technological development are the EU Framework Programmes for Research Technological Development and Demonstration, currently the 7$^{th}$ Framework Programme (FP7). As a part of the Lisbon strategy the budget and the scope of FP7 have been substantially increased and broadened. In FP7, there are two main new themes: space and security research. Therefore, in the course of the forthcoming extension for five more years of the Agreement also broadening the scope of the agreement to include space and security research (the only areas of FP7 not presently covered in the STA) might be considered.

The FP7 rules for participation[3] provide the legal basis for financing of non-associated third countries which are not on the ICPC[4] list of low and middle-income countries if certain conditions are met:

> *"… , Community financial contribution may be granted provided that at least one of the following conditions is satisfied:*
>
> *(a) provision is made to that effect in the specific programmes or in the relevant work programme;*
>
> *(b) the contribution is essential for carrying out the indirect action;*
>
> *(c) such funding is provided for in a bilateral scientific and technological agreement or any other arrangement between the Community and the country in which the legal entity is established."*

In FP7, there are some specific schemes that are linked to the existence of STAs: IRSES and BILAT. Both can be presented as tools for increasing the participations of third countries entities irrespective of their funding. Both schemes will support the further development of EC-US cooperation. BILAT is supposed to specifically support the provision of information and assistance for US researchers on the opportunities for EU-US S&T cooperation offered through the Framework Programme.

### 1.3 The EC-US S&T agreement in the general frame of EU-US relations

The US and the EU have a strong tradition of cooperation in science and technology. So the EC-US STA is regarded as important to the ongoing transatlantic research dialogue and as recognition that science and technology contribute significantly to the economic growth and quality of life in the United States and Europe[5]. Diagram 1 shows the DG RTD Joint Consultative Group formed by the executive agents of the Agreement as an element of the New Transatlantic Dialogue of 1995.

In addition, science, technology and innovation are also addressed in the yearly top EU-US summits and since 2007 in the preceding meetings of the Transatlantic Economic Council, the bi-annual ministerial meetings and other fora. For example, in the 2007 Framework for Advancing Transatlantic Economic Integration between the EU and the USA, innovation and technology are high on the agenda highlighting in particular "lighthouse projects" such as developing a science based work plan for EU-US collaboration on innovative and eco-efficient bio-based products and establishing a joint research infrastructure for mouse functional

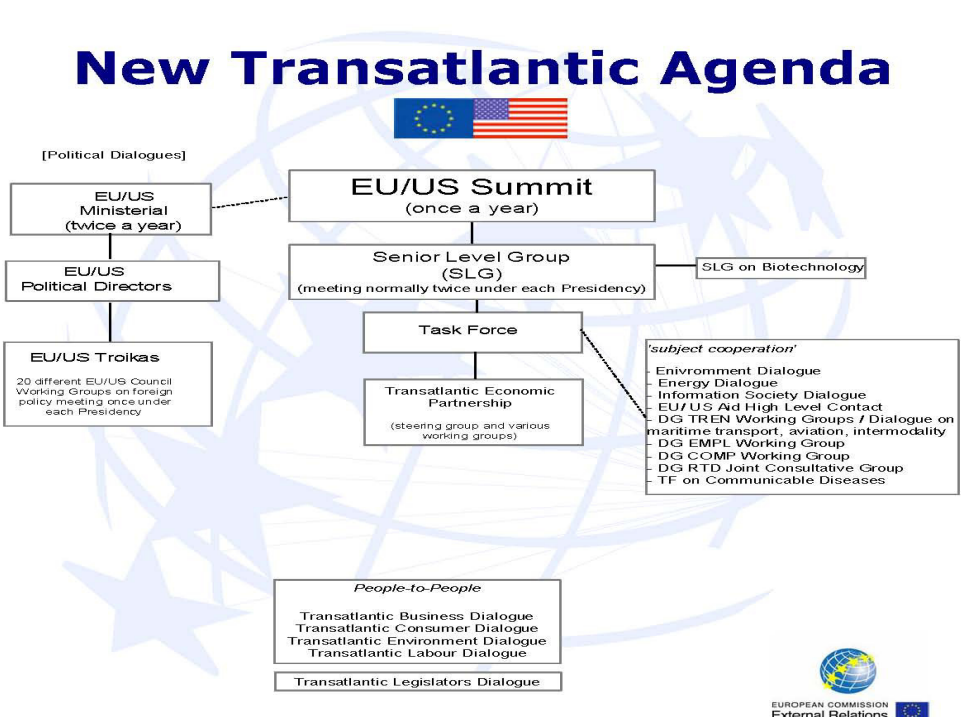
[3] Regulation of the European Parliament and of the Council of 18 December 2006 laying down the rules for participation under the seventh Framework programme and for the dissemination of research results (2007-2013). Official Journal of the European Union. L 391/1-18, 30.12.2006, Article 29, 2. (c), p.

[4] ICPC: International Cooperation Partner Countries

[5] See also in the EU-US Declaration to increase transatlantic economic integration: "Therefore the aim is to increase synergies across the Atlantic as we become more knowledge-based economies. To achieve this we will work to encourage collaboration on long-term basic research within the context of the EU - US Science and Technology agreement and develop exchanges of good practices concerning the policies needed to support science and innovation".

genomics. In the work programme the importance of research and innovation to promoting competitiveness and improving quality of life are acknowledged.

**Diagram 1: DG RTD Joint Consultative Group in the context of EU-US relations**




The strong economic performance of the US in recent years has demonstrated the value of a knowledge-based economy, one in which research, its commercial applications, and other intellectual activities play an important role in driving economic growth and prosperity.

Similarly, in 2000 the European Union (EU) has launched the so-called Lisbon strategy for growth and jobs which includes the aim to increase R&D spending from two towards three percent of Gross Domestic Product by 2010 as defined by the Barcelona European Council in 2002.

## 1.4 Similar S&T agreements of the US with Member states

The US has 39 S&T agreements with different countries. Of these 12 are with Member states of the EU. The totality of ERA endeavour for S&T cooperation with the USA therefore needs to take account of these. The EC-US STA brings a pan-European dimension to transatlantic S&T cooperation to complement the bilateral arrangements with individual Member states and the collaborative activities between individual organisations and indeed individual scientists. (see also Chapter 7).

## 1.5 Review and extension of the EC-US S&T Agreement

Article 12 of the EC-US S&T Agreement provides that *"Subject to review by the Parties in the final year of each successive period, the Agreement may be extended, with possible amendments, thereafter for additional periods of five years*

*by mutual written agreement between the Parties"*. A first review was performed in the form of an impact assessment in 2003[6] and the Agreement was renewed in 2004.

The overall conclusions of the first impact assessment in 2003 were that the S&T Agreement was useful and enhanced EU-US S&T collaboration. It had produced positive benefits and should be renewed. This was done in October 2003 for an additional period of 5 years without any amendment. However the reviewers felt that the implementation could be improved by enhancing its relevance, improving its attractiveness, promoting awareness of it, reinforcing its implementation follow-up and monitoring its impact. Also communication and publicity for the agreement was a concern of the reviewers in 2003 and it was felt that the JCG itself could be used as a communication vehicle.

### 1.6 Timing of the present review and approach taken by the expert group

It is for this reason that the EC-US S&T Agreement is again being reviewed in accordance with the ToRs outlined above. The present report summarises, synthesises, and assesses the information and findings of the expert group accumulated in the course of the review.

The experts took the following approach for the review:

- Analysis of existing documentation provided by the Commission services and retrieved from other sources;
- Interviews with scientific officers in the Commission on different occasions in the course of the review exercise;
- 2-9 November 2008 Mission to Washington DC (see detailed programme for interviews with stakeholders in US government departments and in US agencies as well as with EC Delegation and S&T Counsellors of EU Member states in the Annex);
- November 2008: Online questionnaire survey of FP6 and FP7 coordinators of projects with US involvement and of US project partners (see questionnaire and results in the Annex);
- Draft Final Report delivered by the end of November 2008;
- Final report delivered end of January 2009.

The different channels of information exploited by the experts provided valuable insights into and evidence of the state of EC-US S&T cooperation, and of cooperative activities of MS with the US, as well as indications on the present US position towards international S&T cooperation and perspectives for future EC-US S&T cooperation. On that basis, recommendations have been developed for further strengthening the cooperation. Finally, however, it has to be emphasised that the present review was not supposed to be an in-depth evaluation of the EC-US S&T cooperation but a review intended to provide an overview of achievements during 2004-2008 and recommendations as decision support for future policy development.

[6]Impact assessment of the S&T agreement concluded between the European Community and the United States of America. European Commission, Directorate General for Research. EUR 20872, Brussels, 2003

## 2 Development of the EC-US S&T policy dialogue 2004-2008

### 2.1 The coverage of EC-US S&T cooperation in EC-US Summits

During the reporting period of this review every year EU-US summits were held and also other high level meetings have taken place. In the following, an overview of S&T related issues discussed and agreed upon during these is given.

In the joint declaration following the **2005 EU-US Summit** in Washington, under the heading 'Spurring Innovation and the Development of Technology' the increasing dependency on research and technological development was underlined. The leaders agreed: *"We will increasingly rely on innovation and advanced technologies to stimulate economic growth and prosperity. Our aim is to increase synergies across the Atlantic as we become more knowledge-based economies."*

To achieve this, both parties agreed to work to:

- encourage collaboration on long-term basic research within the context of the EC-US Science and Technology agreement, and develop exchanges of good practices concerning the policies needed to support science and innovation;
- promote cooperation using civilian space-based technologies for sustainable development, science/exploration, and deepening the knowledge society;
- support an international dialogue and cooperative activities for the responsible development and use of the emerging field of nanotechnology;
- renew and reinforce the EU-U.S. agreement on Higher Education and Vocational Training, which includes the Fulbright/European Union program, to boost education;
- cooperation and transatlantic exchanges between our citizens;
- encourage the commercial application of output from research, identifying cooperative actions to improve rapid commercialization, using, inter alia, incubator environments, venture capital and technology transfer;
- promote E-accessibility for the disabled, elderly and other citizens with accessibility issues;
- encourage deployment of key innovative technologies such as broadband and radio frequency identification devices, without prejudice to consumer and data protection;
- encourage collaboration on development and take up of Intelligent Transport Systems/ Telematics for intelligent vehicles;
- establish a dialogue on cyber-security to bring together regulators, law enforcement and, as appropriate, intelligence agencies;
- support OECD efforts to develop an approach to international redress for international internet purchases;
- cooperate to tackle spam through joint enforcement initiatives, and explore ways to fight against illegal "spyware" and "malware;" and

- explore cooperative work on health and medical technologies.

Also in the area of 'Energy efficiency' needs for joint efforts in the area of technological development were identified for cooperation to advance energy security, energy efficiency, renewables and economic development. It was also agreed to promote clean and efficient carbon sequestration technologies, all forms of renewable energy, and the next generation of hydrogen and other clean and safe energy technologies. In addition, the EU and US wished to support developing countries to apply new clean energy technologies.

In a special Annex "The European Union and the United States working together to advance Energy Security, Energy Efficiency, Renewables and Economic Development" joint actions were envisaged. Some of the addressed activities were

- Working together through the Carbon Sequestration Leadership Forum to foster the development and deployment of clean, efficient technologies, especially in key developing economies, as global reliance on fossil fuels, particularly coal, continues.
- Promoting our work on hydrogen technologies and the International Partnership for the Hydrogen Economy.
- Continuing work to advance all forms of renewable energy, and to promote the use of renewable and energy efficiency technology and policy measures, including promotion of energy conservation.
- As members of the Renewable Energy and Energy Efficiency Partnership (REEEP), we will place a greater emphasis on cost-effective energy efficiency opportunities.
- Working together to promote the development, deployment and adoption of cleaner, more efficient diesel vehicle technologies, including by seeking to better align our regulatory standards for diesel engines and fuels.

In the **2006 Vienna EU-US Summit** declaration the parties agreed to promote strategic cooperation on energy and energy security, climate change and sustainable development, for instance

- To speed development of new lower pollution and lower carbon technologies;
- To accelerate investment in cleaner, more efficient use of fossil sources and renewable sources in order to cut air pollution harmful to human health and natural resources, and reducing greenhouse gases associated with the serious long-term challenge of global climate change;
- Make more and better use of renewable energy sources and reinforce technological cooperation and partnerships, notably on environmentally friendly low emission power generation technologies, hydrogen energy, carbon sequestration, cutting gas flaring and biofuels;
- Continue scientific exchanges among EU and US research and development organisations focused on energy efficiency in buildings;
- Promote continued research, development and deployment of alternative energy sources and the facilitation of technological and industrial cooperation.

- To establish an EU-US High Level Dialogue (HLD) on Climate Change, Clean Energy and Sustainable Development. Among topics of importance for this dialogue will be – amongst others – to promote cost-effective reductions in greenhouse gas emissions, advancing the development and deployment of existing and transformational technologies that are cleaner and more efficient, producing energy with significantly lower emissions, efficiency and conservation, renewable fuels, clean diesel, capture of methane, lower emitting agricultural operations and energy production and distribution systems, as well as other environmental issues. A first inaugural meeting of the HLD has taken place in Helsinki on 24-25 October 2006. The EU and U.S. delegations agreed to strengthen bilateral cooperation including to

    - Promote the commercial deployment of clean coal and carbon sequestration technologies, including through the Carbon Sequestration Leadership Forum;
    - Promote energy efficiency, particularly in the transportation sector and for buildings and appliances;
    - Enhance methane recovery including through the Methane-to-Markets Partnership;
    - Research, develop and deploy second-generation biofuels;
    - Overcome barriers to the use of renewable energy sources and biofuels, including through the development of international standards;
    - Address global biodiversity loss through natural resource conservation and other joint efforts; and
    - Enhance energy access for sustainable development

In the 2006 Progress Report on the Economic Initiative the area of innovation was highlighted:

- In the field of spurring innovation and the development of technology, the European Union and the United States are cooperating to improve their common knowledge on how to measure their innovation performance and to understand better each other's innovation policies.
- A rolling work plan on e-accessibility has been agreed and has started, with a goal of reaching a coherent approach on our policies in this area.
- A new EU U.S. civil space dialogue has been launched and will be continued next year.
- Transatlantic conferences have been held on the medical and health aspects of nanotechnology. A possible coordinated call for research proposals in the field of nano(eco)toxicology is being examined.
- The Commission has launched a wide public debate on Radio Frequency Identification technology that will include a series of workshops with invited U.S. speakers.
- Discussions on cyber security policy are being planned. Ongoing EU-U.S. cooperation to tackle spam led to the organisation of a joint workshop on spam enforcement and contributed to the adoption by the Organisation for

Economic Cooperation and Development (OECD) of a number of recent initiatives.

- Discussions on e-health initiatives have been started, and a first EU U.S. workshop on patient safety will be held; EU and US will meet on joint research on biomedical informatics, and establish working groups on interoperability and certification of electronic health record systems.
- The renewal of the administrative arrangement for the EU U.S. Task Force on Biotechnology Research has been signed in June 2006.

During the **2007 EU-US Summit** in Washington on 30 April 2007, a shared understanding has been reached on the new 'Framework for advancing transatlantic economic integration between the European Union and the United States of America'. 'Lighthouse Priority Projects' have been identified with the objective to significantly enhance transatlantic economic integration. In that context, in the area of 'Innovation and Technology' the following activities have been planned:

- Conduct a high-level conference on innovation in health-related industries and a workshop on best practices in innovation policies;
- Develop a joint framework for cooperation on identification and development of best practices for Radio Frequency Identification (RFID) technologies and develop a work plan to promote the interoperability of electronic health record systems;
- Develop a science-based work plan for EU-U.S. collaboration on innovative and eco-efficient bio-based products;
- Establish a joint research infrastructure for mouse functional genomics (following a joint meeting in 2007 in Belgium);
- Sponsor joint workshops or conferences to foster the exchange of information on nanotechnology in areas of mutual interest.

Furthermore, it has been decided to work to promote transatlantic economic integration in several areas, amongst them also 'Innovation and Technology'. Acknowledging the importance of research and innovation to promoting competitiveness and improving quality of life, the EU and US resolved to:

- Conduct an exchange of innovation experts to discuss best practices;
- Exchange views on policy options for emerging technologies, or new technological applications, in particular in the field of nanotechnology, cloning or biotechnologies;
- Explore the possibility to launch common research actions paving the way to a level playing field for nanotechnology-based products in the globalised market, namely co- and pre-normative research;
- Reinforce cooperation on e-accessibility, including continued EC participation in the U.S. Access Board process of standards revision, ensuring U.S. participation in the European standards-making process on public procurements on e-accessibility, and considering wider cooperation to improve the accessibility and mobility in the built environment;
- Work together on interoperability of electronic health record systems;
- Exchange best practices on all dimensions related to RFID;

- Develop a framework of regulation and payment policies that promote innovation;
- Exchange knowledge and experience on the use of information and communication technologies to improve traffic safety;
- Launch an EU-US Standards Dialogue as an overarching framework to discuss specific standards-related issues; and
- Collaborate on innovation indicators and how data helps policymakers understand what drives innovation and its affects on economic performance.

In the Economic Progress report to the 2007 EU-US Summit the first activities in the area of the Innovation Initiative were reported. The two sides have:

- concluded a workshop on metrics to better measure the impact of innovation on our economies;
- included two European Commission experts in the review of U.S. e-accessibility standards and guidelines for public procurement, and agreed that U.S. government experts will participate in the execution of the European Commission's mandate to the European Standardization Organizations on European accessibility requirements for public procurement of products and services in the ICT domain;
- hosted an EU delegation of innovation experts to study innovation policy in three states in the US;
- held a full-day workshop on innovation policy in the United States, hosted by the Department of Commerce.

In March 2008, the 2nd meeting of the EU-US High Level Dialogue on Climate Change, Clean Energy and Sustainable development was held in Washington where amongst others the progress in clean energy cooperation was discussed. A 3rd meeting was planned for April 17-18, 2008 in Paris.

In the Joint Declaration of the **2008 EU-US Summit** held in Brdo, Slovenia on 10 June 2008 it was agreed to continue to intensify the EU-US science and technology cooperation on energy and climate change in agreed priority areas, such as sustainable production and use of biofuels. Clean and renewable energy sources, carbon capture and storage, hydrogen fuel cells, climate change impacts, and options for improving access to transatlantic research funding opportunities.

In the Transatlantic Economic Council report to the 2008 Summit also information on the progress in the Lighthouse Priority Projects on 'Innovation and technology' was provided. Among the activities the following are relevant in the context of the EC-US S&T agreement:

- Under the auspices of the EC-U.S. Task-Force on Biotechnology Research, a working group on bio-based products was established and several EC-U.S. scientific workshops paved the way to the identification of three joint research priorities related to innovative and eco-efficient bio-based products: plant cell walls in relation to bio-refining; plant oils as industrial feedstock; and biopolymers. The research projects selected in 2008 to

address these priorities under the EC Research Framework Programme have a strong involvement of U.S. partners.

Summing up, the EU-US Summits held during the reporting period of the present impact assessment covered a range of topics and issues most relevant for the EU-US S&T cooperation such as:

- Innovation policy, measurement of innovation performance; innovation in different industrial sectors; relations between innovation performance and economic development;
- Encouraging the commercial application of outputs of research, cooperative actions to improve rapid commercialization;
- Cooperation in long-term basic and in pre-competitive research;
- Access to transatlantic research funding opportunities;
- Addressing global biodiversity loss;
- Most frequently the areas of energy and climate change have been addressed including: energy efficiency, renewable energy sources, alternative energy sources, environmental low emission power generation technologies, hydrogen energy, clean coal and carbon sequestration technologies, energy efficiency in the transport sector, second generation bio-fuels, alignment of regulatory standards for diesel engines and fuels, energy efficiency in building;
- Eco-efficient bio-based products,
- Biotechnology (EU-US Task force on Biotechnology);
- A joint research infrastructure for mouse functional genomics;
- Nanotechnology , medical and health related issues of nanotechnology;
- Policy options for emerging technologies, such as nanotechnology, cloning and biotechnology;
- Different aspects of information technologies: e-health, e-accessibility (especially for disabled, elderly and other citizens with accessibility issues), transport safety, cyber security;

The EC-US S&T Agreement and the related communication channels like the Joint Consultative Group and other meetings certainly provide an appropriate framework for the follow up of the S&T related issues discussed and agreed upon during the EU-US Summits. On the European side, the EU RTD Framework programmes provide the financial instruments for the launching of collaborative R&D activities and exchanges. It is acknowledged that in the recent years and especially during the second half of the reporting period many aspects have been included in the road maps. However, looking at the FP6 results with regard to EC-US S&T cooperation, little effect of the high level decisions and agreements can be seen. Therefore, the link between external relations policies and RTD policy should be reinforced. How are the results of the summits communicated to and taken up by directorates of the research family and how can they possibly find their way in the FP's annual work programmes and finally materialize in joint collaborative research projects?

## 2.2 Developments regarding international S&T cooperation in the US

The summary of the conclusions of the EU-US summits show a noticeable trend towards more strategic cooperation that has developed in the course of the reviewed period 2004 to 2008. On the US side, this trend is supported by a visible change in the US position towards international S&T cooperation. Such a tendency is signaled in some public reports but was also discussed with US officials during the experts' US mission.

In September 2005, the National Science Board established a Task Force on International Science to examine the role of the U.S. Government in supporting international science and engineering partnerships. In February 2008, the National Science Board published the final report on International Science and Engineering Partnerships[7]. The report emphasizes that *"the first decade of the 21st century has shifted the global landscape of science and engineering related to research, education, politics and the technical workforce"*. There are new security challenges but also pressing problems related to health and environment. As a consequence, international S&T partnerships have to be developed and strengthened in order to ensure US competitiveness. Also globalization in S&T and the emergence of new science and technology powers is changing the S&T arena. It is realized that the US is not the unquestioned leader in certain fields and there is a growing awareness that it must engage *"in the global movement to work together on the frontiers of science and engineering".* A third factor inducing change is the global nature of many societal challenges: security needs coming from terrorist threats, technological needs of developing countries, environmental change, global change, natural disasters, and health epidemics. *"Advances in science and engineering will increasingly depend on the ability to draw upon the best minds regardless of national borders."*

The National Science Board recommends especially strengthening international cooperation in science and engineering with developing countries. Science diplomacy and capacity building are main instruments towards that goal. The US government is urged to consider the proposed Strategic priorities and initiate respective actions. For the National Science Foundation guidance is provided supporting the general objectives of the initiative.

The recommended actions are structured under the following headings:

- Creating a Coherent and Integrated US International S&E Strategy;
- Balancing US Foreign and R&D Policy, and
- Promoting Intellectual Exchange.

The report defines necessary actions in great detail. International S&T cooperation and partnership is seen as having *"great potential to improve relations among countries and regions and to build greater science and engineering capacity around the world".*

[7] „International Science and Engineering Partnerships: A Priority for U.S. Foreign Policy and Our Nation's Innovation Enterprise. National Science Board, National Science Foundation. NSB-08-4. February 14, 2008 http://www.nsf.gov/nsb/publications/2008/nsb084.pdf

In April 2008, the US House of Representatives' Committee on Science and Technology Subcommittee on Science and Research and Science Education called for a hearing on "International Science and Technology Cooperation"[8]. The purpose of the hearing was *to examine the mechanisms by which federal priorities are set and inter-agency coordination is achieved for international science and technology co-operation and to explore the diplomatic benefits of such cooperation".* Witnesses of that hearing were major S&T stakeholders from government departments and government agencies such as the Office for Science and Technology, the State Department, NSF, and NASA. During the hearing and in the conclusions the importance of international S&T cooperation and the role of the different institutions and agencies are playing was stressed. For example, NSF spends $300-400 million annually on research grants involving international collaborations. The hearing was a strong signal for the growing awareness of the needs to collaborate on an international scale. However, there was no move towards a stronger coordination of the different actors.

It is also worth noting that another paradigm shift might influence future EC-US S&T cooperation. The EC is offering the right to participate in collaborative research activities whereas the US is mostly funding principal investigators. Thus, so far, this is an obstacle for offering reciprocal opportunities to participate with this difference in approach. However, there are signs that collaborative research is becoming progressively more important also in the US. It is remarkable that on 11 November 2008 the Council of Competitiveness asked the new US administration for action in the first 100 days to recapture American competitiveness by means of four actions. As one of the actions the Council requests to double the investment in basic and applied research across government. A special focus is put on deficits in innovation. There it says also: *"Most of our engineers are trained deeply in a single discipline. That is how we fund R&D projects in which they get their education and training. It is critical for innovation, however, that they be able to work across disciplines and understand the benefits of multidisciplinary collaboration."* [9]

During their meetings with officials of different departments the experts of the present review found many indications of the growing importance related to international S&T cooperation, particularly between the US and the EU. However, there is certainly also the question regarding the balance between cooperation and competition.

International S&T cooperation is high on the agenda in the US. However, the main US funding instrument are still grants for principal investigators and this approach has also been shaping the culture of the S&T endeavour in the US since a long time. The European experience in collaborative research is certainly a feature of interest for the US S&T policy makers and participation in the Framework Programme provides also an opportunity for US researchers learning to work in large / distributed S&T consortia. The Strategic European Framework for International Science and Technology Cooperation[10] provides a basis for further

[8] http://science.house.gov/publications/hearings_markups_details.aspx?NewsID=2134
[9] Compete. Agenda, New Challenges, New Answers. Competitive.Council on Competitiveness. November 2008; Competitive.Council on Competitiveness. November 2008; http://www.compete.org/publications/detail/606/compete1/
[10] COM(2008) 588 final, Brussels, 24.09.2008

strengthening the EU-US S&T cooperation through better coordination amongst EU Member States of their respective cooperation activities with the US.

## 3 The role and the management of the EC-US S&T Agreement

### 3.1 Appreciation of the STA by the actors involved

The EC-US STA is valuable in the eyes of US agencies and Commission services for providing the platform through the meetings of the JCG for

- taking stock of the state of EC-US S&T cooperation;
- helping to get collaborative S&T initiatives started;
- raising visibility of international S&T cooperation;
- developing a common terminology for S&T policy and initiatives;
- and its Implementing Arrangements help to get people involved.

The STA has certainly gained more importance compared to the past since FP7 offers different opportunities for targeted funding of EC-US S&T cooperation.

The exchange of information on S&T policy developments, S&T programming and funding practicalities is important and could be even further intensified. The roadmaps that have been prepared in recent years provide a very good basis for orienting and structuring the collaboration in a strategic way and for monitoring the activities. There is still room for better utilizing this tool from both sides.

The STA has certainly an impact from a policy standpoint. Being the S&T policy dialogue platform between the EC and the US the participants of the Joint Consultative Group are US government and EC officials and underline the benefit for having regular direct contacts. It was clear during the review that a legal frame such as the STA forms a conducive environment in which new initiatives and involvements can be formulated and also the follow-up of joint declarations of EC-US summits can be realised. The key is to maintain awareness and to ensure that additionality is brought by the STA over and above what might have occurred anyway – while remembering that the STA and its JCG are primarily a means of developing policies and strategies to identify areas for joint actions of common interest and the agree on appropriate measures for implementation.

As in the past, also in 2003-2008, the prime implementation tool for EC-US S&T cooperation was the EC RTD Framework Programme. Strategies for a balanced use of EC and US funding instruments for supporting EC-US S&T cooperation have yet to be developed. Future initiatives for funding of EC-US S&T activities could learn e.g. from the example of best practice in health research, where as of 2009 FP7 and NIH funding opportunities will be reciprocally open for participation and funding to entities on both sides. Opportunities for similar approaches in other areas and with other research promotion actors should be systematically explored. Implementing arrangements between the Commission and US agencies are appropriate tools for structuring EC-US S&T cooperation jointly identified areas of strategic importance and mutual benefit.

The US side unanimously supported the extension of the STA. State Department, OSTP, NSF, NIST, NIH and EPA all agreed that the STA provides an adequate framework for the further development of the EC-US S&T cooperation.

The EPA, for example, felt that the EC-US interactions in the meetings of the JCG were back and forth relationships so both sides learn from each other. The umbrella nature of the STA means that separate agreements are not always needed for cooperation to start. It can bring an added value to the bilateral relationships pursued by MS but some feel that it is too focussed on the FP. It is also seen by some as under the ownership of DG RTD and additional involvements can cause delay or difficulties. Overall, the US agencies are interested in European S&T and the EC-US S&T relationship is seen as a good one.

Despite the general support for the extension of the STA, in the view of the US the STA required process is too protracted and time-consuming – "the US could have done it in a week". Some representatives of MS see the IP issues addressed in the STA annex as problematic and the annex limited in value - a view that is shared by many respondents to the online survey (see Chapters 4.3 and 7.3) – other MS do not see a problem. However, there was no concrete request for changing the annex.

### 3.2 Participation of the Member states in the implementation of the STA and general information on the STA

In the last Impact Assessment it was pointed out that awareness and the impact of the STA could be further enhanced if Member states were more involved in the preparation and follow up of JCG meetings. In the meantime, the STE section of the EC Delegation has set in train a number of valuable measures to improve the information flow in relation to MS embassies. However, based on the information collected from the spectrum of sources and analysed in the course of this review it appears that the problem of ensuring greater awareness and better information on the agreement has still to be addressed. In that context, it would also be important that information on bilateral activities between Member states and the US is made available in a more systematic way in order to ensure better consistency and coherence between Community and Member states' activities. Other examples could be cooperation in identifying shared scientific positions between the EC and the US.

There is still a lack of awareness of the state of the EC-US cooperation in S&T in the Member states and amongst the S&T community. This would seem to call for wider dissemination and discussion of the outcomes of the JCG meetings to all and with the relevant stakeholders. The roadmap might be the tool of choice for this. In addition, an involvement of Member states officials and experts providing input in the preparations of the JCG meetings would contribute to increasing the impact of the STA. There may well be practical difficulties in achieving this though INFSO has a tradition of inviting MS science attachés when holding S&T discussions with Third countries and recently DG Research debriefed the MS science attaches in Pretoria after the EC-SA S&T JCC.

Currently, Member states are not involved in the EC-US dialogue process as undertaken by the JCG and the resulting agreed roadmap – which in itself received praise. Some MS are aware of the process and the resulting roadmap – other are not. In either case, Member states don't have any opportunity to feed in ideas or to receive information on what has transpired. The concept of ERA as

originally portrayed in Lisbon and Barcelona Declarations is therefore hardly noticeable in the formal process of EU S&T relationship with the US. Indeed there are often parallel routes of activity – one MS initiative and one EU initiative as if the two are unconnected. This may be a valid position for Europe but it is one that can cause confusion in the US. Actually, Europe presents itself in the US as 27 Member states plus the European Commission and there is hardly any evidence of "Europe speaking with one voice" at least in certain commonly agreed strategic areas.

In the course of the implementation of the JCG conclusions sometimes also workshops and other meetings are organised and the involvement of Member states might only need to be broadened in a more systematic way. Of course, such an enhanced approach would also require that adequate resources for preparation, steering and monitoring such activities are provided.

The present situation is that in preparation for JCG meetings on the US side the State Department undertakes a process of input and briefing on European cooperation involving all its agencies. However, it must be said that during the mission to the US the experts found that the level of information across the different agencies seems also to differ and also the internal information on the STA was not necessarily optimal.

However, on the EU side this process involves only the Commission and largely DG RTD Directorates with an emphasis primarily on the FP. The R&D capabilities of the MS are not considered unless they are germane to the FP-centred discussion. Certain MS are deeply unhappy with this Commission positioning. In the words of one MS "more feed in and feedback is needed – and more visibility"

### 3.3 Role and activities of the EC Delegation in Washington

It most be noted that since the last Impact assessment, the Science, Technology and Education Section (STE Section) of the EC Delegation in Washington has taken steps to address such concerns and has taken proactive initiatives,

- On regular basis, the Delegation is convening information meetings for science counsellors of EU Member states (MS) in the US;
- the Delegation publishes a widely appreciated Newsletter,
- the establishment of a website including information on the STA, EU RTD activities and opportunities for EU-US S&T collaboration,
- A brochure has been prepared: European Research and Education Programs? What's in them for you? A resource for researchers, scholars and institutions in the US[11].

There are also promising examples of activities jointly organised by the STE Section of the EC Delegation, science counsellors of Member states, and other partners, such as:

- EU-US Research and Education Workshop. Internationalization of Research and Graduate Studies and its implications in the Transatlantic

[11] http://www.eurunion.org/Ed&RsrchProgsBklt2008.pdf

Context. Atlanta, 17-18 November 2008; a French Presidency Conference jointly organised by the STE Section of the EC Delegation, the Office of Science and Technology of the French Embassy in the US, Georgia Tech, and NSF[12];

- The European Career Fair @ MIT (ECF) is an annual recruiting event, organized by the MIT European Club, that connects employers from Europe with the most talented candidates that live in the US. Since 2007, the European Commission is partnering with the ECF since 2007 to promote Europe as a great place to pursue a career in science and technology, be it in industrial research, research organizations, academia or science policy. EU Member states will promote participation by their national research organizations and companies engaged in research. Through the joint effort, the European Career Fair presents the best that Europe has to offer, in all its diversity: public, private, national and international. The Fair will offer an opportunity to: facilitate matching between European employers and some of the brightest researchers who are interested in a career in Europe; and to increase the awareness in the US of the opportunities that European research offers.

These activities are also very good examples of synergies between activities of Member states and the EC delegation. The activities started as bilateral activities between a member state (e.g. France) and US partners. As soon as they have proved as successful and efficient the S&T Office of the French Embassy in the US offered to organise these activities in cooperation with the EC Delegation and some interested member states.

In view of the very scarce resources of STE Sector of the EC Delegation the activities in support of the EC-US S&T cooperation are certainly remarkable and an example of very good practice. However, when left open and not precisely defined, the tasks at such an interfacial position can be seen as never ending because one could always see possible further activities. This may lead to a situation where committed persons are in danger of experiencing frustration or even exhaustion. Therefore, it may be necessary first to define a certain framework for the tasks of the STE Sector, and secondly to seriously consider increasing the resources either by additional personnel and/or by appropriate resources for outsourcing where possible. In addition, coordination, closer cooperation and division of labour with active Member states' representatives would provide opportunity to raise the visibility of "European S&T".

### 3.4 Conclusions and recommendations

1. The EC-US S&T agreement is an important and efficient tool for the regular S&T policy dialogue between the European Community and the Government of the United States with the aim of intensifying the EC-US S&T cooperation and the exchange of experience and good practice in the area of S&T policy. The EC-US S&T agreement should be extended possibly considering new areas and forms for cooperative activities.
2. In general, the S&T agreements have the potential to play an important role also in the frame of the implementation of the strategic European

[12] http://www.france-science.org/spip.php?article1043

framework for international S&T cooperation especially in the context of further moves towards strategic partnerships with key third countries. The ways and means of setting targets and implementing activities have to be further developed accordingly. At present, the Member states value the contribution of the EC-US STA in a variety of ways depending on their own interests and priorities. As a consequence, European S&T may be represented in the US in different modes - the EC alone, MS alone, or the EC cooperating with MS or MS cooperating with other MS. The coherence of Europe's S&T presence in the US is an issue for further consideration..

3. Compared to 1998-2003, meetings of JCG are greatly improved both regarding scientific content and participation of high level stakeholders. Particularly, the preparation of road map documents is a real advancement and should be further developed.
4. The directorates of the 'research family' have shown substantial involvement in the interaction with the US in the frame of the EC-US STA. Thus, the internal awareness of and utilization of the STA amongst the Commission services has been enhanced. However, there remain opportunities for better utilizing coordination and cooperation across directorates and DGs of the European Commission.
5. Member states and S&T experts should be better informed of the agenda and outcomes of JCG meetings, and where appropriate invited to provide inputs. In formats that are in accordance with the rules of the JCG, information on the main outcomes of JCG meetings should be widely spread amongst S&T stakeholders of the member states (e.g. via CREST or the recently established forum for international S&T cooperation), National Contact Points (NCPs) and the S&T community at large.
6. The preparation and implementation of the road maps could be used to intensify the exchange of information and the cooperation between the Commission and the Member states. Annual road maps could also be used as inputs to annual reporting as required by Article 6 (d) 4 of the S&T agreement. Such a development would contribute to a more coherent portrayal of ERA to the US to the advantage of European S&T.
7. As in the past, also in 2004-2008, the prime implementation tool for EC-US S&T cooperation was the EC RTD Framework Programme. Strategies for a balanced use of EC and US funding instruments for supporting EC-US S&T cooperation have yet to be further developed. Future initiatives for funding of EC-US S&T activities could learn e.g. from the example of best practice in health research, where as of 2009 FP7 and NIH funding opportunities will be reciprocally open to entities on both sides. Opportunities for similar approaches in other areas and with other research promotion actors should be systematically explored. In the further development of a European strategic framework for international S&T cooperation, the whole spectrum of possible arrangements should be explored and utilized: EC-US cooperation in the Framework Programme, joint EC-US S&T programmes, cooperation in variable geometry between groupings of Member states and US partners, and bilateral cooperation between Member states and the US.
8. The Science, Technology and Education Section of EC Delegation to the US shows an excellent performance but lacks sufficient human resources for acting as the bridgehead of EC S&T activities in the US. It may be necessary to define the tasks of the STE Section in accordance with the

available resources. In addition to considering an increase in the number of scientific staff also opportunities for involving local contractors for specific activities should be explored. In addition, there are further S&T capabilities in the Commission DGs beyond DG RTD that would benefit from a better S&T representation in the US and might contribute more resources for that. Finally, also coordination and cooperation with Member states active in the area of S&T cooperation with the US should be considered.

With the new developments in the US and the increasing openness to international S&T cooperation there is certainly a need to strengthen the visibility of European S&T in the US. However, this can only be achieved when the appropriate resources are ensured.

# 4 The cooperative activities 2003-2008

This section provides an overview and analysis by different specific programmes and thematic priorities of EC-US cooperation based on data provided to the reviewers by the Commission services. In addition, more information has been derived by the experts through face-to-face interviews and questionnaire techniques as the study proceeded. Indicative information is provided on the emergence of EC-US S&T cooperation in the frames of European Technology Platforms (ETPS) and Joint Technology Initiatives (JTIs) based on the fourth status report of ETPs and the information on the international dimension of JTIs as contained in the regulations for setting up the respective joint undertakings. To complement the information on EC-US S&T cooperation through feedback from project participants, an online survey was performed targeting project coordinators and US participants of FP6 and FP7 projects with US participation.

## 4.1 Quantitative aspects of EC-US S&T cooperation in the EU RTD Framework Programme

Table 1 provides a quantitative overview of the participation of US organisations in FP6. Across all programme areas there are 401 participations of US organisations in 358 FP6 projects. The total costs of these projects amounted to a total value of more than 1 billion €. The EC contribution to these projects was in total around 720 million €. For US participants, the EC contribution was a bit more than 12 million €, that is 1,68 % of the total EC contribution. The EC contribution covers two thirds of the total project costs. In the case of the US participations, the EC contribution covers about one third of the US participants' costs.

Behind participation from the Russian Federation that accounts for some 450 participations, the US holds the second place in third country participations in FP6, closely followed by China with 398 participations. Considering that the total number of participations in FP6 is more than 74.000 this level of participation even from the strongest third countries is still rather low and the question has to be asked if the Framework Programme has yet reached its full potential in terms of the international dimension. However, this must remain a merely qualitative ad hoc statement and it is not possible to assess the appropriateness of the US participation in FP6 because beyond very general objectives no more specific targets are defined for the level of third country participation in the Framework Programme in general or of the US in particular. This is probably an issue to be addressed by the newly formed Strategic Forum for International S&T Cooperation.

With about 60% of the US participations, the mobility scheme 'Human Resources and Mobility' accounts for the majority of participations. 27% of the US participations are devoted to the seven thematic priorities with 'Information society technologies' in the lead (38 participations); the 'life sciences' thematic priority comes next with 20 participations. The three lines of the 'Sustainable development' priority (global change and ecosystems, energy systems, sustainable transport) together account for 28 participations.

Table 1: Quantitative data on the participation of US partners in FP6

| Thematic priorities | Number of Projects | Number of Participants | Project Total | Percentage of the Project total | Project EC Contribution | Percentage of Project EC Contribution | Participant Total Cost | Percentage of Participant Total Cost | Participant EC Contribution | Percentage of Participant EC Contribution | Percentage of the EC contribution for United States versus the whole EC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Life sciences, genomics and biotechnology for health | 14 | 20 | 182,557,654 | 17.15 % | 74,388,522 | 10.36 % | 6,010,705 | 17.99 % | 2,259,178 | 18.85 % | 3.05 % |
| 2. Information society technologies | 33 | 38 | 334,899,186 | 31.46 % | 204,188,699 | 28.44 % | 10,154,254 | 30.38 % | 4,454,030 | 37.01 % | 2.18 % |
| 3. Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices | 5 | 7 | 10,337,144 | 0.97 % | 7,819,488 | 1.09 % | 414,548 | 1.24 % | 0 | 0.00 % | 0.00 % |
| 5. Food quality and safety | 10 | 13 | 92,400,934 | 8.68 % | 65,149,210 | 9.07 % | 1,237,250 | 3.70 % | 50,2 | 0.42 % | 0.08 % |
| 6. Sustainable development, energy systems | 9 | 11 | 57,118,991 | 5.37 % | 28,987,902 | 4.02 % | 8,232,093 | 24.63 % | 0 | 0.00 % | 0.00 % |
| 6. Sustainable development, surface transport | 1 | 1 | 31,910,314 | 3.00 % | 14,900,944 | 2.09 % | 100 | 0.30 % | 0 | 0.00 % | 0.00 % |
| 6. Sustainable development, global change and ecosystems | 12 | 16 | 131,030,831 | 12.31 % | 94,534,877 | 13.17 % | 2,113,021 | 6.32 % | 2,007,350 | 16.68 % | 2.12 % |
| 7. Citizens and governance in a knowledge-based society | 4 | 4 | 4,404,742 | 0.41 % | 3,910,000 | 0.54 % | 168,52 | 0.50 % | 77,925 | 0.65 % | 1.99 % |
| Joint call (Thematic priorities 4,6a,6b) | 2 | 2 | 11,243,030 | 1.06 % | 8,096,776 | 1.13 % | 1,397,253 | 4.18 % | 858,552 | 7.13 % | 10.60 % |
| New and emerging science and technology (NEST) | 7 | 7 | 10,808,559 | 1.02 % | 8,297,291 | 1.16 % | 494,847 | 1.48 % | 122,88 | 1.02 % | 1.48 % |
| Specific SME activities | 1 | 1 | 1,923,500 | 0.18 % | 1,059,750 | 0.15 % | 186 | 0.56 % | 0 | 0.00 % | 0.00 % |
| International Cooperation Activities | 2 | 3 | 4,171,189 | 0.39 % | 3,997,000 | 0.56 % | 9 | 0.03 % | 9 | 0.07 % | 0.23 % |
| Research for policy support | 11 | 12 | 14,038,854 | 1.32 % | 10,068,332 | 1.40 % | 915,196 | 2.74 % | 370,345 | 3.08 % | 3.68 % |
| Human resources and mobility | 231 | 241 | 29,413,717 | 2.76 % | 90,552,004 | 12.61 % | | | 1,207,196 | 10.03 % | 1.33 % |
| Research and innovation | 2 | 2 | 5,667,296 | 0.53 % | 5,388,079 | 0.75 % | 475,947 | 1.42 % | 442,284 | 3.67 % | 8.21 % |
| Research infrastructures | 6 | 17 | 130,750,608 | 12.28 % | 90,721,263 | 12.64 % | 279,38 | 0.84 % | 141,1 | 1.17 % | 0.16 % |
| Science and society | 3 | 4 | 1,171,811 | 0.11 % | 1,140,382 | 0.16 % | 56,498 | 0.17 % | 25,044 | 0.21 % | 2.20 % |
| Euratom | 2 | 2 | 10,585,156 | 0.99 % | 4,799,645 | 0.67 % | 1,175,000 | 3.52 % | 0 | 0.00 % | 0.00 % |
| | 1 | 1 | 0 | 0.00 % | 0 | 0.00 % | 0 | 0.00 % | 0 | 0.00 % | 0.00 % |
| Sums | 368 | 401 | 1,064,442,727.84 | 100.00 % | 718,010,050.35 | 100.00 % | 33,419,594.94 | 100.00 % | 12,095,027.35 | 100.00 % | 1.68 % |

Source: European Commission, DG RTD, Directoarte D - International Cooperation, July 2006

Table 1_Quantitative data on the US participation in FP6

Table 2 shows that, overall, some 87% of the participants are from universities and research organisations (universities 73,5%, research organisations 13,7%), 9,5% are from industry and 3,4% from other organisations. The following table shows the distribution by type of organisation for the thematic priorities and the 'Human resources and mobility' scheme.

**Table 1: US participations in FP6 by type of organisation**

| Scheme | Participations | % HES | % RES | % IND | % OTH |
|---|---|---|---|---|---|
| **1. Life Sciences, …** | 20 | 50,00 | 0,00 | 25,00 | 25,00 |
| **2. Information society technologies** | 38 | 50,00 | 7,89 | 36,84 | 5,26 |
| **3. Nanotechnologies** | 7 | 85,71 | 14,29 | 0,00 | 0,00 |
| **5. Food quality and safety** | 12 | 58,33 | 25,00 | 0,00 | 16,67 |
| **6. Sustainable development, energy systems** | 11 | 9,09 | 36,36 | 54,55 | 9,09 |
| **6. Sustainable development, surface transport** | 1 | 0,00 | 0,00 | 100,00 | 0,00 |
| **6. Sustainable developmen, climate change ...** | 16 | 81,25 | 6,25 | 0,00 | 12,50 |
| **7. Citizens and governance …** | 4 | 50,00 | 50,00 | 0,00 | 0,00 |
| **Human resources and mobility** | 241 | 82,66 | 14,11 | 3,23 | 0,00 |
| **Total Thematic Priorities and HRM** | **358** | **73,46** | **13,69** | **9,50** | **3,35** |

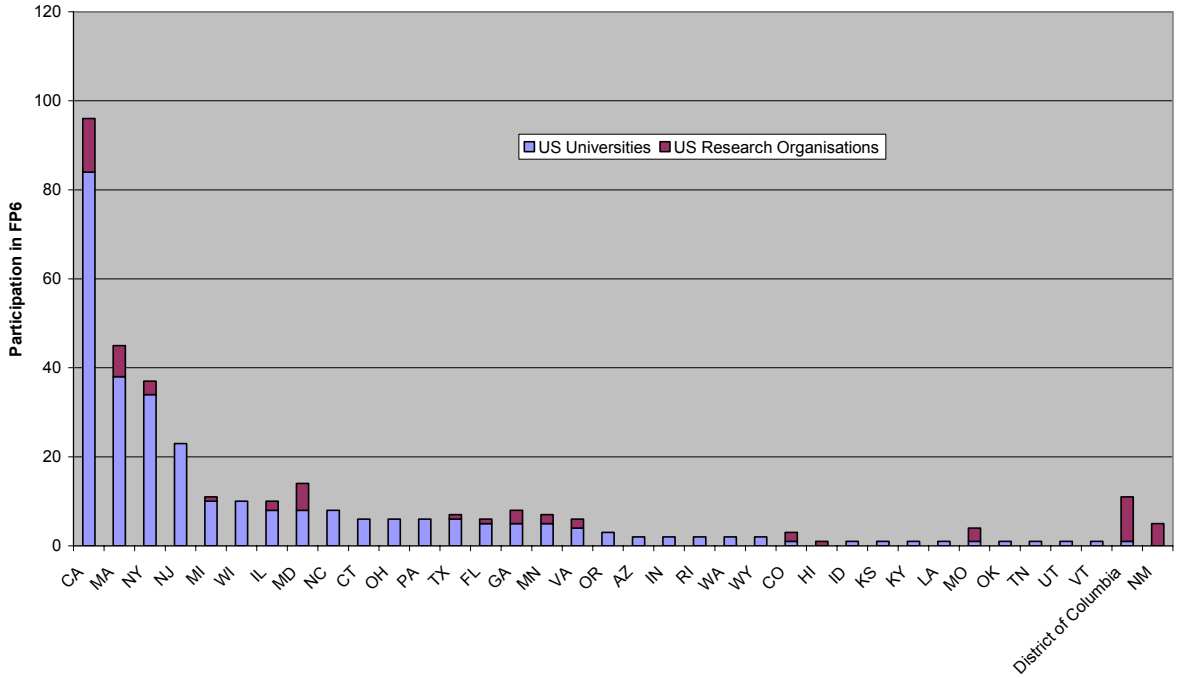
Thus, the US participation in FP6 is very much dominated by higher education institutions and research organisations. Universities in 35 US states have participated in FP6 with in total around 290 participations. More than 60% of US university participations come form four states California, Massachusetts, New York and New Jersey. The US universities with the strongest involvement in FP6 are listed in Table 2.

**Table 2: The first 10 US universities regarding FP6 participation**

| | |
|---|---|
| Massachusetts Institute of Technology | 17 |
| Princeton University | 15 |
| University of California Berkeley | 15 |
| Harvard University | 15 |
| Stanford University | 11 |
| Columbia University New York | 10 |
| University of Wisconsin System | 10 |
| California Institute of Technology | 9 |
| University of California San Diego | 9 |

US research organisations (RES) located in 15 states and in Washington D.C. account for some 60% of US participations in FP6. A large proportion of the participating research organisations are government laboratories. The following table shows the distribution of FP6 participation of US university and research organisations across the states.

**Table 3: Geographical distribution of the participation of US universities and research organisations in FP6**




A quantitative analysis of the participation with respect to the different instruments or funding schemes is given in the Table 4. It shows that – as has been said already - the mobility scheme (Marie Curie Actions – MCA) accounts for about 61% of participations. 11% of the US participations are in Integrated Projects (IP), where 'Information Society Technologies (IST)' accounts for some 48%. About one third of the participations in IPs are in the 'Sustainable development' areas (Energy, Transport, Global Change). Only 3% of the US participations are involved in NoEs mostly in 'Life Sciences …' and 'Information society technologies'. 12% of the US participations used the STREP instrument ('Specific Targeted Research Project') with 'Scientific Support for Policies (SSP)' and 'Life Sciences' in the lead. .4% respectively 6% of US participations used Coordination Actions (CA) and Specific Support Actions (SSA). 3,5% of the US participations are in Specific actions to promote research infrastructures.

Table 4 shows that in numbers there are 241 US related participations in the mobility scheme. 20 US participations in IST Integrated projects is the leading EU-US activity related to collaborative projects. All other participation numbers are below 10 which again shows that there is certainly a room for strengthening the S&T cooperation between the EU and the US.

It is difficult to attribute the US participation to measures and activities connected with the EC-US S&T agreement. For FP6, the findings during the review indicate that there is only a minor relation between the STA and FP6 participation. Also no correlation between priorities defined in declarations of the EU-US summits and a higher level of EU-US S&T cooperation in FP6 could be identified for the reporting period (see also Chapter 2.1).

**Table 4a: US-Participations in FP6 by instruments and schemes**

| Scheme | IP | | NoE | | STP | | MCA | | CA | | SSA | | II | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Numbers | % | Numbers | % | Numbers | % | Numbers | % | Numbers | % | Numbers | % | Numbers | % | Numbers | % |
| LIFESCIHEALTH | 3 | 7,14 | 5 | 41,67 | 8 | 17,02 | | | 2 | 12,50 | 1 | 4,17 | | | 19 | 4,80 |
| IST | 20 | 47,62 | 5 | 41,67 | 7 | 14,89 | | | 4 | 25,00 | 2 | 8,33 | | | 38 | 9,60 |
| IST-NMP | | | | | 1 | 2,13 | | | | | | 0,00 | | | 1 | 0,25 |
| NMP | | | | | 2 | 4,26 | | | | | 4 | 16,67 | | | 6 | 1,52 |
| FOOD | 5 | 11,90 | | | 3 | 6,38 | | | 1 | 6,25 | 3 | 12,50 | | | 12 | 3,03 |
| ENERGY | 4 | 9,52 | | | 6 | 12,77 | | | | | 1 | 4,17 | | | 11 | 2,78 |
| TREN | | | | | 1 | 2,13 | | | 1 | 6,25 | | 0,00 | | | 2 | 0,51 |
| TRANSPORT | 1 | 2,38 | | | | | | | | | | 0,00 | | | 1 | 0,25 |
| GLOBAL | 9 | 21,43 | 2 | 16,67 | 3 | 6,38 | | | | | 2 | 8,33 | | | 16 | 4,04 |
| CITIZENS | | | | | 3 | 6,38 | | | 1 | 6,25 | | 0,00 | | | 4 | 1,01 |
| SSP | | | | | 8 | 17,02 | | | 3 | 18,75 | 1 | 4,17 | | | 12 | 3,03 |
| NEST | | | | | 5 | 10,64 | | | | | 2 | 8,33 | | | 7 | 1,77 |
| SME | | | | | | | | | | | 1 | 4,17 | | | 1 | 0,25 |
| INCO-DEV | | | | | | | | | 2 | 12,50 | | 0,00 | | | 2 | 0,51 |
| INNOVATION | | | | | | | | | | | 2 | 8,33 | | | 2 | 0,51 |
| Marie Curie Actions (MCA) | | | | | | | 241 | 100,00 | | | | 0,00 | | | 241 | 60,86 |
| INFRASTRUCTUREs | | | | | | | | | | | 3 | 12,50 | 14 | 100,00 | 17 | 4,29 |
| SCIENCE-AND-SOCIETY | | | | | | | | | 2 | 12,50 | 2 | 8,33 | | | 4 | 1,01 |
| Total | 42 | 100,00 | 12 | 100,00 | 47 | 100,00 | 241 | 100,00 | 16 | 100,00 | 24 | 100,00 | 14 | 100,00 | 396 | 100,00 |

highest % of participation regarding the instruments across schemes

**Table 4b: US-Participations in FP6 by schemes and instruments**

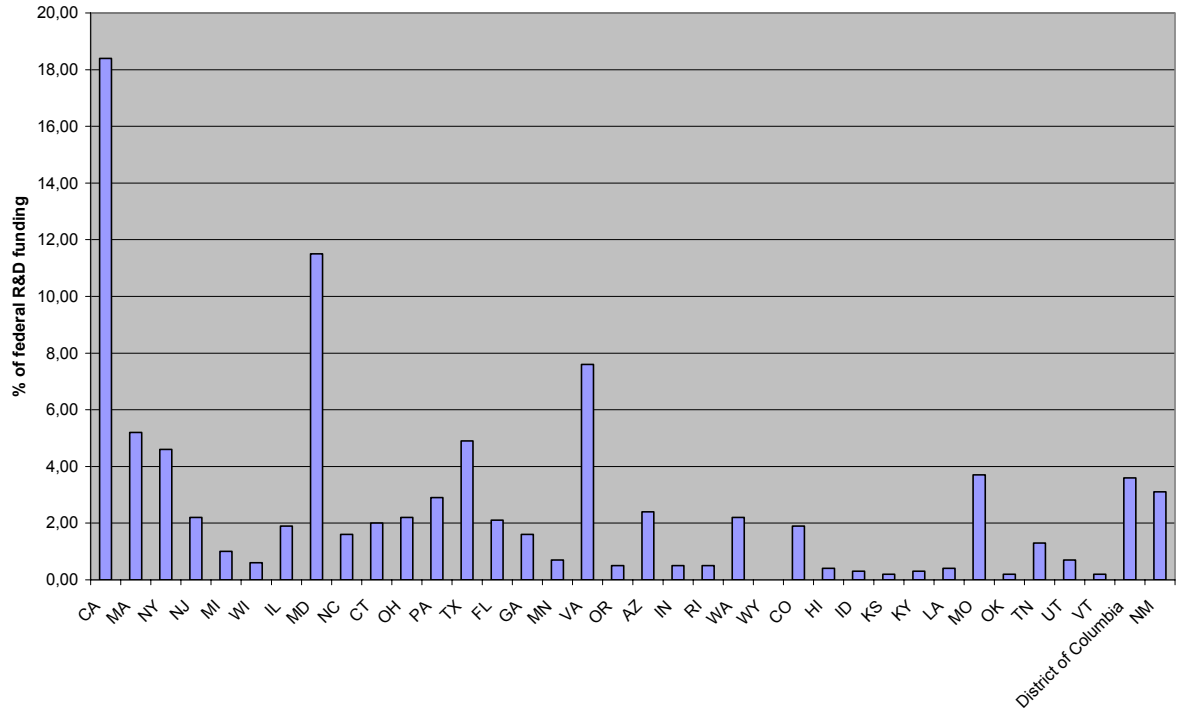
| Scheme | IP | | NoE | | STP | | MCA | | CA | | SSA | | II | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Numbers | % | Numbers | % | Numbers | % | Numbers | % | Numbers | % | Numbers | % | Numbers | % | Number | % |
| LIFESCIHEALTH | 3 | 15,79 | 5 | 26,32 | 8 | 42,11 | | | 2 | 10,53 | 1 | 5,26 | | | 19 | 100,00 |
| IST | 20 | 52,63 | 5 | 13,16 | 7 | 18,42 | | | 4 | 10,53 | 2 | 5,26 | | | 38 | 100,00 |
| IST-NMP | | | | | 1 | 100,00 | | | | | | | | | 1 | 100,00 |
| NMP | | | | | 2 | 33,33 | | | | | 4 | 66,67 | | | 6 | 100,00 |
| FOOD | 5 | 41,67 | | | 3 | 25,00 | | | 1 | 8,33 | 3 | 25,00 | | | 12 | 100,00 |
| ENERGY | 4 | 36,36 | | | 6 | 54,55 | | | | | 1 | 9,09 | | | 11 | 100,00 |
| TREN | | | | | 1 | 50,00 | | | 1 | 50,00 | | | | | 2 | 100,00 |
| TRANSPORT | 1 | 100,00 | | | | | | | | | | | | | 1 | 100,00 |
| GLOBAL | 9 | 56,25 | 2 | 12,50 | 3 | 18,75 | | | | | 2 | 12,50 | | | 16 | 100,00 |
| CITIZENS | | | | | 3 | 75,00 | | | 1 | 25,00 | | | | | 4 | 100,00 |
| SSP | | | | | 8 | 66,67 | | | 3 | 25,00 | 1 | 8,33 | | | 12 | 100,00 |
| NEST | | | | | 5 | 71,43 | | | | | 2 | 28,57 | | | 7 | 100,00 |
| SME | | | | | | | | | | | 1 | 100,00 | | | 1 | 100,00 |
| INCO-DEV | | | | | | | | | 2 | 100,00 | | | | | 2 | 100,00 |
| INNOVATION | | | | | | | | | | | 2 | 100,00 | | | 2 | 100,00 |
| Marie Curie Actions (MCA) | | | | | | | 241 | 100,00 | | | | | | | 241 | 100,00 |
| INFRASTRUCTUREs | | | | | | | | | | | 3 | 17,65 | 14 | 82,35 | 17 | 100,00 |
| SCIENCE-AND-SOCIETY | | | | | | | | | 2 | 50,00 | 2 | 50,00 | | | 4 | 100,00 |
| Total | 42 | 10,61 | 12 | 3,03 | 47 | 11,87 | 241 | 60,86 | 16 | 4,04 | 24 | 6,06 | 14 | 3,54 | 396 | 100,00 |

highest % of particiaption regarding the instruments by scheme

However, since about two years ago road maps for priorities and joint activities are defined during the meetings of the JCG. Since these will feed into the work programmes of the different themes for the coming year(s) it should be possible to attribute increased collaborative EU-US activities in the Framework Programme to the STA in the future.

Finally, in Table 5 the geographical distribution of US participations as presented in Table 3 is compared with the distribution of federal R&D funding (fiscal year 2005) in order to see if FP6 participation follows a pattern comparable to the national funding flows in the US. Obviously there is no correlation between the distribution of the US participation in FP6 and the federal funding of R&D. This comparison applies only to the geographical distribution of overall federal R&D funding and not to nay other factors such as scientific themes of research capacities and calibre of research institutions.

**Table 5: Total Federal R&D by State (Fiscal Year 2005)**




Source: American Society for the Advancement of Science (AAAS): www.aaas.org/spp/rd

It would be worthwhile to perform a more in-depth comparative study of US participation patterns in the Framework Programme and US S&T funding patterns - especially NSF data. Such a study could lead to results that might be useful for future targeted approaches to stimulating the EC-US S&T cooperation e.g. in the frame of the future activities under the BILAT scheme.

**Table 6: First preliminary data on the US participation in FP7**

| EC-US cooperation in FP7: proposals repartition in themes and activities, evaluation status November 2008 (only in evaluated proposals), based on main list | | Proposals | | US Participantions | | Proposal Total Cost | | Proposals Total Requested EC Contribution | | US Participants Total Cost | | US Participants Requested EC Contribution | | Requested EC Contribution to US partners compared to requested total EC contribution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Programme | Theme, Activity | Number | % | Number | % | Euro | % | Euro | % | Euro | % | Euro | % | % |
| | Health | 22 | 10,48 | 25 | 9,58 | 129.492.165 | 12,59 | 94.367.172 | 13,85 | 4.820.498 | 17,40 | 3.257.756 | 29,01 | 3,45 |
| | Food, Agriculture, and Biotechnology | 14 | 6,67 | 23 | 8,81 | 153.217.467 | 14,90 | 101.763.008 | 14,93 | 4.971.393 | 17,94 | 1.242.605 | 11,06 | 1,22 |
| | Information and Communication Technologies | 24 | 11,43 | 27 | 10,34 | 153.948.552 | 14,97 | 108.309.262 | 15,89 | 6.564.721 | 23,69 | 3.337.631 | 29,72 | 3,08 |
| | Nanosciences, Nanotechnologies, Materials and new Production Technologies - NMP | 20 | 9,52 | 35 | 13,41 | 206.563.509 | 20,09 | 144.549.278 | 21,21 | 4.898.651 | 17,68 | 548.368 | 4,88 | 0,38 |
| Cooperation | Energy | 2 | 0,95 | 2 | 0,77 | 4.574.743 | 0,44 | 3.309.460 | 0,49 | 533.622 | 1,93 | 255.054 | 2,27 | 7,71 |
| | Environment (including Climate Change) | 8 | 3,81 | 10 | 3,83 | 45.487.403 | 4,42 | 35.207.111 | 5,17 | 611.643 | 2,21 | 492.549 | 4,39 | 1,40 |
| | Transport (including Aeronautics) | 6 | 2,86 | 7 | 2,68 | 57.222.468 | 5,57 | 37.864.248 | 5,56 | 1.350.561 | 4,87 | 571.363 | 5,09 | 1,51 |
| | Socio-economic sciences and Humanities | 1 | 0,48 | 1 | 0,38 | 1.897.633 | 0,18 | 1.446.878 | 0,21 | 0 | 0,00 | 0 | 0,00 | 0,00 |
| | Security | 2 | 0,95 | 3 | 1,15 | 7.083.869 | 0,69 | 4.961.025 | 0,73 | 0 | 0,00 | 0 | 0,00 | 0,00 |
| | Space | 1 | 0,48 | 2 | 0,77 | 9.001.930 | 0,88 | 6.930.264 | 1,02 | 314.394 | 1,13 | 243.144 | 2,16 | 3,51 |
| Cooperation | Sum: | 100 | 47,62 | 135 | 51,72 | 768.489.739 | 74,75 | 538.707.706 | 79,05 | 24.065.483 | 86,85 | 9.948.470 | 88,58 | 1,85 |
| | | | | | | | | | | | | | | |
| Ideas | ERC | See text! | | | | | | | | | | | | |
| Ideas | Sum: | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| People | Marie-Curie Actions | 92 | 43,81 | 99 | 37,93 | | | | | | | | | |
| People | Sum: | 92 | 43,81 | 99 | 37,93 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Capacities | Activities of International Cooperation | | 0,00 | | 0,00 | | 0,00 | | 0,00 | | 0,00 | | 0,00 | |
| | Research for the benefit of SMEs | | 0,00 | | 0,00 | | 0,00 | | 0,00 | | 0,00 | | 0,00 | |
| | Research Infrastructures | 9 | 4,29 | 10 | 3,83 | 204.457.545 | 19,89 | 125.507.140 | 18,42 | 1.473.251 | 5,32 | 849.155 | 7,56 | 0,68 |
| | Science in Society | 6 | 2,86 | 8 | 3,07 | 8.192.771 | 0,80 | 5.447.017 | 0,80 | 656.935 | 2,37 | 433.604 | 3,86 | 7,96 |
| Capacities | Sum: | 15 | 7,14 | 18 | 6,90 | 212.650.316 | 20,68 | 130.954.157 | 19,22 | 2.130.186 | 7,69 | 1.282.759 | 11,42 | 0,98 |
| | | | | | | | | | | | | | | |
| EURATOM | Nuclear Fission and Radiation Protection | 3 | 1,43 | 3 | 1,15 | 47.008.041 | 4,57 | 11.845.765 | 1,74 | 1.513.499 | 5,46 | 0 | 0,00 | 0,00 |
| EURATOM | Sum: | 3 | 1,43 | 3 | 1,15 | 47.008.041 | 4,57 | 11.845.765 | 1,74 | 1.513.499 | 5,46 | 0 | 0,00 | 0,00 |
| | | | | | | | | | | | | | | |
| | Total Sum: | 210 | 100,00 | 261 | 100,00 | 1.028.148.096 | 100,00 | 681.507.628 | 100,00 | 27.709.168 | 100,00 | 11.231.229 | 100,00 | 1,65 |

Source: European Commission, November 2008

When assessing the US participation in FP6 it has to be considered that in FP6 there were no specific instruments available for supporting the cooperation with third countries that have S&T agreements with the Community.

There is a change in FP7. International cooperation is defined as a mainstream activity in the thematic priority areas. There are now specific funding schemes available supporting international cooperation with countries that have a S&T agreement with the Community in particular: IRSES and BILAT that will support also future EC-US cooperation. BILAT is supposed to specifically support the provision of information and assistance for US researchers on the opportunities for EU-US S&T cooperation offered through the Framework Programme.

Table 6 gives a first impression of EC-US cooperation in FP7 based on preliminary data and it seems that there will be an increase in cooperation. The Marie Curie scheme is again in the lead. Also for the Ideas specific programme organised by the European Research Council, first promising participation numbers are available from the European Commission. Despite the fact that only some promotion actions towards the US were launched for this new scheme there were substantial numbers of applications from European researchers with a residence in the US and also from US nationals. In the first Starting Grants selection round amongst 299 selected projects 9 researchers (all non-US citizens) moved from the US to Europe. Furthermore, 5 US nationals already working in Europe were selected. In the 2008 Advanced Grants selection, out of 275 successful applications, 6 researchers (3 of them US citizens) moved from the US to Europe, and, in addition, 7 US nationals already in Europe were selected. In conclusion, some 5% selected proposals related to the US are a good start for “US-dimension” of the Ideas specific programme.

### 4.2 Results of the online survey

The detailed results of the online survey are presented in Annex 3.

The survey addressed European coordinators of FP6 and FP7 projects with involvement of US partners and the US partners. For FP6, a total of 1.185 email addresses were available. 238 were not valid anymore, so that 947 email addresses were still active. For FP7, a total of 190 email addresses were available. 20 emails were not valid anymore, so that 170 addresses were still active.

The total response rate was 13,34%. For FP6, the response rate was 10,77%. For FP7, the response rate was 27,06%. More than 80% of the respondents were project coordinators or participating researchers. 86 respondents (58,5%) of the respondents are based in the European Union or in an Associated country. The respondents are from 16 EU Member states and from 2 Associated countries. The strongest feedback came from UK, Germany, Italy and Spain. 61 respondents (41,50%) are based in the US. The responses came from 27 US states. The states with the strongest representation are California (16), New York (5); 3 respondents come from the District of Columbia, Kansas, Massachusetts, Minnesota, and New Jersey each.

90% of the respondents are from universities and research organisations. Respondents belong to projects with some 73% of project participants from universities and research organisations. Some 25% of the participants of those project are from industry and SMEs.

For FP6, the strongest group of respondents relate to Marie Curie actions followed by participants in IST and Life Sciences. For FP7, again Marie Curie respondents are in the lead, followed by Food, etc., Health and IST.

Regarding funding schemes, Marie Curie actions are the favourite scheme followed by FP6 Integrated Projects, FP6 Specific Targeted Research Projects and FP7 Collaborative projects.

More than two thirds of the projects were initiated from Europe; a bit more than 25% were joint initiatives. More than 80% of the projects were based on existing contacts, mainly of the project coordinators. A bit less than one third had worked together in the Framework Programme already.

For the European project coordinators, the most important reasons to involve US partners are access to complementary experience and expertise, the possibility to address more ambitious problems, and the access to the US scientific community. For the US participants, the most important reasons to get involved in EU projects are access to complementary experience and expertise, access to the European scientific community, and the possibility to address more ambitious problems.

Project proposals were prepared in about 40% of the cases by the project coordinators; more than 50% of the proposals were prepared either by a core team of project partners or in teamwork involving most of the project partners.

In some 40% of the projects, the involvement of the US partners in project preparation was reasonable, while in 30% of the projects the US partners were strongly involved in preparing the proposal.

More than 40% of the European coordinators didn't use external information and assistance. Their main sources of information were experienced colleagues and others. Only about 13% of coordinators used the services of National Contact Points. For the US participants, it was mainly the coordinator who provided information and assistance. One third didn't use external information and assistance. None of the respondents used the services of the EC Delegation in Washington. Some 20% of the respondents used external assistance for gaining general information on the Framework Programme, and 14% were interested in "How to prepare a proposal?".

In general, the most important outcomes are access to complementary knowledge and the production of new knowledge, followed by the possibility to address more ambitious problems and the opportunity to establish new partnerships for future transatlantic research cooperation. Almost 90% of the respondents strongly agree or agree that the EU-US cooperation was successful. The cooperation in the project will continue after the project's end, and the quality and relevance of the project was improved by the EU-US cooperation.

Main causes for difficulties are: differences in management approaches and cultures, (more than 50%), IPR issues (about 38%), reporting requirements, communication and exchange of information in the consortium.

Regarding the awareness on the EC-US S&T Agreement, a small minority of about 6% of the respondents know the STA in detail; more than 50% know the STA by name. 37,2% of the respondents don't know the STA at all.

In the open comments, there are generally many very positive replies emphasising the importance and the success of the cooperation. Detailed comments on possible improvements for EU-US project cooperation relate mainly to the following issues:

- the need for better alignment between EC FP and US funding schemes;
- the problems of funding the US partners present a main barrier for cooperation;
- In many cases, US partners have problems coping with EC contractual arrangements and administrative provisions which in many cases are difficult to accept for US partners;
- Respondents expressed the wish for coordinated calls and programmes, and there are many requests for simplification;
- Marie Curie actions have been received extremely positive. They contribute not only for the career development of the fellows but also to strengthening research cooperation between EU and US research organisations. There is room for improvement regarding money transfer and providing overheads for US host organisations.

More details are given under Q21 and Q22 in Annex 3.

### 4.3 Implementing arrangements

The STA states that where appropriate cooperative activities *"shall take place pursuant to implementing arrangements concluded between the parties' executive agents or their scientific and technological organisations and agencies*". Such implementing arrangements are a particular feature of the implementation of the EC-US S&T Agreement providing a commonly agreed framework of cooperation in specific areas of mutual interest.

During the reviewed period, several implementing arrangements were initiated: one in materials science (including nanotechnology) between EC and NSF which seemingly played a pioneering role; two implementing arrangements (IA) in environment, one between EC and NSF and another between EC and the Environmental Protection Agency (EPA); one was launched in metrology between EC and NIST (National Institute of Standards and Technology); and one in non-nuclear and renewable energy between EC and the US Department of Energy. It should also be noted that JRC-IRMM[13] and NIST have signed a collaboration agreement. Other formal co-operation arrangements also exist in Information Technology (Information Technology Understanding on Cooperation).

The EC-US Task Force on Biotechnology Research created in 1990 has been providing a sound basis for EC-US S&T cooperation in that area in the long-term already. This particularly important example shows that some of the arrangements have a long history and organise their own regular activities under the umbrella of a distinct implementing arrangement.

[13] JRC-IRMM: Joint Research Centre – Institute for Reference Materials and Measurements

## 4.4 Emerging cooperation between Europe and the US in European Technology Platforms (ETPs) and Joint Technology Initiatives (JTIs)

During the time of FP6 the concept of European Technology Platform has been launched. The spring European Council in Brussels in March 2003 encouraged the European Commission to support the European Research and Innovation Area by: "…*creating European Technology Platforms bringing together technological know-how, industry, regulators, and financial institutions to develop a strategic agenda for leading technologies"*.

European Technology Platforms are industry-led and are involving the main stakeholders from government, universities, and research organisations etc. of their specific area of activities. Their objective is to define medium to long-term research and technological objectives and strategic research agendas (SRA). Their main feature is that they cover the whole range of activities and processes from the creation of new knowledge to innovation and success of products and services in the world market. Currently 34 technology platforms are listed by the Commission on the respective CORDIS website[14].

In March 2007, at the launch of FP7, the 'Third Status Report on European Technology Platforms' has been published by the European Commission. In the report the international dimension is explicitly addressed:

*"The SRA research priorities are not only pursued by the ETPs within the confines of the EU or the ERA. It is therefore essential to establish appropriate relations with entities from third countries on a mutually-beneficial basis (exchange of experiences, definition of strategic research needs). Such international contacts are expected to help platforms better position their research strategies and identify more accurately the promising areas, such as the opportunities for potential lead markets.*

*Such approaches are becoming more regular, especially with the US and Japan (e.g.: EuMaT), and more formal in a number of cases, like in the "International Partnership for the Hydrogen Economy". They seem less active in areas of clear European leadership, like in textiles.*

*The international level is also appropriate for discussing regulatory, standardisation and safety and security issues."*

The following short analysis is mainly building on the above report. Although in most cases the strategies for international cooperation are in a development stage, the cooperation with the US is addressed by a substantial number of ETPs already. Without the ambition to be comprehensive, the US cooperation in following ETPs can be mentioned:

- The European Nanoelectronics Initiative Advisory Council (ENIAC) is carrying out dedicated actions with Nanoelectronics platforms in the USA;
- The Hydrogen and Fuel Cell Platform (HFP) uses the International Partnership for the Hydrogen Economy (IPHE) and the IEA implementing agreements for hydrogen and fuel cells as the main fora for research cooperation with third countries including the USA. International cooperation is seen as especially

[14] http://cordis.europa.eu/technology-platforms/home_en.html

important for addressing challenging technical barriers and issues of common interest such as safety or standards.

- Advanced Engineering Materials and Technologies (EuMaT) has identified synergies with similar initiatives in key countries beyond the EU. International cooperation is seen as essential, especially in the area of pre-competitive research. Therefore, EuMaT and its sub-groups are actively developing international contacts and have hosted meetings with organisations from different countries including the USA.
- The European Rail Research Advisory Council (ERRAC) has identified a number of areas as being appropriate for international cooperation: market attraction, exchange of science and technology, international standards, socio-economic issues, personal security. Studies have been carried out regarding rail research activities in Japan, Korea and the USA.
- In the Global Animal Health (GAH) platform international organisations such as OIE, FAO, WHO, GALV, DFID, OUA, the SAP institute are full partners as formal stakeholders. Thus the communication and cooperation with USA takes place via these international fora.
- The European Platform on Industrial Safety (ETPIS) uses the existing networks of the OSHA (Occupational Safety and Health Administration) in Europe, in the USA and in other countries for international cooperation. A formal link is being established with the American Institute of Chemical Engineers, Section dealing with industrial safety.
- The European Photovoltaics Technology Platform (Photovoltaics) is exploring closer cooperation with third countries for the implementation of the strategic research agenda. With the USA there are well established contacts and cooperation with the National Renewable Energy Laboratory (NREL). Also new contacts have been established for the exchange of information on innovation, research and development programmes.
- The Plants for the Future (Plants) ETP sees interaction beyond Europe as a necessity because the plant sector is a global challenge. Meetings with CEOs and heads of companies and institutions from the USA have taken place already.
- The Innovative Medicine Initiative (IMI) has undertaken small scale steps towards international cooperation. With the USA there are ongoing activities with universities, and the “Biomarker Consortium” and the “clinical Research Consortium” driven by industry, FDA and NIH. IMI will use appropriate channels for international cooperation such as the Pharmaceutical Forum and the International Conference on Harmonisation.
- Sustainable Chemistry (SusChem) discussed its activities with similar initiatives in the USA.
- Advanced Research and Technology for Embedded Intelligence and Systems (ARTEMIS): the objective of the ARTEMIS international cooperation strategy is to define ‘modalities’ for interaction between European R&D community and international players in the area, including research institutions, professional organisations, standardisation bodies, funding bodies such as e.g. in the USA NIST, NSF, DARPA. *“International collaboration covers a potentially wide range of activities, from the organisation of technical meetings, high-level meetings, conferences, schools, and joint international projects. These may have various aims, including education and training, dissemination, definition*

*of standards, and development of joint R&D activities. It is clear that International Collaboration should fit into a global win-win strategy, for achieving the participants' long-range aims."*

- The European Construction Technology Platform (ECTP) has not developed specific international cooperation activities. However, through its members ECTP maintains contacts with organisations in third countries such as the USA (FIATECH – Fully Integrated and Automated Technology Consortium).
- European Steel Technology Platform (ESTEP): in the frame of the ULCOS (Ultra–Low Carbon dioxide ($CO_2$) Steelmaking) project cooperation is carried out in the frame of the IISI (International Iron and Steel) organisation with different non-EU countries including the USA.
- Zero Emission Fossil Fuel Power Plants (ETP-ZEP): ETP-ZEP is the only known effort to develop integrated CCS-solutions in which the whole value chain is involved (fossil fuel producers, utilities, equipment manufacturers) and which aims at a broad range of technologies (pre-combustion, post-combustion, oxyfuel). The SRA and SDD do state as recommendations that activities are deployed with respect to India and China. Also contacts are being sought with industrial countries that have relevant CCS-activities such as the USA

This short survey shows that there are already substantial contacts, interactions and cooperation between European Technology Platforms and the USA. Taking into account the opportunities for strengthening the EU-US cooperation in the Framework Programme – especially with regard to the involvement of US companies - the S&T agreement and the international dimension of FP7 should be actively communicated to the ETPs. At the time when this report is presented, a 'Forth Status Report on European Technology Platforms' is about to be published by the European Commission. It is recommended to prepare a review of the international dimension of European Technology Platforms.

As a further development of European collaborative research structures, Joint Technology Initiatives (JTIs) have been launched in the last year, some of them building on the work of technology platforms. JTIs are public private partnership working on the basis of special regulations. Currently, 6 JTIs are in place[15]:

- Innovative Medicines (IMI),
- Embedded Computing Systems (ARTEMIS),
- Aeronautics and Air Transport (Clean Sky),
- Nanoelectronics Technologies (ENIAC),
- Fuel cells and hydrogen (FCH),
- Global Monitoring for Environment and Security (GMES).

The JTI joint undertakings have been established in the course of 2008 only, and the aspect of international cooperation is in an early stage of development only but it is emerging. Some preliminary indications on the role of the international dimension in the JTIs can probably be extrapolated from the activities started by the respective ETPs already.

[15] http://cordis.europa.eu/fp7/jtis/ind_jti_en.html

One has to distinguish between third country membership in JTIs and third country participation in JTI activities, such as calls for proposals. The provisions in the regulations for the present JTI differ with regard to these aspects. For example, according to their regulations, ARTEMIS and ENIAC are open both for international membership and participation on a project by project basis. In addition, for example in the Fuel Cell and Hydrogen (FCH) JTI there are already promising contacts and plans together with the US Department of Energy which was mentioned to the experts during their mission to Washington. It is recommended to prepare a review of the international dimension of Joint Technology Initiatives two years after the Joint Undertakings have started their activities.

### 4.5 Conclusions and Recommendations

1. Participation of US partners in European research activities and vice-versa is still low and there is a huge potential for improvement. However, in fact, it is difficult to make a judgement of the appropriate level of US participation in the Framework Programme because there are no agreed goals for the US involvement. Therefore, in the future, defining targets or criteria for success in the annual road maps, should be considered in order to support monitoring and impact assessment of the collaborative activities. This is probably an issue to be addressed by the newly formed Strategic Forum for International S&T Cooperation.
2. Means for promoting EU-US S&T cooperation have to be strengthened. This applies to targeted promotion activities of the National Contact Points in the Member states and Associated countries especially in the course of the implementation of the EC-US S&T road maps. However, in addition, creating greater awareness in the US of opportunities for EC-US S&T cooperation will be necessary too. The BILAT scheme will probably be the appropriate instrument to achieve this goal. Close coordination with the S&T sector in the EC Delegation in the US will be necessary. Also presentations of the Framework Programme and European S&T at AAAS annual meetings are most welcome.
3. So far, the EC-US S&T cooperation is following mainly a kind of bottom-up approach through the principal openness of FP7 for international cooperation. For the future, the approach of coordinated calls in areas of mutual strategic interest should be extended. In addition, EC-US S&T partnership programmes jointly involving the Framework Programme and programmes of US agencies in mutually agreed areas of strategic importance should be considered. Commonly agreed procedures such as for project evaluation, selection and funding can be defined in implementing arrangements.
4. The Marie Curie actions are the strongest scheme in the EC-US S&T cooperation. Problems of financial transactions and the issue of funding of the host institutions should be analysed and improved where necessary. It is recommended to prepare a specific review focussing on the international dimension of the Marie Curie actions. The opportunities and possible schemes for attracting more US fellows to Europe should be explored in particular. The IRSES scheme is particularly important.
5. The Ideas specific programme has the potential to attract researchers from the US – both US nationals and others – to Europe. Therefore, the considerations

of the ERC Scientific Council to develop an internationalisation strategy are most welcome.

6. At the time when this report is presented a 'Forth Status Report on European Technology Platforms' is about to be published by the European Commission. It is recommended to prepare a review of the international dimension of European Technology Platforms.
7. It is recommended to prepare also a review of the international dimension of Joint Technology Initiatives two years after the Joint Undertakings have started their activities.
8. A comparative study on regional distribution of US participations in the Framework Programme and the geographical structure of US federal, NSF and NIH R&D funding would be interesting.

## 5 Success stories and flagship activities

In fulfilling the requirements of the Terms of Reference for the Review the Expert Group was tasked with identifying success stories and flagships and highlighting the underpinning reasons for success.

In the first phase of this exercise an initial process of identification was undertaken based on the documentation available. As far as possible, these findings have been reappraised in the course of interviews and also on the basis of the results of the online survey.

Certain projects and initiatives have already attracted the "**flagship**" label in the documentation provided that covers activities in the period 2003-2008. Other projects or initiatives would seem to merit mention from the standpoint of the present reviewers and might therefore be considered as **"candidate flagships"**.

**Success stories** as identified by the reviewers are considered in this section in relation to FP6 and FP7 as individual initiatives in their own right and separately as initiatives of JRC where this is relevant.

### 5.1 Flagships

The EC-NSF Materials Science (and nanotechnology) Implementing Arrangement has provided a framework for cooperative work and coordinated calls in this sector and particular attention has been attracted to the two projects HYPERCOAT and NANOAM both of which include also aspects of student exchange.

The EC-US Task Force on Biotechnological Research is the longest running and one of the most successful scientific consultative mechanisms under the STA (which it in fact pre-dates). It has a rich programme of workshop activities to forecast research challenges and promote better links between researchers on both sides of the Atlantic. Working groups are established as a result of such workshops and they recently endorsed three flagship themes: plant cell walls in relation to biorefining, plant oils as industrial feedstocks and biopolymers. As a result of the FP7 first calls for proposals under the Theme Food, Agriculture and Fisheries and Biotechnology selected projects reflected these flagships and 11 US groups will work jointly in partnership with their European counterparts.

On-going EC-US collaboration in mouse fundamental genomics, co-sponsored by the European Commission, the NIH and Genome Canada might also be considered as having flagship status. This collaborative project is working to create mutant mouse lines for each mouse gene and is one of the largest research endeavours undertaken in life sciences (second to the Human Genome Project) to produce mutations in all 20000 mouse genes.

### 5.2 Candidate flagships

In general, the mobility sector - the Marie Curie scheme - is a particularly successful aspect of cooperative activity in the frame of the EU-US S&T cooperation and is often exemplified as such on both sides. There has been very good co-operation between the NSF and the EC Research Training Networks (RTNs) in the past. The NSF

funded 8 of the 16 US participants in RTNs to the tune of $1 million. The link between education and research matched NSF objectives. A similar co-operation could be envisaged by NSF for the Initial Training Networks of FP7. As discussed in the 2007 JCG meeting, there is a strong interest in Europe as a research destination. Half of NSF international post-doctoral programme applicants want to go to Europe.

For the EU the Marie Curie Actions are the relevant instrument here and the US is a key partner in this programme. NSF would be happy to advertise Marie Curie opportunities in the US. Under FP6, 226 researchers were funded to go from Europe to the US and 40 US researchers were funded to come to Europe[16]. Of European fellows, 75% chose to go for an upgrading of their career with a Marie Curie fellowship in the US. US participation in the programme has recently been increasing; US researchers comprised 12% of the incoming fellows selected in the first FP7 call.

From the interviews and also from the results of the online survey, the reviewers identified the lack of visibility of European S&T activities in the US and the deficits in awareness of the opportunities for cooperation provided by the Framework Programme. However, for example the Annual Meeting of the American Association for the Advancement of Science (AAAS) provides an appropriate forum for presenting the European Union as a leading actor in S&T. As examples, two initiatives are presented from the years 2007 and 2008 which could qualify for a candidate flagship designation:

Building on Europe's successful participation in previous AAAS Annual Meetings, the European Commission contributed to the AAAS Annual Meeting 2007 with a full schedule of activities. This included

- a European Research booth at the AAAS expo;
- a media breakfast with interview opportunities with senior EU policy makers ;
- an EU cocktail at the European Research booth to meet and network with EU research experts;
- a strand of symposia on international scientific challenges, jointly organised by the European Commission and the AAAS.

Also the Joint Research Centre took the initiative to use the AAAS Annual meeting as the appropriate platform. At the 2008 Annual Meeting of the American Association for the Advancement of Science, the JRC has presented 10 symposia on topics ranging from animal cloning and soil protection to nuclear forensics and biometrics in border management. Over 30 partner organisations participated in these sessions, with speakers from e.g. London School of Economics, EUMETSAT, the US Environmental Protection Agency, the International Atomic Energy Agency and several other well-respected organisations, universities and companies.

[16] Final Report on Marie Curie Individual Fellowship Actions in FP6 (2002-2006): intra-European Fellowships (EIF), Outgoing International Fellowships (IOF), incoming International fellowships (IIF). European Commission. Research Directorate-General. Directorate T – Human Factor, Mobility and Marie Curie actions. T.2 Unit – Individual Fellowships. January 2009, p. 17, p. 21

Initiatives taken by the Delegation together with Member states and US partners, such as e.g. in 2008 the European Career Fair and the Atlanta Conference on "Internationalization of Research and Graduate Studies and its Implications in the Transatlantic Context" are certainly also to be mentioned as flagship activities.

### 5.3 Success stories

Cooperation between NSF and EC in **Materials** has a long history. Research participation in programmes was initiated in a coordinated call as long ago as 1999 and there have now been several workshops and coordinated calls. Indeed the EC was the first partner with which NSF started to cooperate in its National Nanotechnology Initiative. In the programme area of nanotechnology and materials there was a good participation of US organisations in FP6 with 170 involved in 70 proposals of which 20 were retained. Building on FP6 experience from a first coordinated call in 2004, there were coordinated calls with NSF in 2006 on computational modelling and in 2007 on the impact of nanoparticles on health and the environment also involving DOE and EPA. There are 15 US participants in the proposals selected in the first call of FP7.

In the area of **Environment and Sustainable Development** (ESD) there are highly effective research activities aimed at an improved understanding of climate change in the Arctic and implications elsewhere through linkage of the USA programme SEARCH with the EC programme DAMOCLES. Also in the area of marine ecosystems cooperation may well extend as a result of the BASIN project (an FP6 project conceived with NSF to promote EU/US partnerships) to the development of tools to assess climate variability. It should be noted here that there have been specific actions in the past such as the coordinated call on harmful algal blooms.

Again as a result of the SOILCRITZONE project (an FP6 supporting action conceived again jointly with NSF) further developments might ensue on this occasion in innovative approaches to soil research in the context of global climate change.

**ICT research** has demonstrated an open and constructive cooperation with good synergy with NSF developing in fields such as educational technologies, digital libraries, grid technologies, eHealth, eAccessibility, components and systems and security and trust. The FP6 IST programme had a high level of US participation in 32 distinct projects with a focus on multimodal interfaces, global dependability and security, complementary metal-oxide semiconductor technology (CMOS) and wireless systems beyond 3rd generation. There are 17 US participants in the first call of FP7 relating to proposals in networking technology, cognitive systems and ICT for ageing

**Health research**
There are a number of collaborative activities in the Health area. For example collaborations in the area of genomics and proteomics including co-funding of projects such as the Human Variome Project**,** aimed at gathering information on the genetic differences between individuals and linking this to disease phenotypes, and projects on Metagenomics; also joint participation in meetings of the Human Proteome Organization (HUPO).

There are collaborations in the field of infectious diseases on Aids, Tuberculosis, and Malaria, involving among other the Global HIV/Aids Vaccine Enterprise (GVE) and

the European and Developing Countries Clinical Trials Partnership (EDCTP). Contacts in the area of pandemic influenza and bird flu have been established among others with USDA. There are 6 US participants in the proposals selected in the first call of FP7.

So multilateral collaborations include the human proteome project, the human variome project, and the global vaccine enterprise (NIH, EU, Gates Foundation). There have also been several contacts with the USDA regarding pandemic flu and bird flu and with the FDA regarding bottlenecks in drug development. There is interest in the Commission to work together with the US on areas such as neglected diseases; large scale data gathering for functional genomics; and use of prescription medicines. The Biotech Task Force could possibly be expanded to cover biomedical issues also[17].

In the field of **Metrology** NIST and EU researchers collaborate in the iMERA programme in fields such as electric power and neon isotope mixtures. Other cooperative projects include the ATHENA project (in participation with the Automotive Industry Action Group - AIAG) NIST is working to develop an arrangement with EURAMET[18] to share resources and harmonize respective regional and national responsibilities for chemical metrology, traceability and international measurement standards. NIST and the EU are also working on an international effort to develop standards for characterizing the make-up of biofuels. NIST also noted that in 2007, 244 EU researchers participated in the NIST Guest Researcher Program.

NSF **Transport** related programmes in geography and civil engineering are supporting US participation in an EC network on sustainable transportation. The Federal Aviation Administration (FAA) participated in the FP6 project CREDOS (Crosswind reduced separations for departures operations). There are 7 US participants in the proposals selected in the first FP7 call.

**JRC involvements with the USA**

The JRC also has a somewhat independent history of involvements with USA often over some period of time. It cooperates with 65 different organisations in the USA on very diverse topics. These include working with a consortium of three earthquake engineering centres, supported by NSF, close cooperation over many years on the protection of the environment (especially emission measurements and control from transport sources, eco-informatics and spatial data infrastructures and remote sensing applications); joint involvement of JRC and US participants in 15 FP6 projects covering areas such as climate change, modelling, multifunctional agriculture, biodiversity and health and social and economic impacts of extreme events There has also been a long standing collaboration between JRC and NASA in remote sensing (through the International Ocean Colour Coordinating Group(IOCCG)[19].

**Other FP6 projects** worthy of mention as potential Success Stories are Resource Equivalency Methods for Assessing Environmental Damage, Bifacial Thin Industrial multi-Crystalline Silicon Solar Cells and the Hydrogen Internal Combustion Engine. In FP7, projects selected for funding include Identification and validation of new breast

[17] Minutes of the 2007 meeting of the Joint Consultative Group.
[18] EURAMET: European Association of National Metrology Institutes
[19] Road Map. Minutes of the 2007 meeting of the Joint Consultative Group.

cancer biomarkers based on integrated metabolomics and Vital Infrastructure, Networks, Information and Control Systems Management.

## 5.4 Conclusions and recommendations

1. It is recommended that for the purposes of reporting at JCG meetings and also for providing material for increasing the visibility of the EC-US S&T cooperation activities a more systematic identification of Success Stories and Flagships be undertaken together with discussions of why and how the success had been achieved.
2. There needs to be effective publicity of such success; one example of an excellent publication is welcomed by this review[20]. It is recommended that this should be built on wherever possible. Also presentations at AAAS Annual Meetings in symposia and in the frame of the exhibition are very efficient and effective.

[20] e.g. as portrayed in the brochure: EC-US Scientific and Technological Cooperation: Reaching New Frontiers. Edited by Mary Minch, Director for International Cooperation, Directorate General Research, European Commission and Jeff Miotke, Deputy Assistant Secretary of State for Science, Space and Health, United States Department of state. November 2007

# 6 Mutual benefits

Mutual benefits achievable in the EU-US S&T cooperation in general and also under the auspices of the STA might be categorised into **policy** benefits; benefits to the **people** directly involved in science and technology and/or its strategic development; **scientific** benefits; **take-up** and more especially commercial benefits; and **administrative** benefits relevant to the operations embraced by the STA. With the resources available in this review it was not possible to evaluate the take-up and commercial benefits. However, since they are of real importance such a categorisation is mentioned here and it is recommended to devote a special study to this issue.

## 6. 1 Policy benefits

The specific weight of science & technology within the Transatlantic Agenda has been growing steadily, and has acquired greater visibility in recent US/EU summits in the course of the reviewed period (see Chapter 2). This is the fruit of a converging political determination on both sides of the Atlantic. It can also be argued that it is a consequence of the fact that both sides increasingly perceive science and technology as a critical component of the respective policies for economic competitiveness, growth and jobs. Both in Europe and in the US, science (including basic science) and technology are seen as more '"useful'" than before[21].

The rise of new players (China and India) in the globalised market for talent and knowledge-based investments shows both Europe and the US that they cannot rest on their past and present achievements, but must constantly strive to enhance the skills and creativity of their workforces and the innovative dynamism of their economies. This further coalescing of interests was referred to several times in discussions with US agencies together with the increasing realization that the US could not do everything on its own[22]. As pointed out in discussions with European S&T counselors this should be seen as a real opportunity for European science and also for strengthening the cooperative links with the US in areas of mutual benefit.

Following the 2007 EU-US Summit the joint statement[23] included important elements relevant to science, technology and education (see Chapter 2.1). A framework on transatlantic economic integration [24] was adopted with the creation of the Transatlantic Economic Council (TEC), accelerating work on key "'lighthouse projects'", as well as a joint statement on energy security and climate change (see below) underlining the mutual interest in ensuring secure, affordable, and clean supplies of energy and tackling climate change. The statement made several

[21] See EU-US Declaration: Initiative to enhance transatlantic economic integration and growth. Council of the European Union, 10305/05 (Press 159), Brussels, 20 June 2005 p. 7; http://ue.eu.int/ueDocs/cms_Data/docs/pressData/en/er/85383.pdf

[22] See e.g.: National Science Board: International Science and Engineering Partnerships: A Priority for US Foreign Policy and Our Nation's Innovation Enterprise. February 14, 2008, p. 1 http://www.nsf.gov/nsb/publications/2008/nsb084.pdf

[23] EU-US Summit – Washington, 30 April 2007. Council of the European Union. 30 April 2007. 9100/07 (Presse 96) http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/er/93890.pdf

[24] Framework for advancing transatlantic economic integration between the European Union and the United States of America, Washington, April 2007 http://www.eurunion.org/partner/summit/Summit20070430/TransatlEcoIntegratFramew.pdf

references to research, including a section on transatlantic research. Details have been given in Chapter 2 already.

A number of such initiatives were already active as a result of scientific dialogue but their inclusion in the Summit joint statement is significant of their relevance in the wider policy context. One such example is ICT where collaboration at policy level has already addressed e-accessibility, application of innovative technologies (RFID) intelligent transport systems, grid technologies, cyber security, internet purchases, countering spam, spyware and malware, and health and medical technologies. Since the 2007 Summit and the creation of the Transatlantic Economic Council (TEC) on 30 April in that year, research and innovation items have remained part of the TEC agenda.

As already noted (Chapters 1.2 and 1.3) it should be recognised that the STA brings a pan-European dimension to transatlantic S&T co-operation to complement the many bilateral arrangements with individual Member states, individual research organizations and between individual scientists. The Joint Consultative Group (JCG) meets on a regular basis to review progress and provide new directions for the implementation of the STA that reflect this EU-wide remit. Thus, the STA provides a most valuable framework for the S&T policy dialogue between the Community and the US. Conclusions of the meetings of the JCG as well as the roadmaps that were developed are most important inputs to the development of the annual work programmes of the Framework Programmes

## 6.2 Benefits to people

Mobility of researchers represents one of the most successful activities in the EU-US S&T cooperation supported also by the STA. An international outgoing fellowship (IOF) scheme allows European researchers the possibility to do research in a non-EU (and non associated) country for a period of up to 2 years, after which they will return to a European university or research laboratory to transfer the knowledge acquired. So far, the US is the most attractive country within the IOF action.

According to the final numbers for FP6 (2002-2006)[25], of a total of 1356 applications for IOF, 882 applied to go to a US research institution, of which 226 were funded, which amounts to 75,8% of the 302 IOF funded in total for 15 target countries. The reciprocal incoming international fellowship scheme (IIF) allows researchers from outside Europe to work in Europe. During FP6, of a total of 2158 applications, 131 were from US citizens, of which 40 were funded. It should be underlined that the number of US applicants was increasing over time, and that approximately one third of the applications were submitted in the last year of FP6 alone (2006).

It is interesting to compare the leading target countries of international outgoing fellows (IOF) and the leading parent countries of incoming international fellows (IIF). In the case of IOF, 226 or 74,8% of the researchers go to the US, followed by 33 or 10,9% going to Australia and 26 or 8,6% to Canada. The spectrum of parent countries of IIF looks different. 59 researchers (15,5%) came from Russia, 46 or

[25] Final Report on Marie Curie Individual Fellowshios Actions in FP6 (2002-2006) – Intra-European Fellowships (EIF), Outgoing International Fellowships (IOF), Incoming International Fellowships (IIF). European Commission. Research Directorate-General. Directorate T – Human Factor, Mobiity and Marie Curie Actions, T.2 Unit – Individual Fellowships. 2009

12,1% from China, 40 researchers or 10,5% came from the US, 37 (9,7%) from India, 34 (8,9%) each from Australia and Canada, 22 (5,8%) from Japan, and 11 researchers (2,9% of the total) came from Mexico. In total, there were 302 IOF and 380 IIF funded in FP6. Thus, as a final remark, it can be noted than in general more researchers were attracted to the EU member states and Associated countries than were going out. However, if one looks at the US as the target country of the present review, the situation is not balanced: 226 researchers went from Europe to the US compared to 40 researchers coming from the US to Europe. This is certainly a situation that would deserve a careful strategic analysis.

As an example of activity in a specific sector, that of environmental biotechnology, a programme for training and research exchanges has been developed and the EC-US Task Force for Biotechnology Research has promoted some 100 training post-doctoral grants for the "next generation of scientific leaders in environmental biotechnology". The Task Force is also drafting "Guidelines" for its activities and workshops which are envisaged to be forward looking and addressing tomorrow's biosciences by promoting participation of early career scientists, equal participation from both sides of the Atlantic, equal participation of women and men, integration of social aspects (e.g. participation of social scientists) and provision of relevant information on the Task Force Website[26].

At a more general level, short exchanges of staff between the European Commission (EC) and US research funding bodies have been proposed to allow a better mutual understanding of respective funding practices.

### 6.3 Scientific benefits

In general, as described in Chapter 4.2 and Annex 3 as results of the on-line survey, the most important outcomes are access to complementary knowledge and the production of new knowledge, followed by the possibility to address more ambitious problems and the opportunity to establish new partnerships for future transatlantic research cooperation. Almost 90% of the respondents strongly agree or agree that the EU-US cooperation was successful and beneficial. In many cases, cooperation will continue after the end of the FP project. Respondents confirmed that the quality and relevance of the project was improved by the EU-US cooperation.

As indicated above, the 2007 EC-US Summit Statement contained a specific significant statement on Energy Security, Efficiency and Climate Change. This set out complementary goals and key priorities in sectors such as advanced clean coal technologies (near zero emissions), promotion of energy efficiency, and developing, deploying and commercialising renewable and alternative energies together with a committed work action plan. It is a good example of high level commitment to mutual benefits in a particular sector. However, in the experts' views such a commitment should materialise also in strategic priorities defined in the road map and agreed upon in the following meeting of the JCG. As a consequence, appropriate provisions should be taken such as consideration in FP7 Work Programmes and also respective actions by US agencies and funding opportunities.

The STA however is multi-dimensional in scope, and actions are undertaken notably through implementing arrangements on the following topics: Environment, Metrology,

[26] http://ec.europa.eu/research/biotechnology/ec-us/index_en.html

Materials Science (including nanotechnology), Non-Nuclear and Renewable Energy (including Hydrogen). In addition, the Task Force on Biotechnology Research has already been mentioned. Some examples from the 2007 Road Map presented in the meeting of the Joint Consultative Group illustrate this multi-dimensionality:

- the renewal of the 2004 Agreement (implementing arrangement) between IST and NSF-ITR (Information Technology Research) Programmes for bilateral collaboration in a number of research areas (e.g. dependability and security, embedded systems, e-business, e-government, e-health) by linking US researchers with relevant IST projects to also cover the areas of software technologies, e-business, micro and nano systems, embedded systems, natural and technological risk and emergency management, e-health and research infrastructures;

- agreement (implementing arrangement) between the "Grid Technologies" Unit in DG INFSO and the NSF-DDDAS (Dynamic Data Driven Application Systems) Programme to provide contact points and inform their constituencies about the possibilities of EU-US collaboration on the basis of funding through the corresponding funding bodies (EU-IST for European organisations and NSF-DDDAS for US organisations). Through a series of research summits NSF and EC officials identified collaboration and partnership possibilities in order to coordinate research efforts already underway in areas such as cyber trust and security in order to leverage eventual positive impact in such areas;

- regular and effective stakeholder cooperation between the EC Interservice Group in Nanotechnology and the US National Nanotechnology Initiative and other related institutional stakeholders;

- JRC collaboration with US agencies on natural resource monitoring (e.g. the US Geological Survey Centre for Earth Resources Observation and Science in Sioux Falls; NOAA (US National Weather Service) which sponsored International Research Institute for Climate and Society (IRI) at Columbia University;

- GEONETcast initiative (within the Group on Earth Observation, GEO) based on EUMETCast, EUMETSAT's Broadcast System for Environmental Data.

### 6.4 Administrative benefits

Cross-border collaboration between policy actors and stakeholders is effective in a range of sectors – such as ICT, energy and other thematic areas. US experts are also regularly involved in evaluations organised by the Commission in Brussels across most of the thematic priorities and EU experts are invited to participate in major new US R&D initiatives and Research Centres. Numerous joint high-quality workshops and conferences addressing IST strategic objectives have also taken place.

There have also been a number of coordinated calls – for example on computational materials in FP6. Such activities are developed in close cooperation between

programme managers, legal services and high level officials from the European Commission and the US partner agencies.

As an example, the signing of the EC-EPA Implementing Arrangement on Environmental Research and Ecoinformatics will allow strengthening the S&T co-operation between EPA and partners in Europe. The results of such co-operation are seen as important not only for the EU and US but also for the developing world. The EPA and EC will co-ordinate calls for proposals in selected areas in order to maximize the impact of the activities on each side.

### 6.5 Conclusions and recommendations

1. During the development of joint activities in the JCG the different benefits to be achieved through the S&T cooperation should be addressed in a structured way and used also for monitoring purposes.
2. It is recommended to support short exchanges of staff between the European Commission (EC) and US research funding bodies in order to allow a better mutual understanding of respective funding practices as a basis for future joint activities.

# 7 Obstacles for EC-US S&T cooperation

## 7.1 EC Model Grant agreement

Many complaints have been heard about the EU Model Grant Agreement from US institutions some of which are very frustrated. These may be perceptions based on past experience or they may be present reality. Some projects have been abandoned even in the course of the experts' US mission (e.g. with USDA) because of the difficulties encountered. Recently, MIT refrained form signing a grant agreement.

The problems seem to be multi-faceted and can be perceived on the EU Delegation side as a moving goalpost situation. Not every US agency or institution identifies the same problems with the Grant Agreement. There is a problem of signature when no money is involved to a US partner which is now said to have been addressed in DG RTD but there are also other problems where the result was that the documents were never signed (e,g. NIST and iMERA) as ways were found around the impasse. For USDA there were specific problems identified with IP regarding background and foreground access, and indemnity issues in the Grant Agreement which could be interpreted as contrary to the US Antideficiency Act that resulted in the projects being abandoned.

On the other hand some US institutions have signed so care needs to be taken that such bodies are not seen to have been less than diligent in their examination of the contractual documents as this would only enhance the growing reputation of the problems of working in the FP for US institutions.

Research institutions in the Member states also in some cases are well aware of these difficulties and some are quite exasperated by them – in one case with a hint of the need to take the issue to ministerial level. Also in certain cases the value of bilateral MS to US arrangements is seen in the light of the problems related to the EC Model Grant Agreement, so there is a move by some to encourage a greater emphasis on US S&T cooperation increasing at the MS (or groupings of MS) level. Other MS are less concerned perhaps because they are anyway less involved with, or even interested in, the FP as a tool for US cooperation.

## 7.2 Funding of US partners in EU projects

The issue of reciprocity or "reciprocal opportunities to engage in cooperative activities" has been addressed in many meetings during the experts' mission to Washington and also in many responses in the course of the online survey (see Chapter 4.3). However, there is also still room for improvement regarding the access of EU researchers to US research funding sources other than through the NIH.

The Zerhouni-Potocnik agreement[27] is ensuring that US researchers are not only eligible for participating in the Framework Programme but also for receiving funding from the EC if they are part of a consortium with EU investigators. Thus, in the EC-NIH cooperation both parties are open for funding researchers from both sides. This

[27] Elias E. Zerhouni and Janez Potoznik: European Union and NIH Collaborate. http://www.sciencemag.org/cgi/pdf_extract/322/5904/1048a

is certainly a most welcome move and should be taken as a model also by other areas.

### 7.3 Intellectual property issues

Addressing potential IPR issues and problems related to handling and development of intellectual property is one of the tasks of the JCG. Indeed, there has been growing concern expressed by the US side about the provisions regarding IPR management in FP6 and in FP7. Despite being addressed by a separate annex to the STA these remain an active area for discussion in particular regarding different rules/practices on IPR management and access to raw data (See Bayh-Dole Act and data sharing policy in the US and a broad spectrum of different rules in the EU MS) as fundamental differences seem to remain. One fundamental difference remains the difference between the 'first to invent' and 'first to file' approaches in force respectively in the US and in the EU.

The relevance of the recent Communications on knowledge transfer and reports[28] for cooperation with the US in the frame of EU RTD activities is recognised. Some work ongoing in OECD could lead to harmonisation in this important area.

### 7.4 Conclusions and recommendations

1. Although the experts recognise and welcome the fact that previously identified administrative and legal hurdles for international activities under the Framework Programme have been reduced through adaptations of the model contracts the fact remains that there is a distinct and widespread perception on the US side that the Model Grant Agreement remains a real problem that has the potential to further adversely affect working S&T relationships. The Commission needs to review the specific barriers for third country participation in FP7 in the course of the coming midterm review. It should be explored if the administrative and legal provisions can be defined in a way that can be adapted also to conditions of the cooperation with specific third countries without compromising the legal framework as requested by European Commission rules.
2. If the transatlantic S&T cooperation is seen as useful, beneficial and important from both sides, than the funding mechanisms on both sides should provide funding opportunities for all partners in joint projects. This important issue and obvious barrier for cooperation should be addressed when organizing coordinated calls or programme level cooperation and especially implementing arrangements. The approach developed between the European Commission and NIH in the Health theme should act as a model also for other areas.
3. Almost 40% of respondents to the online survey expressed concern about the provisions regarding IPR management in FP6 and in FP7. The problems related to IPR issues should be further analysed and mutually acceptable

[28] "Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation", Commission of the European Communities, COM(2007) 182 final, 4.4.2007
"COMMISSION RECOMMENDATION on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations". Commission of the European Communities, C(2008) 1329 final, 10.4.2008
"Knowledge sharing in the European Research Area". Report of the ERA Expert Group. European Commission. Directorate-General for Research. EUR 23323. 2008

solutions should be sought. In such considerations, close cooperation with member states would be useful including learning also from their approaches and experiences in bilateral cooperation activities with the US[29] (see also Chapter 4.5).

[29] See e.g. the provisions regarding IPR in the recently signed cooperation agreement between France and the US. http://www.france-science.org/spip.php?article1049

## 8 S&T representation and activities of Member states in the US and their relation to EC activities

### 8.1 "European S&T" as presented in the US

The situation of the European Union in the US is characterised by the presence of 27 Member states and the Delegation of the European Commission to the US. Regarding science and technology, there is the Science, Technology and Education Section at the EC Delegation; a number of Member states have specific S&T counsellors in their embassies (sometimes also with dedicated operational S&T offices); others have attaches with shared responsibilities between e.g. economy and trade and S&T, and still others have no specific representation for the S&T sector in the US.

There are various models of EU/MS interfaces in the S&T cooperative activities with the US. These can be apparent in various forms on the US side as well as the European one. It is not clear that all actors on the US side fully understand the subtleties of the S&T positioning of the EU and its MS. The concept of ERA that is high on the agenda in Europe and that would provide an excellent frame for promoting European S&T in the US is practically not visible in the US. This lack of clarity clouds the European position vis-à-vis S&T in the US. In the words of NSF it would like to have "one plug-in to Europe".

### 8.2 Member states' S&T representation in the US and the relation to the EC

Many MS have their own agreements with the US and its agencies and institutions. Some MS's bilateral relationships operate at first through other international agencies (e.g. in energy, IEA). Some prefer to foster the bilateral approach as they see the EC-US STA as representing the Commission and primarily the Framework Programme associated with DG Research. Others see such national bilateral arrangements as complementing the EU position and think this works well as the FP focus brings benefits. In fact both synergies and complementarities can be found - though in some cases neither.

Some MS actively foster relationships at a state or even regional level perhaps seeing some analogies here between an individual MS partnering an individual state of the US rather than the country as a whole. They would see the EC-US STA as focussed primarily at a Federal government level.

Some see the EC relationship as embodied through the S&T Agreement as just one other S&T agreement that the US has with Europe. The STA has therefore no particular standing that distinguishes it from any other US S&T agreement in place with a MS - so in effect there is a view that there is a level playing field overall and there is room for both EC and MS positions.

Others see the STA adding value for example by creating a platform on which certain MS can then been seen as players through their own arrangements that focus on their particular strengths and interests because MS are very variable here in terms of international cooperation. They would view their MS interest as closer to the ground and quite bilateral in nature.

Others see the EU STA as an umbrella under which they can perhaps contribute a role – being content to be in a secondary position and indeed looking to the STA arrangements as a helpful catalyst for their own activities and their development.

Yet others see no synergy of any interest to them because the FP is somewhat outside what they want to achieve at MS level with the US – perhaps because of emphasis on commercial technological development rather than research or because of disenchantment with the complexity and bureaucracy that is associated with the FP.

In all MS embassies visited during their mission the experts learned that FP issues are dealt with from the home base by research promotion agencies and National Contact Points. Promoting cooperation with the US through the Framework Programme was not part of the mandate of the MS S&T representations in the US though some MS were keen to be aware of what was going on in this context.

The idea of grouping with other MS for cooperation with the US in joint programming initiatives is being embraced in general by some – perhaps as an alternative to an EU approach based mainly on the FP structure. At present, however, there is no strategic dialogue between different MS concerning S&T relationships with US. In addition, in most cases the S&T sector of MS embassies has rather scarce resources. Nonetheless, the possible advantages of systematic exchange of experience and shared strategic intelligence are not considered. However, in some cases a MS might provide regular information tools and make these available to other MS.

The diversity of interests on the European side is perhaps not surprising given the significant differences in size and effort in the S&T sector in the various MS - though these differences in relation to particular MS embassies can be surprising as they do not always reflect the size and scope of MS S&T. Also as mentioned above in some MS embassies S&T is combined with other portfolios such as economics and commerce. In addition, it has to be emphasised that only a small number of MS have developed strategies for international S&T cooperation including specific approaches towards the US.

At present, the EC has an operational activity for S&T interests aligned to the US and various MS (to varying degrees) have operational channels also aligned to the US. But one side of a liaison triangle is missing in cooperative S&T relationships with the US because there is little liaison between the EU as represented by the Commission and the MS in the scientific fields of interest for cooperation with the US. So benefits from shared experience and joining forces can be lost.

The EC Delegation in Washington is the best placed entity to address this omission and should have a much stronger remit to involve, as appropriate and desired by both parties, the MS dimension that is vital in furthering European S&T relationships overall to the US. Even though the EC Delegation's STE Section is heavily over-worked at present it would be difficult and inappropriate to see any given MS represent all European interests in S&T cooperation – even if holding the Presidency as this is a short term responsibility. S&T has much longer horizons and so such a task has to fall to the EU Delegation. This synergy is in fact in the core of the ERA

concept and it is this European Research Area dimension that is lacking cohesion at present in the portrayal of European science to the US side.

### 8.3 Conclusions and Recommendations

1. Several member states are very active in bilateral S&T cooperation with the US. In some cases, successful bilateral activities are also elevated to the EC level. There would be many opportunities for cooperation between MS which would probably also increase the effectiveness of European S&T. However, there is practically no overview of Member states' S&T activities with the US and there is certainly little coherence between EC and MS cooperative activities with the US. Therefore, it is recommended that a study is performed to produce an overview of Member states individual and possibly also joint activities and to review their coherence with EC-US S&T activities.
2. In the future, the opportunities for coordinated calls for proposals and also joint EC-US S&T programmes (e.g. ERA-NET schemes) in strategic areas for cooperation should be utilised complementing the EC-US cooperation in the Framework Programme.
3. In time, Europe as a whole may want to improve S&T visibility and portray and develop relationships with US opposite numbers as a result of more coherent action. That is an ambitious objective and might create a tension between cooperation and competition but at least a start should be made in achieving some synergies in the presentation of all European S&T capabilities to a collaborator of the importance of the US. In order to raise the visibility of European S&T in the US the idea of establishing a "House of European S&T" in the US should be explored in close consultation with the Member states. Also appropriate EC funding schemes like CSA could be used for such an initiative. This is an issue that should be discussed in the future Strategic Forum for International S&T Cooperation[30].

[30] A Strategic European Framework for International Science and Technology Cooperation. Commission of the European Communities. COM(2008) 588 final, Brussels, 24.09.2008

# 9 Coherence and impact of EC-US S&T cooperative activities

## 9.1 Coherence

Assessing the coherence of EC-US cooperative activities is a multi-faceted undertaking and within the resources and timescale of the present study only pointers to the possible development and definition of an assessment methodology could be considered.

Account has to be taken of both **internal** and **external** attributes of the coherence of EC cooperative activities with the US. Examples of **internalised** features of cooperative S&T activity might be found as follows:

- within a project;
- in a FP specific programme and/or US programme area;
- with other DGs in the Commission;
- in individual US agencies or several of them ;
- in the functioning of the EC Delegation in Washington and/or other MS representation involvements

So each of these originations needs to be assessed and exemplified in order to characterise the different modes of coherence that can be identified.

Similarly there might be **external** features of coherence in cooperative S&T activities that can be identified:

- those resulting from single MS to US cooperation;
- those through groups of MS cooperating with the US;
- EC to US relationships;
- EC and MS acting together in activities with the US;
- EC to US through or with other players such as third countries, different agencies or international bodies;
- S&T activities initiated through appropriate professional bodies;
- ERA coherence overall and its recognition in US.

Account also must be taken of the

- type of activity (e.g. postgraduate; postdoctoral; visiting worker on sabbatical; visiting fellowship); and
- the origination of the activity (personal; project; programme; scientific initiative; policy initiative).

Catalysts for achieving coherence of approach are *inter alia* policy drivers, scientific drivers and people-related drivers and recognition of this is also important.

The modes of coherence in cooperative activities can derive from their initiation, their execution and their outcomes and the likely effectiveness of these modes can be investigated.

The experts' mission to the US and the inputs received from the online survey provided insights into the coherence achieved in various ways in the cooperative activities. Many discussions were held in US agencies, departments and other institutions as well as in several MS embassies during the US mission that proved informative and their outcomes are taken into account throughout this report. Similarly a number of questionnaire inputs provided commentaries on the coherence achieved in cooperative on-the-ground activities that are also reported on here. A synopsis of the main findings, relating firstly to internalised attributes and secondly more externalised influences, is provided below.

### 9.1.1 Internal attributes

Many **projects** appeared to achieve good coherence in cooperation and where this was unsatisfactory the key factors involved generally related to administrative, contractual and financial issues rather than the science being undertaken. Coherence with and between **programme** areas on each side was generally considered to be of a good standard despite some frustrations with any prior negotiation process. In the energy sector particularly detailed efforts had been made to achieve coherence in approach and delivery of mutually interesting science resulting in a specific sector roadmap and it is possible that a similarly detailed situation will become the rule in environmental protection and health. In other cases coherence can be patchy at a programme or institutional level and in some cases cooperative activities have lapsed.

With some **agencies** the coherence of cooperative activities is more apparent at sector or departmental level (e.g. NSF nanotechnologies, materials) whereas in other cases an over-arching relationship has been established at a high level (e.g. NIH). On the EU side there were instances observed where coherence between **different DGs** did not always seem to be ideal and inter-service consultation might cause difficulties or delays in cooperative activities.

For representation in the US the **EU Delegation and the S&T Sections of MS** embassies achieved coherence in their own individual approaches to US cooperative activities wherever this was important to their own remit. However the breadth and relevance of these remits could vary greatly in the different MS embassies. As a European group therefore it is difficult to see much coherence in cooperative activities with the US as the various MS concentrate on their own strengths that reflect national priorities. For the EC the FP is seen as the dominant coherent attribute in cooperative activities with the US.

### 9.1.2 External attributes

In terms of external aspects of coherence **certain individual MS** develop coherent relationships with the US where cooperation is important to them. There are examples of this at institutional, regional, state and Federal government level – though the latter is usually more obvious with the larger MS.

**Groups of MS** cooperating with the US are less common so coherence is more difficult to detect though some examples were noted. There are those that feel that this mode of cooperation could evolve and if so coherence will be a key factor in any

groupings formed. This might also be an issue to be discussed in the frame of the new Strategic Forum for International S&T Cooperation.

Coherence in **EC-US** cooperative relationships is a notable feature and is perceived as a growing one on both sides. As referred to above there is variability in the specific instances involving particular agencies or FP programme areas but overall the message is a positive one. The one negative aspect referred to many times in discussions is that of the US difficulty with the Model Grant Agreement intrinsic to working in FP projects as a partner. The perception of the problems here is certainly damaging coherence of cooperative activities at EC-US level in particular – though certain MS are also well aware of the difficulties (see also Chapter 5.1).

**EC and MS acting together** coherently in cooperative relationships with the US is generally disappointing other than at certain personal levels. This poor, even incoherent, **representation of ERA** [31] in cooperative activities with the US is commented on elsewhere in this report. It derives to a great extent from the discontinuity of relationship between the EC and the MS in their representation to the US. Much of this could be solved by sharing information and having an appropriate forum for strategic discussion on the European side – steps that could only strengthen the visibility of European science in the US. Again this is an important topic to be put on the agenda of the Strategic Forum for International S&T Cooperation.

In some instances involvements of other countries and international and professional bodies are features of cooperative activities with the US for MS or the EC (e.g. IEA[32], Canada). These tend to be individualistic initiatives and do not portray much coherence in approach.

The very varied and variable nature of cooperative activities with the US from the European side does not at first sight display a coherent overall endeavour. However there are clear elements of coherence within the overall matrix that is in effect ERA and there is current and growing coherence in S&T cooperation with the US at the EC level. However the EC axis needs to portray the entirety of European science more effectively as a coherent picture but without the need to "possess" it - as this would not be acceptable to all MS.

It is considered that a **separate study on coherence in cooperative activities** in S&T cooperation between Europe and the US would be well worthwhile as the evolving position is one of genuine opportunity for European science.

## 9.2 Impact

Measurable **primary** impact attributes can be noted and categorised. For example:

- visits; conferences; workshops; publications; degrees; IP; meetings of co-workers, sustainable networks, "virtual labs".

[31] European Research Area
[32] International Energy Agency

**Secondary** impacts are usually longer term and are therefore more difficult to record and assess. They may be scientific or socio-economic or occur in unexpected areas or circumstances. Examples of areas of secondary impact include:

- regulation/law-making;
- international negotiation;
- commercial products/services/ new business areas;
- policy positioning both nationally and internationally;
- international negotiation positioning.

Examples of sectors where such secondary impacts might be most likely are:

- health products and procedures
- food and agriculture;
- information and communication technologies;
- new materials;
- energy innovations;
- environmental technologies;
- transport;
- space; and
- development aid.

The question of impact of the cooperative S&T undertaken between Europe and the US whether from an EC standpoint or with individual MS was discussed on each interview occasion during the US mission. The issue is seen as difficult on the US side just as it is in Europe and there are no easy answers to evaluating the impact that S&T cooperation with the US is having.

Certainly at a policy level and in general also at a scientific level the cooperative activities are seen as “a good thing” not only for science but more widely and there is obvious wide support for continuing the relationship. It was noted several times that there is a political value in the current changing global environment for Europe and the US to cooperate in science and such a political impact should be valued. According to the responses to the online survey, the most important outcomes are access to complementary knowledge and the production of new knowledge, followed by the possibility to address more ambitious problems and the opportunity to establish new partnerships for future transatlantic research cooperation. These are certainly aspects to be considered that are relevant for shaping the future EC-US S&T cooperation.

Impact **outcomes at a primary level** can certainly be collected and quantified but the fact remains that it is always difficult to prove their attribution to any specific implementation. The impact might have occurred anyway so what added value did the S&T cooperation with the US actually bring?

Impact **outcomes at a secondary level** are often more valuable but develop long term and so even more difficult to assess. The longevity involved also means that particular attribution of an impact to a specific piece of scientific work is unlikely as other components have emerged that contribute to the impact value of what has been achieved. Impact is not usually in a linear relationship with a given scientific

project or programme and the networking of influences becomes more difficult to interpret as time spans increase. Impacts might be socio-economic rather than simply scientific so there is merit in identifying sectors for analysis in any elucidation of secondary impacts of particular elements of S&T cooperation. Many studies of this type have been undertaken but there would be scope for even more systematic analysis of outcomes and impacts deriving from European-US cooperation in S&T.

In addition to discussion of impacts a choice of **success stories** was requested at interviews held during the course of the US mission. A number of suggestions were made. Some were for scientific areas or even projects whereas others were for particular initiatives or administrative processes that were considered to have delivered beneficial outcomes. These success stories are recorded elsewhere in the report (see Chapter 3.3).

## 9.3 Conclusions and recommendations

1. At present, the Member states value the contribution of the EC-US STA in a variety of ways depending on their own interests and priorities. As a consequence, European S&T may be represented in the US in different modes - the EC alone, MS alone, or Member states in variable geometry arrangements. The coherence of Europe's S&T presence in the US is an issue for further consideration.
2. It is considered that a separate study on coherence in cooperative activities in S&T cooperation between Europe and the US would be well worthwhile as the evolving position is one of genuine opportunity for European science.

## 10 Prospects for future developments

There are a number of sectors where possible opportunities for cooperation in the future have been identified through individual discussions, in organised meetings, or as a result of considering general policy objectives for example in the JCG meetings. Some of these findings are identified below.

### 10.1 General

The current political prominence and visibility of S&T and the growing awareness of the importance of international cooperation represent a great opportunity and there is a stated intention to make the most of this. With more resources than its predecessor and more open than ever to international collaboration FP7 offers new opportunities for transatlantic partnerships. Also in US programmes the international dimension is becoming more important.

There are opportunities in FP7 where all topics are open for US partners, as in FP6 which resulted in the US being the second most successful third country in terms of number of participations. Funding is provided for US participations which are essential for the projects, based on the recommendations of the evaluators (in FP7 first calls, almost all US entities requesting EC funding were granted it). Many US experts have been in FP6 and FP7 evaluation exercises following Calls for Proposals and will be invited as evaluators also in the future.

Together with its US interlocutors - in the government and in the research funding agencies - the European Commission is endeavoring to match the statements of good intentions enshrined in the STA and in the Summit declarations with its specified concrete joint initiatives and collaborative schemes. At the moment this still causes some problems due to the fact that participants of third countries such as the US have to comply with FP7 rules. The difficulties surrounding the Model Grant Agreement have already been portrayed and provisions are still needed that are more appropriate to international S&T cooperation and that make the concrete transatlantic efforts easier to implement This is currently being addressed through new “special clauses” of the Model Grant Agreement in the case where the US participant does not receive EC funding. However, as recent experience shows for some prominent US institutions the present legal and administrative provisions are still not acceptable and so this remains a serious issue with the potential to deter scientific progress. The follow up of the Zerhouni-Potocnik initiative will hopefully contribute to clarification and streamlining of this issue.

EC and US officials held their last annual Joint Consultative Group (JCG) meeting on 19-20 February 2008 in Washington to review progress and discuss new initiatives under the EC-US STA. Its anticipated extension was envisaged as expanding its scope primarily by including security and space but this option was finally rejected.

Certainly there are areas like mobility of researchers, ICT, sustainable development, and biotechnology where there is already a strong basis of cooperation, but even this can be further improved on. Then there are areas like research infrastructures (RI) where there is great potential for collaboration that in part waits to be tapped (for example mapping the different RI roadmaps). More needs to be done in such cases to facilitate the exchange of young scientists and engineers as well as research staff

(through instruments like the new IRSES scheme) with targeted resources. In the following, an overview of the prospects of further development of the EC-US S&T cooperation is given as discussed during the last JCG meetings and distilled also from the experts' meetings with US S&T policy and funding stakeholders.

## 10.2 Health

In the first months of 2008, talks at the highest level between NIH Director Zerhouni and Commissioner Potocnik focussed on the matter of reciprocity between the US and the EU. NIH is open for funding non-US researchers. The European Framework Program 7 (FP7), while allowing collaborations with US scientists, allows funding of US researchers participating in collaborative projects with European teams only under specific conditions. An *ad hoc* NIH-EC bilateral working group was set up to engineer the necessary changes in FP7 and NIH Grants Policy for ensuring reciprocal access to funding opportunities by the NIH and the EC on health research. The differences could be sorted out and NIH and FP offer now equal opportunities for participation. A joint policy letter by J. Potocnik and E. Zerhouni has been published in Science[33].

As a consequence of the Zerhouni-Potocnik agreement, the Health Work Programme 2009, p.6 says: "In recognition of the opening of NIH programmes to European researchers, participants established in the United States of America are also eligible to participate and to be funded in the context of the Health Theme calls described in this work programme 2009." This is an important development in the EC-US S&T cooperation and might act as a model for other parts of FP7 too.

Good examples for cooperation are the Human Microbiome project and also the area of toxicology of off-patent medicines for paediatric use.

Other research areas of potential future collaboration include genome-wide scanning for coronary artery disease susceptibility (the EC is funding 2 major projects which complement work going on in the US and elsewhere) and Diabetes research (links already established with, for example, the US-based Juvenile Diabetes Research Foundation funding work in Europe). Further collaboration could include work on non invasive imaging for islets and pancreas, delivery devices and stem cell therapy. From the US side, there is also interest in cooperation in the area of paediatric medicine. There are also different other platforms for cooperation, such as the American Institute of Cancer Research and its European counterpart.

The Innovative Medicines Initiative (IMI) Joint Technology Initiative started operation as a public private partnership. IMI will fund research done in Europe by any relevant research team or company. There have been contacts between the initiative and the corresponding US Biomarker Consortium as well as the FDA-led critical path initiative.

Indicated areas of potential collaboration include bioinformatics, genomics and proteomics. There is also interest in the US in cooperation with the EU in the area of tissue engineering (e.g. in connection with injuries caused by combat, terrorist

[33] Elias E. Zerhouni and Janez Potoznik: European Union and NIH Collaborate. http://www.sciencemag.org/cgi/pdf_extract/322/5904/1048a

attacks, and accidents); there is a related specific DoD[34] budget. Finally, it has also been suggested that EU-US co-operation could be useful in the revision of a compendium of research on diet and cancer prevention.

In general, there are perspectives for future strengthened EC-US S&T cooperation in the health area, because there are also growing international commonalities in social aspects such as an ageing population and quality of life issues so increasing collaboration with Europe can be foreseen through simultaneous (twinned) open calls and similar initiatives.

### 10.3 Food and biotechnology

Obesity is a problem area of joint EC and US interest. For June 2009, a workshop on "Early programming' has been planned (how does nutrition during pregnancy and early childhood influence nutrition and consumption related behaviour. In the US, every 5$^{th}$ child is already affected by obesity.

In general, the US side is interested in well defined narrow topics; for this area, the EC-US Task Force on Biotechnology Research is most relevant

### 10.4 ICT

In FP7, international co-operation is strengthened more than ever before. It is integrated in all four programmes of FP7 (Co-operation, Ideas, People and Capacities) offering, in this way, greater opportunities for collaboration also in ICT. The ultimate goal in FP7/ICT should be to define a number of challenging technological topics of mutual interest, where bilateral co-operation between the Community and the US will be of mutual benefit. Some areas of interest for collaboration with the US identified by DG INFSO are security and trust; eHealth; eAccessibility; future internet; RFID; and components and systems. In the first Call of FP7, 17 US participations were successful in obtaining a total funding of around 1.7 M€.

### 10.5 Nanotechnology, materials

Opportunities for EU-US cooperation covered by NMP under FP7 will be continued on issues relating to the implications of nanoparticles and nanotechnology-based materials and products on health and environment. Further coordinated calls are being explored. Based on the declarations of several EU-US Summits nanotechnology and nanoscience are areas of great importance and therefore priority. So far, however, this has not stimulated a substantial increase in the number of FP-projects in that area. That might be another sign of the time needed for the decisions and conclusions of high level political meetings to translate into concrete opportunities.

Materials is certainly an area also for future cooperation based on longstanding cooperation between the EC and NSF. The FP6 NMP-NSF Coordinated Call launched in 2004 is certainly a success story that had a path finding role also for other themes in the Framework Programme and certainly for respective

[34] Department of Defense

developments in FP7. The Call was realised under the umbrella of the STA and the Implementing Arrangement between the European Commission and the National Science Foundation (NSF).

### 10.6 Energy

There is a division of labour between DG RTD and DGTREN: DG RTD focuses on the S&T dialogue, DG TREN on the political dialogue.

In the past, S&T cooperation with the EU was not very high on the US agenda and the IEA was the most important platform for cooperation. However, the energy crisis and also increased budgets for energy research induced policy changes. Following a joint declaration at the EU-US Summit a breakthrough in EC-US communication and cooperation in the energy area was achieved by a 'technical week' where EU officials and experts visited their US counterparts in the areas of photovoltaics and solar last June.

There is a very positive climate now and a new phase of EC-US cooperation has started. In October, a US group of 15 persons visited Europe and outcomes might be targeting coordinated calls. A specific road map for non-nuclear energy research has been developed jointly and there is also a discussion on reciprocal opening up of programmes. EC-US cooperation in the International Partnership for the Hydrogen Economy (IPHE), the Fuel Cells and Hydrogen Joint Technology Initiative, in the International Partnership for Energy Efficiency Cooperation (IPEEC), and in the frame of implementing agreements of the IEA are of specific importance.

Continuation of the cooperation is envisaged through existing multi-lateral vehicles (IPHE, CSLF, IEA) but within the frame of the Transatlantic Cooperation agenda. Reinforcement of the discussions on how to translate conclusions on well targeted energy research activities and within mutually agreed specific priority topics is ongoing. The cooperative agenda here is certainly ambitious.

Specific cooperation is developed with the National Renewable Energy Laboratory (NERL) and the DoE and especially its Solar Office. The SET[35] plan is interesting for the US; it is important that each SET initiative has also an international dimension.

Of course, cooperation of MS with US is very important, mainly occurring through the IEA. In total, MS' RTD budgets for energy research are higher than EC RTD funding. Possibilities for cooperation in energy related ERA-NETs or future joint programming initiatives are areas deserving more attention in the future.

### 10.7 Environment

The S&T policy dialogue with the Environmental Protection Agency (EPA) is high on the agenda of the EC-US S&T dialogue in the environment area. Cooperation has been developed in previous Framework programmes already, but FP7 was a driver for future involvement through an Implementing Arrangement. An IA would be a means of back and forth communication and both sides could then learn from each other and leverage each other. It would allow researchers direct communication and

[35] Strategic Energy Technology

cooperation for example in calls for proposals. There had been two successes already where joint solicitations had been tried – computational toxicology and now the FP call is available and the EPA call just announced. The other was a bilateral relationship relating to animal testing of cosmetics. But joint solicitation was complicated. A framework agreement ensures coordination and supports scientific benefit. The preparation of the Implementing Arrangement was a complex process mainly because of the procedures for interservice consultation which are easier on the US side compared to the EC

The IA represents one tool in the toolbox but there have been other inter-service EC involvements with JRC ISPRA, DG Environment, DG TREN, DG INFSO, European Environment Agency (EEA) etc. There is a need for knowledge of ongoing activities, e.g. in the area of eco-informatics, and as many agencies can be involved an official framework will be useful.

EPA has been actively involved and provided input in the preparation of JCG meetings and the EC-US S&T road map. There are regular direct contacts between EPA and the EC. A report on the activities will be available towards the end of the year.

The ERA-NET scheme is seen as useful in providing a window towards ministries and funding agencies of several MS, e.g. the SKEP-ERA-NET action (Scientific Knowledge for Environmental Protection). ERA-NETs provide the opportunity for collective actions with different MS which is appreciated by EPA.

There are areas in marine ecosystems that merit investigation in the North Atlantic within the context of climate change paying particular attention to higher trophic levels and marine living resources. Here a synchronized or coordinated call is envisaged for late 2009. This follows some three years of joint NSF and EC support for community planning activities/workshops (through project BASIN) on cooperative research on the ecosystems of the North Atlantic Basin. The planning has also included the possibility of Canada's direct involvement. The level of synchronization/coordination will be similar to the past cooperative program on harmful algal blooms, or by achieving a higher level of integration if possible.

Next steps under consideration include developing an US-EU partnership in the FP7 project INFRAPOLAR coordinated by the European Polar Board (ESF) and involving already 26 countries which aims to network polar research stations for research on climate change and other forefront scientific issues.

There is also mutual interest in environmental technology verification, eco-informatics (indicators), eco-toxicology and computational chemistry as well as in non-animal testing.

Climate change impacts and engineering problems such as pressure on sewage systems from risks of urban flooding is emerging as an area of mutual interest as well.

Several areas of mutual interest have been proposed: monitoring the carbon cycle at global level; borehole observations; and research on the ocean interior (ESONET of the EU and NEPTUNE of the US). In all cases collaboration would bring scientific benefits but also save resources.

Implementation of GEO tasks through opportunities in FP7 has also been proposed.

### 10.8 Transport

In FP6, the Surface Transport theme under the sustainable development scheme resulted in only one project with US involvement. However, in several EU-US Summit conclusions transport related priorities for research and technology cooperation were mentioned. In the opinion of the experts this is another indication of a gap between high level political decisions and concrete project based cooperation activities though it is recognised that there might be a number of reasons for this occurring. However, it has to be emphasised that the Summits and the STA are not only about the participation in the Framework Programme but also very much for policy dialogue and respective priority setting. In that context, exploratory visits of Commission officials and European experts to the US Department of Transport and US visits to the European Commission have to be mentioned. .

In the first FP7 calls, 17 US entities participated in 14 proposals, seven of which were successful, leading to 4 projects with US participation (on biomechanics, on ship emergency evacuation systems and on innovative door-to-door freight transport).

In the future Work Programmes energy efficiency, “greening of the transport”, intelligent transport systems, safety and security are areas of mutual interest (rail freight transport, double hull tankers, Intelligent Transport Systems; transport impact on climate change, integrated safety and security, etc.)

The Work Programme for 2008 also included the sub-themes of Surface Transport and Aeronautics, Coordination and Support Actions on Stimulating Research with International Cooperation Partner Countries. Opportunities exist for collaboration in transport research presented by areas of global importance, such as energy efficiency, “greening of the transport”, intelligent transport systems, safety and security.

Aeronautics area is clearly mostly a competitive domain. However, there is some cooperation in the area of air traffic control and on safety issues.

### 10.9 Socio-economic sciences and humanities (SSH)

SSH developed more or less without an international dimension. At the moment, there is no priority on cooperation with the US and cooperative activities start in a rather bottom-up manner. EU-US cooperation in the social sciences and humanities is a rather superficial activity;

The Economic and Social Science Directorate of NSF is interested in collaboration with the EU on the science of science metrics. In meetings of the JCG strengthening the cooperation in social sciences and humanities and on science and society issues was identified as an area with substantial room for improvement.

### 10.10 Security

First contacts between EU (DG ENTR/INFSO)/US (DHS) have been established in view of a possible future cooperation in the area of security research. The first EU/DHS

meetings led to more transparency into reciprocal activities and to an indicative common planning towards cooperation in security research.

The 2007 1st FP7 call for proposals on security research resulted in one proposal (ESCORTS) with a US participant joining a European consortium in the area of control and communication equipment.

An implementing arrangement between Dept of Homeland Security and the European Commission is in preparation and should be adopted soon after the extension of the STA (which should cover security research from October 2008 onwards).

### 10.11 Ideas – European Research Council (ERC)

The activities of the FP7 Ideas specific programme and the European Research Council (ERC) have gained attention in the US agencies. There are an increasing number of US experts involved in evaluation exercises for ERC Starting Grants and advanced Grants. So far, there is no visible international strategy of the ERC because the main focus of the programme had to be on developing the structures and procedures for this new scheme and launching the first calls for applications. However, in the further development programme such a strategy would be certainly most valuable for strengthening the European position in the global S&T arena. The observed paradigm shift regarding researcher mobility as discussed below is certainly also relevant for the strategy development of the ERC.

### 10.12 People – Marie Curie actions

In the experts' opinion, more effort is needed on increasing the attractiveness of Europe as a location for science, research and technology. Targeted actions are necessary to promote the Marie Curie incoming international fellowship scheme in the US. An objective would be to arrive at a balanced mobility from the US to Europe and from Europe to the US. As discussed during JCG meetings, NSF has proposed its supplements mechanism as a means to support US participation in the People programme, *(*e.g. ITN, staff exchange*)* this is certainly an idea to be carefully followed up.

In the discussions during the experts' mission to the US an interesting development regarding the issues of "brain drain", "brain gain" or "brain circulation" could be identified. There is a paradigm shift that "access to" intellectual capacity is needed rather then "possession of". A new strategy is evolving: send people out, train them internationally and stay in contact wherever they are. This is an interesting new strategic approach towards mobility. However, IPR might be the biggest impediment to be considered.

The new IRSES (International Research Staff Exchange Scheme) programme supports staff exchanges. With this new scheme, the European Commission supports long-term, research based exchange programmes between European research organisations and their counterparts in countries with S&T agreements (e.g. US, China) or countries covered by the European Neighborhood Policy (ENP). In the case of the US, the partnership must consist of at least 3 independent participants, of which two must be established in two different EU Member states/Associated countries and one from the US. The participating institutions may exchange

researcher staff as well as technical or managerial staff for a duration of up to 12 months. The EC-contribution of 1.800 EUR per researcher-month (irrespective of the country) can only be provided for participating organisations in EU Member states/Associated countries for a period of 2-4 years. Applications for this scheme can only be submitted to the European Commission following a Call for Proposals. The first IRSES Call was published on 30 November 2007, deadline was 27 March 2008.

10.13 Conclusions and recommendations

1. A view has been expressed that some transversal issues should be considered in all EC-US S&T research co-operation such as the use of the EC-US S&T results to feed into broader policy debates and decision making, the importance of reflecting together on the societal impacts of research, and outreach to domestic and international audiences including the developing world.
2. The present is a particularly opportune time for realising the potential of cooperative S&T activities between the EU and USA. A wide spectrum of cooperative opportunities exists as defined in the present road map so it is recommended that the JCG discusses whether and how these should be prioritised and whether the best approach to cooperation is to foster breadth or depth of activities.
3. For whatever reasons in several instances there remains a gap between policy aspiration and implementation of EC-USA S&T cooperation “on the ground” which needs to be rectified by better facilitation at the working level.

## 11 Summary of conclusions and recommendations

### The role and the management of the EC-EU S&T Agreement

1. The EC-US S&T agreement is an important and efficient tool for the regular S&T policy dialogue between the European Community and the Government of the United States with the aim of intensifying the EC-US S&T cooperation and the exchange of experience and good practice in the area of S&T policy. The EC-US S&T agreement should be extended possibly considering new areas and forms for cooperative activities.
2. In general, the S&T agreements have the potential to play an important role also in the frame of the implementation of the strategic European framework for international S&T cooperation especially in the context of further moves towards strategic partnerships with key third countries. The ways and means of setting targets and implementing activities have to be further developed accordingly.
3. Compared to 1998-2003, meetings of JCG are greatly improved both regarding scientific content and participation of high level stakeholders. Particularly, the preparation of road map documents is a real advancement and should be further developed.
4. The directorates of the 'research family' have shown substantial involvement in the interaction with the US in the frame of the EC-US STA. Thus, the internal awareness of and utilization of the STA amongst the Commission services has been enhanced. However, there remain opportunities for better utilizing coordination and cooperation across directorates and DGs.
5. Member states and S&T experts should be better informed of the agenda and outcomes of JCG meetings, and where appropriate invited to provide inputs. In formats that are in accordance with the rules of the JCG, information on the main outcomes of JCG meetings should be widely spread amongst S&T stakeholders of the member states (e.g. via CREST or a possible future forum for international S&T cooperation), National Contact Points (NCPs) and the S&T community at large.
6. The preparation and implementation of the road maps could be used to intensify the exchange of information and the cooperation between the Commission and the Member States. Annual road maps could also be used as inputs to annual reporting as required by Article 6 (d) 4 of the S&T agreement. Such a development would contribute to a more coherent portrayal of ERA to the US to the advantage of European S&T.
7. As in the past, also in 2004-2008, the prime implementation tool for EC-US S&T cooperation was the EC RTD Framework Programme. Strategies for a balanced use of EC and US funding instruments for supporting EC-US S&T cooperation have yet to be further developed. Future initiatives for funding of EC-US S&T activities could learn e.g. from the example of best practice in health research, where as of 2009 FP7 and NIH funding opportunities will be reciprocally open to entities on both sides. Opportunities for similar approaches in other areas and with other research promotion actors should be systematically explored.
8. In the further development of a European strategic framework for international S&T cooperation, the whole spectrum of possible arrangements should be

explored and utilized in complementary ways: EC-US cooperation in the Framework Programme, joint EC-US S&T programmes, cooperation in variable geometry between groupings of Member states and US partners, and bilateral cooperation between Member states and the US.

9. The Science, Technology and Education Section of EC Delegation to the US shows an excellent performance but lacks sufficient human resources for acting as the bridgehead of EC S&T activities in the US. It may be necessary to define the tasks of the STE Section in accordance with the available resources. In addition to considering an increase in the number of scientific staff also opportunities for involving local contractors for specific activities should be explored. Furthermore, there are substantial S&T capabilities in the Commission DGs beyond DG RTD that would benefit from greater exposure in terms of S&T representation to the US and might contribute resources for that. Finally, also coordination and cooperation with Member states active in the area of S&T cooperation with the US should be considered.

**The cooperative activities 2003-2008**

9. Participation of US partners in European research activities and vice-versa is still low and there is a huge potential for improvement. However, in fact, it is difficult to make a judgement of the appropriate level of US participation in the Framework Programme because there are no agreed goals for the US involvement. Therefore, in the future, defining targets or criteria for success in the annual road maps, should be considered in order to support monitoring and impact assessment of the collaborative activities. This is probably an issue to be addressed by the newly formed Strategic Forum for International S&T Cooperation.
10. Means for promoting EC-US S&T cooperation have to be strengthened. This applies to targeted promotion activities of the National Contact Points in the Member states and Associated countries especially in the course of the implementation of the EC-US S&T road maps. However, in addition, creating greater awareness in the US of opportunities for EC-US S&T cooperation will be necessary too. The BILAT scheme will probably be the appropriate instrument to achieve this goal. Close coordination with the S&T sector in the EC Delegation in the US will be necessary. Presentations of European S&T and the Framework Programme in particular at AAAS annual meetings are most welcome.
11. So far, the EC-US S&T cooperation is following a kind of bottom-up approach through the principal openness of FP7 for international cooperation. For the future, the approach of coordinated calls in areas of mutual strategic interest should be extended. In addition, EC-US S&T partnership programmes jointly involving the Framework Programme and programmes of US agencies in mutually agreed areas of strategic importance should be considered. Commonly agreed procedures such as for project evaluation, selection and funding can be defined in implementing arrangements.
12. The Marie Curie actions are the strongest scheme in the EC-US S&T cooperation. Problems of financial transactions and the issue of funding of the host institutions should be analysed and improved where necessary. It is recommended to prepare a specific review focussing on the international

dimension of the Marie Curie actions. The opportunities and possible schemes for attracting more US fellows to Europe should be explored in particular.

13. The Ideas specific programme has the potential to attract researchers from the US – both US nationals and others – to Europe. Therefore, the considerations of the ERC Scientific Council to develop an internationalisation strategy are most welcome.
14. At the time when this report is presented a 'Forth Status Report on European Technology Platforms' is about to be published by the European Commission. It is recommended to prepare a review of the international dimension of European Technology Platforms.
15. It is recommended to prepare a review of the international dimension of Joint Technology Initiatives two years after the Joint Undertakings have started their activities.
16. A comparative study on regional distribution of US participations in the Framework Programme and the geographical structure of US federal, NSF and NIH R&D funding would be interesting.

**Success stories and flagship activities**

18. It is recommended that for the purposes of reporting at JCG meetings and also for providing material for increasing the visibility of the EC-US S&T cooperation activities a more systematic identification of Success Stories and Flagships be undertaken together with discussions of why and how the success had been achieved.
19. There needs to be effective publicity of such success; one example of an excellent publication is welcomed by this review[36]. It is recommended that this should be built on wherever possible. Also presentations at AAAS Annual Meetings in symposia and in the frame of the exhibition are very efficient and effective.

**Mutual benefits**

20. During the development of joint activities in the JCG the different benefits to be achieved through the S&T cooperation should be addressed in a structured way and used also for monitoring purposes.
21. It is recommended to support short exchanges of staff between the European Commission (EC) and US research funding bodies in order to allow a better mutual understanding of respective funding practices as a basis for future joint activities.

**Obstacles for EC-US S&T cooperation**

22. Although the experts recognise and welcome the fact that previously identified administrative and legal hurdles for international activities under the Framework Programme have been reduced through adaptations of the model

[36] e.g. as portrayed in the brochure: EC-US Scientific and Technological Cooperation: Reaching New Frontiers. Edited by Mary Minch, Director for International Cooperation, Directorate General Research, European Commission and Jeff Miotke, Deputy Assistant Secretary of State for Science, Space and Health, United States Department of state. November 2007

contracts the fact remains that there is a distinct and widespread perception on the US side that the Model Grant Agreement remains a real problem that has the potential to further adversely affect EC-US working S&T relationships. The Commission needs to review the specific barriers for third country participation in FP7 in the course of the coming midterm review. It should be explored if the administrative and legal provisions can be defined in a way that can be adapted also to conditions of the cooperation with specific third countries without compromising the legal framework as requested by European Commission rules.

23. If the transatlantic S&T cooperation is seen as useful, beneficial and important from both sides, than appropriate mechanisms on both sides should provide funding opportunities for all partners in joint projects. This important issue and obvious barrier for cooperation should be addressed when organizing coordinated calls or joint programmes and especially implementing arrangements. The approach developed between the European Commission and NIH in the Health theme should act as a model also for other areas.
24. Almost 40% of respondents to the online survey expressed concern about the provisions regarding IPR management in FP6 and in FP7. The problems related to IPR issues should be further analysed by the Commission and the US counterparts in order to develop a mutually acceptable solution. In the considerations on IPR provisions, close cooperation with member states would be useful including also learning from their approaches and experiences in bilateral cooperation activities with the US[37] (see also Chapter 4.5).

**S&T representation and activities of Member States in the US and their relation to EC activities**

25. Several member states are very active in bilateral S&T cooperation with the US. In some cases, successful bilateral activities are also elevated to the EC level. There would be many opportunities for cooperation between MS which would probably also increase the effectiveness of European S&T. However, there is practically no overview of Member states' S&T activities with the US and there is certainly little coherence between EC and MS cooperative activities with the US. Therefore, it is recommended that a study is performed to produce an overview of Member States individual and possibly also joint activities and to review their coherence with EC-US S&T activities.
26. In the future, also opportunities of joint programmes in variable geometry arrangements between several member states and US partner organisations (e.g. ERA-NET schemes) in strategic areas for cooperation should be utilised complementing the EC-US cooperation in the Framework programme.
27. In time, Europe as a whole may want to improve S&T visibility and portray and develop relationships with US opposite numbers as a result of more coherent action. That is an ambitious objective and might create a tension between cooperation and competition but at least a start should be made in achieving some synergies in the presentation of all European S&T capabilities to a collaborator of the importance of the US. In order to raise the visibility of European S&T in the US the idea of establishing a "House of European S&T"

[37] See e.g. the provisions regarding IPR in the recently signed cooperation agreement between France and the US.
http://www.france-science.org/spip.php?article1049

in the US should be explored in close consultation with the Member states. Also appropriate EC funding schemes like CSA could be used for such an initiative. This is an issue that should be discussed in the newly established Strategic Forum for International S&T Cooperation[38].

**Coherence and impact of EC-US S&T cooperative activities**

28. At present, the Member states value the contribution of the EC-US STA in a variety of ways depending on their own interests and priorities. As a consequence, European S&T may be represented in the US in different modes - the EC alone, MS alone, or Member states in variable geometry arrangements. The coherence of Europe's S&T presence in the US is an issue for further consideration.
29. It is considered that a separate study on coherence in cooperative activities in S&T cooperation between Europe and the US would be well worthwhile as the evolving position is one of genuine opportunity for European science.

**Prospects for future developments**

30. A view has been expressed that some transversal issues should be considered in all EC-US S&T research co-operation such as the use of the EC-US S&T results to feed into broader policy debates and decision making, the importance of reflecting together on the societal impacts of research, and outreach to domestic and international audiences including the developing world.
31. The present is a particularly opportune time for realising the potential of cooperative S&T activities between the EU and USA. A wide spectrum of cooperative opportunities exists as defined in the present road map so it is recommended that the JCG discusses whether and how these should be prioritised and whether the best approach to cooperation is to foster breadth or depth of activities. The experts recommend a move towards a strategic approach in areas of common interests and mutual benefits.
32. For whatever reasons in several instances there remains a gap between policy aspiration and implementation of EC-USA S&T cooperation "on the ground" which needs to be rectified by better facilitation at the working level.

[38] A Strategic European Framework for International Science and Technology Cooperation. Commission of the European Communities. COM(2008) 588 final, Brussels, 24.09.2008

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Finally, the reviewers thank the S&T Counsellors of EU Member states who provided important information and expertise during meetings in Washington.

## ANNEXES

1 Detailed Programme as arranged by the EU Delegation in Washington DC and further developed during the course of the mission

2 Mission to USA 2-9 November 2008:
Candidate topics for discussion at interviews as appropriate

3 Questionnaire for the online survey

4 Detailed results of the online survey

## 1 Detailed Programme as arranged by the EU Delegation in Washington DC and further developed during the course of the mission

**EUROPEAN UNION**
**DELEGATION OF THE EUROPEAN COMMISSION**

*1 November 2008*

**Program for the visit of**

**Keith Harrap and Manfred Horvat**

**Evaluators EC-US Science and Technology Agreement**

**Washington DC**

**3 - 8 November 2008**

*Contact Points for the visit*
Laurent Bochereau Office: (202) 862-9574 Cell: (202) 280-4113
Astrid-Christina Koch Office: (202) 862-9575 Cell: (202) 280-4101

## Visit of Keith Harrap and Manfred Horvat to Washington DC

### Sunday, November 2

Keith Harrap:

| | |
|---|---|
| 16:40 | Departure from Paris CDG flight AF 26 |
| 19:15 | Arrival at Dulles airport |

Manfred Horvat

| | |
|---|---|
| 10:50 | Departure Vienna Intl flight OS 63 |
| 15:00 | Arrival at Dulles Intl airport |

Accommodations at the
State Plaza Hotel
2117 E Street, N.W.
Washington D.C. 20037
Tel: 202-861-8200
Fax: 800-424-2859
*http://www.stateplaza.com/*

### Monday, November 3

| | |
|---|---|
| 8:00am – 8:30am | **Welcome by Astrid-Christina Koch**<br>Science, Technology and Education Section<br>Delegation of the European Commission to the US<br>2300 M Street, NW<br>Washington, D.C. 20037<br>Contact: 202-862-9575 |
| 9:00am – 10:00am | **Meeting with Peter Westerstrahle**<br>Counselor, Science and Technology<br>Embassy of Finland<br>3301 Massachusetts Ave., NW<br>Washington, D.C. 20008<br>Contact: 202-298-5842 |
| 11:00am – 12:30pm | **Meeting with Dr. Lance Haworth**<br>Director, Office of Integrative Activities<br>**Dr Mark Suskin,** Deputy Director<br>**Dr. Francis Wodarczyk**<br>Office of International Science and Engineering<br>The National Science Foundation<br>Room 1285<br>Arlington, Virginia, 22230<br>Contact: Betty Wong, 703-292-8040 |

2:00pm – 3:00pm **Meeting with Dr. Carmen Huber**
Executive Officer (Acting)
Dr. Uma Venkateswaran
Dr. Daniele Finotello
The National Science Foundation
Arlington, Virginia, 22230
Contact: 703-292-4939

4:00pm – 5:00pm **Meeting with Anita Eisenstadt**
Senior Foreign Affairs Officer
Office for Science and Technology Cooperation
US Department of State ,
1990 K Street, NW
Contact: 202-663-3269

5:30pm – 6:30pm **Meeting with Astrid-Christina Koch**
Science Counselor
Delegation of the European Commission to the US
2300 M Street, NW
Washington, D.C. 20037
Contact: 202-862-9575

**Tuesday, November 4:**

9:30am – 10:30am **Meeting with Magnus Harviden**
Counselor for Science and Technology
Embassy of Sweden
2900 K Street, NW
Washington, D.C.
Phone: 202-536-1586

11:00am – 12:00pm **Meeting with Phillipp Marxgut**
Director & Attaché for Science and Technology
**Caroline Adenberger**
Deputy Director
Office of Science & Technology
Embassy of Austria
3524 International Court, NW
Washington, DC 20008-3027
Contact: 202-895-6754

2:30pm – 3:30 pm **Meeting with Jeffrey Skeer**
International Relations Specialist
Office of European and Asian Affairs
Department of Energy
Venue: Coffee at L'Enfant Plaza, close to DoE
1000 Independence Ave, SW
Washington, D.C.
Contact: 202-279-3662

4:00pm – 5:00pm **Project CATSEI**
**Meeting with Dr. Shenggen Fan**
Director, Development Strategy and Governance Division
International Food Policy Research Institute (IFPRI)
2033 K Street, NW
Washington, DC 2006
Contact: 202-862-5600

**Wednesday, November 5**

11.00 **Meeting with Laurent Bochereau**
Head of Science, Technology and Education Section
**Astrid Koch,** Counselor
Delegation of the European Commission to the US
2300 M Street, NW
Washington, D.C. 20037
Contact: 202-862-9574

14.00 **Meeting with Joan Rolf**
Assistant to the Director for International Relations
Office of Science and Technology Policy
Executive Office of the President
725 17th Street N.W.
Washington D.C.
Contact 202-456-6038

4:00pm – 5:30pm **Meeting with Anna Phillips**
Program Manager for Europe
**Alan Hecht**
Coordinator, Programme ofSustainable Development
**William Sonntag**
Principal International & External Liaison
**Doug Steele**
**Fred Hauchman**
Director Office of Science Policy
U.S. Environmental Protection Agency
Venue: Ronald Reagan Building
Pennsylvania Ave 13th
Contact: 202-564-6419

**Thursday, November 6**

9:00am – 10:00pm **Meeting with Prof. Michel Israel**
Science Counselor
Embassy of France
4101 Reservoir Rd. NW
Washington, DC 20007
Contact: 202-944-6250

| | |
|---|---|
| 11:00am – 12:00pm | **Meeting with Brian Ferrar**<br>First Secretary, Science and Innovation<br>British Embassy<br>**Helen Thorne**<br>Director Research Councils UK Office in the US<br>3100 Massachusetts Ave, NW<br>Washington, DC 2008<br>202-588-6686 |
| 13.00pm -14.00pm | **Meeting with Kimberly Briggman**<br>Research Chemist<br>**Susan Heller-Zeisler**<br>International Affairs Officer<br>Office of International and Academic Affairs<br>National Institute of Standards and Technology<br>100 Bureau Drive<br>Gaithersburg MD<br>301-975-2358 |
| 14:00pm – 15:00pm | **Meeting with Nikos Doukas**<br>Attaché for Economic and Commercial Affairs<br>Embassy of Greece<br>2217 Massachusetts Ave., NW<br>Washington , DC 20008<br>Contact: 202-332-2844 |

**Friday, November 7**

| | |
|---|---|
| 9:00am – 10:00am | **Meeting with Professor Marek Konarzewski**<br>Minister Counselor, Chief of Section<br>**Grazyna Zebrowska**<br>Scientific and Technological Affairs Counselor<br>Embassy of Poland<br>2640 16th Street, NW<br>Washington, D.C. 20009<br>Contact: 202-234-3800-ext 2113 |
| 11:00am – 12:00pm | **Project AG2020:**<br>**Meeting with Dr. Mark Rosegrant**<br>International Food Policy Research Institute (IFPRI)<br>2033 K Street, NW<br>Washington, DC 2006<br>Contact: Lorena Danessi, 202-862-5644 |
| 1:00pm – 2:30pm | **Meeting with James Herrington, PhD, MPH**<br>**Director, Division of International Relations**<br>**Dr. Stefano Bertuzzi (if available)**<br>Fogarty International Center<br>Building 31, Room B2C11<br>National Institutes of Health |

Bethesda, MD 20892-2220
Contact: 301-496-4784

3:00pm – 4:30pm **Meeting with Christian Joergens**
Minister-Counselor, Head of Section
**Mechthild Wagner**
Counselor (Science and Technology)
Embassy of the Federal Republic of Germany
4645 Reservoir Road, NW
Washington, D.C. 20007
Contact: 202-298-4328

5:30pm – 6:30pm **Meeting with Laurent Bochereau**
Head of Science, Technology and Education Section
Delegation of the European Commission to the US
2300 M Street, NW
Washington, D.C. 20037
Contact: 202-862-9574

**Saturday, November 8**

Drafting notes and collation of information provided

**Sunday, November 9**

Keith Harrap:
17:00 Departure of flight AF 39 from Dulles airport

Manfred Horvat:
18:05 Departure of flight OS 94 from Dulles Intl airport

**Monday, November 10**

Keith Harrap:
06:20 Arrival Paris CDG

Manfred Horvat
09:00 Arrival Vienna Intl

## USEFUL INFORMATION - WASHINGTON, D.C.

Please dial area code "202" prior to the phone number unless otherwise noted.

**Delegation Phone Nos**:

| | Office | Portable | Home |
|---|---|---|---|
| Ambassador John Bruton | 862-9510 | 250-1379 | 483-0254 |
| Minister Angelos Pangratis | 862-9520 | 413-4944 | (301) 229-2569 |
| | | 309-3568 | |
| Science, Technology & Education | | | |
| Dr. Laurent Bochereau | 862-9574 | 280-4113 | (301) 229-2626 |
| Dr. Astrid-Christina Koch | 862-9575 | 280-4101 | 237-1414 |
| Mrs. Karin Peeters-Mlotek | 862-9531 | 246-7638 | |
| Ms. Julia Garcia-Pascual | 862-9576 | 255-1902 | |

**Airlines**

| | |
|---|---|
| Air France | 1-800-237-2747 |

## 2 Mission to USA 2-9 November 2008: Candidate topics for discussion at interviews as appropriate

### A EU-USA COOPERATION OVERALL

1 What synergies or complementarities and benefits would you highlight in cooperative activities between EU and USA?

2 At present do you see more or less emphasis on these activities between the USA and European Member States (MS) or with the EU overall?

3 Are there overlaps between the two (MS and EU) that should be recognised?

4 Are any remedial actions needed?

### B THE EC-USA S&T AGREEMENT

5 Do you have knowledge of the EC-USA S&T Agreement (STA) and/or its Implementing Arrangements? If so do you have aspirations for it and are they being fulfilled?

6 How do you view the role of the STA? Does it emphasize European research as distinct from research undertaken by individual European countries?

7 What are the strengths and weaknesses, opportunities and threats of the STA?

8 How important are the specific Implementing Arrangements under the STA?

9 How would you assess the relative importance of the S&T policy dialogue aspect and the stimulation of collaborative research activities by the STA?

### C ADMINISTRATION

10 Are you aware of the STA Joint Consultative Group (JCG)? Do you have a view on its work/meetings?

11 Do you think there is a need for greater dissemination of information on the JCG and/or for input to its deliberations?

12 Do you see any need for an involvement of other parties in the work of the JCG – e.g. preparation and follow-up of road maps?

13 Are there particular bottlenecks or legal/institutional issues that hinder cooperative activities?

### D FUNDING RECIPROCITIES

14 How do you rate the processes in place or proposed for achieving collaborative or reciprocal funding approaches to research proposals between EU and USA?

15 Is a specific sector-driven approach the best way to develop this rather than attempting a universal approach to all modes of reciprocal funding.

16 Are there intrinsic differences in EU and USA funding procedures that make the achievement of reciprocity particularly difficult?

17 What are specific barriers or obstacle for achieving reciprocity of access to programmes and funding in EC-US S&T cooperation?

18 Can the approach taken by NIH and DG RTD Health become an example for other areas?

## E SCIENCE

19 Are the right areas identified for cooperation?

20 How do you feel about the science being undertaken? (e.g. stimulating; satisfying; innovative; disappointing etc)

21 Do the opportunities presented for cooperative activities under the STA or in the FP more widely require specific stimulus or is it sufficient to rely on the norms of scientific contact? How was cooperation established in your case?

22 From a scientific standpoint do cooperative activities as undertaken under the STA result in management and administrative difficulties?

23 Were you aware of the opportunities presented under the STA and its Implementing Arrangements? How easy was it to get the necessary information? Is more publicity required?

24 Do you see opportunities for EU-US cooperation beyond collaborative research project activities such as e.g. research infrastructures, joint labs, virtual institutes?

## F SPECIFIC INSTITUTIONAL FEATURES

25 Are there particular features of the EU-USA cooperative activities that you could identify as especially relevant to your organisation and its activities?

26 If you are already involved in cooperative activities what were the main reasons in your case for getting involved? How are proposals developed?

## G IMPACT

27 Are there flagship projects or success stories resulting from the EU-USA cooperative activities that you could identify?

28 Is there a pattern to the cooperative activities that can be recognised whether in terms of topics/areas or types of research?

29 Is there identifiable added value deriving from the cooperative activities of the STA – in particular when compared with bilateral activities with individual European Member States? Would the science have been done anyway?

30 Can particular activities be identified that result in mutual benefit (e.g. reciprocity of access to funding; access to knowledge and methodologies. networking of researchers; commercial exploitation etc)

31 Do you have ideas as to how the impact of EU-USA cooperation can be assessed? Should this be a systematic process?

## H THE FUTURE

32 Are there particular prospects for future cooperative development that you can identify? Is new action required to initiate these?

33 Do you think the priorities for research activity in Europe and USA are coming together or diverging?

## I ANY OTHER POINTS

## 3 Questionnaire for online Survey
http://www.bit.or.at/eu-us

### Questionnaire on EU-US cooperation in the 6th and 7th EU RTD Framework Programme for Research, Technological Development and Demonstration (FP6 and FP7)

**Background:**

This survey is part of the "Review of Science and Technology Cooperation between the European Union and the US 2004-2008" on behalf of the European Commission, Directorate General for Research. This review is performed in the course of the renewal of the EC-US Science and Technology Agreement[39] due for end of 2008.

**Experts:** Keith Harrap (UK) and Manfred Horvat (AT)

**Objectives of the Survey:**

- To identify major features related to EU-US science and technology co-operation through participation in the 6th and 7th EU RTD Framework Programmes (FP6 and FP7).
- To assess the benefits and difficulties of research co-operation through participation in EU Framework Programmes as well as of co-operative activities between EC-US in EU projects in particular.

**Confidentially**

All information will be treated confidentially and will only be distributed to the European Commission in an anonymous format. Please answer each question, selecting one or more answers as appropriate.

**Acknowledgement**

The experts thank you in advance for your time and effort in responding to this survey and thus contributing to future improvement and strengthening of EU-US S&T cooperation.

Manfred Horvat & Keith Harrap

**Contact for the survey:**

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manfred.horvat@gmx.net, manfred.horvat@tuwien.ac.at

[39] AGREEMENT for scientific and technological cooperation between the European Community and the Government of the United Stated of America. Official Journal of the European Communities. L 284/37-44, 22.10.98; and
AGREEMENT renewing the Agreement for scientific and technological cooperation between the European Community and the Government of the United States of America, 8.10.2004

# QUESTIONNAIRE

## PROJECT INFORMATION

**Q1**. Please indicate whether your EU project involvement is under the 6th EU RTD Framework Programme (FP6) or the 7th EU RTD Framework Programme (FP7)

- o FP6
- o FP7

**Q2.** Which one of the following best describes your involvement in the project?

You are involved as
- o Project leader/coordinator
- o Project participant (researcher)
- o Administrator
- o Other (please specify):

**Q3**. Where is your organisation based?

- o EU Member State or Associated Country
  *Pull down menu*
- o US, State
  *Pull down menu*
- o Elsewhere (please specify):

**Q4.** Which of the following best describes the type of organisation you work for, in the context of the FP6 project?

- o Higher Education Institution
- o Research organisation
- o Industry
- o Small or medium sized enterprise (SME)
- o Other (please specify):

**Q5.** Which types of organisations were involved in your project?
(Multiple ticks possible!)

- o Higher Education Institution
- o Research organisation
- o Industry
- o Small or medium sized enterprise (SME)
- o Other (please specify):

**Q6.** Which of the following best describes the scientific area covered by the project?

6th EU RTD Framework Programme (FP6):
- o Life sciences, genomics and biotechnology for health

- Information society technologies
- Nanotechnologies and nanosciences, knowledge based multifunctional materials, and new production processes and devices
- Aeronautics and space
- Food quality and safety
- Sustainable energy
- Sustainable transport
- Sustainable development, global change and ecosystems
- Citizen and governance in a knowledge-based society
- Research for policy support
- New and emerging science and technology (NEST)
- Marie Curie actions – Human resources and mobility
- Research infrastructures
- Science and society
- International cooperation activities (INCO)
- Other (please specify):

7th EU RTD Framework Programme (FP7):

*Cooperation Programme:*

- Health
- Food, agriculture and fisheries, and biotechnology
- Information and communication technologies
- Nanosciences, nanotechnologies, materials and new production technologies
- Energy
- Environment (including climate change)
- Transport (including aeronautics)
- Socio-economic sciences and the humanities
- Space
- Security

*Ideas Programme* (European Research Council - ERC)

- ERC Starting Grant
- ERC Advanced Grant

*People Programme (Marie Curie Actions)*

- Initial training of researchers
- Life long training and career development – COFUND only
- International dimension - outgoing fellowship (IOF)
- International dimension - incoming fellowship (IIF);reintegration grants (IRG)
- International research staff exchange scheme (IRSES)

*Capacities programme*

- Research infrastructures
- Science in society
- Other (please specify):

**Q7.** Your project is/was performed under the following FP funding instrument:

- FP6 Integrated project (IP)
- FP6 or FP7 Network of Excellence (NoE)
- FP6 Specific targeted research project (STRP)

- o FP7 Collaborative project
- o FP6 or FP7 Coordination action
- o FP6 or FP7 Specific support action
- o FP7 ERC Starting Grant
- o FP7 ERC Advanced Grant
- o FP6 or FP7 Marie Curie grant
- o FP6 or FP7 Specific project for SMEs
- o FP6 or FP7 Specific action to promote research infrastructure
- o Other (please specify):

**INFORMATION ON THE PREPARATION OF THE PROJECT**

**Q8.** Where did the initiative/idea for the activity under FP6 originate?

- o Researcher or research group in Europe
- o Researcher or research group in US
- o Joint initiative by researcher or research groups in Europe and US
- o Other (please specify):

**Q9.** How was the contact with the US project partner established?

- o Existing contact with the coordinator
- o Existing contact with other project partner
- o Known from literature
- o Meeting/conference
- o Via National Contact Point or other intermediary
- o Via partner search database (e.g. CORDIS)
- o Other (please specify):

**Q10.** Main reasons for European partners to involve US partner?

| | Very important | Important | Not important |
|---|---|---|---|
| Access to complementary experience or expertise | ☐ | ☐ | ☐ |
| Access to specific material etc. | ☐ | ☐ | ☐ |
| Access to special research infrastructure | ☐ | ☐ | ☐ |
| Possibility to address more ambitious research problem | ☐ | ☐ | ☐ |
| Expecting higher impact factor | ☐ | ☐ | ☐ |
| Access to US scientific community | ☐ | ☐ | ☐ |
| Improve chances to be retained for funding | ☐ | ☐ | ☐ |
| Prestige, reputation | ☐ | ☐ | ☐ |

- o Others (please specify):

**Q11.** Main reasons for US partner to get involved in European project?

| | Very important | Important | Not important |
|---|---|---|---|
| Access to complementary experience or expertise | ☐ | ☐ | ☐ |
| Access to specific material etc. | ☐ | ☐ | ☐ |
| Access to special research infrastructure | ☐ | ☐ | ☐ |
| Possibility to address more ambitious research problem | ☐ | ☐ | ☐ |
| Expecting higher impact factor | ☐ | ☐ | ☐ |
| Access to European scientific community | ☐ | ☐ | ☐ |
| Access to European funding | ☐ | ☐ | ☐ |
| Prestige, reputation | ☐ | ☐ | ☐ |

- o Others (please specify):

**Q12.** How was your project proposal developed?

- o Mainly by the project coordinator
- o Mainly by one other partner
- o By core team of project partners
- o In teamwork of most project partners

**Q13.** Involvement of US partner in preparing the proposal

| Strong | | | | Almost no involvement |
|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 |
| ☐ | ☐ | ☐ | ☐ | ☐ |

**Q14a.** For coordinator:
Who provided information and assistance for preparing the proposal?

- o I didn't use external information and assistance
- o Ministry
- o National Contact Point
- o Other intermediary
- o Experienced colleague
- o Others (please specify):

**Q14b.** For US partner:
Who provided information and assistance for preparing the proposal?

- o I didn't use external information and assistance
- o State Department
- o Other Department
- o NSF or other agency

- The coordinator
- Other project partner
- Other experienced colleague
- EC Delegation in Washington
- Others (please specify):

**Q15.** If you used external information and assistance for preparing a proposal, what was it for?

- I didn't use external information or assistance
- General information on the Framework Programme
- How to prepare a proposal?
- Information on the contents of the annual work programme and the content of the Call for Proposals
- Information on rules for participations (evaluation criteria, eligibility, financial rules, contract issues, IPR, etc.)
- Finding partners
- Others (please specify):

**Q16.** Have you or your organisation worked with EU / US partners before?

- Yes, in the Framework Programme
- Yes, in other programmes or initiatives (please specify)
- No

## INFORMATION ON THE OUTCOMES AND RESULTS OF THE PROJECT

**Q17.** Please assess the importance of the following outcomes / results of your project

| Outcomes or results | Very important | Important | Not important |
|---|---|---|---|
| Access to complementary knowledge | ☐ | ☐ | ☐ |
| Access to specific material etc. | ☐ | ☐ | ☐ |
| Access to special research infrastructure | ☐ | ☐ | ☐ |
| Possibility to address more ambitious research problem | ☐ | ☐ | ☐ |
| Higher impact factor of publication | ☐ | ☐ | ☐ |
| Access to wider US or European scientific community | ☐ | ☐ | ☐ |
| Additional funding potential | ☐ | ☐ | ☐ |
| Production of new knowledge | ☐ | ☐ | ☐ |
| Development or improvements of standards and regulations | ☐ | ☐ | ☐ |

| | | | |
|---|---|---|---|
| Development of new/improved products, processes, services | ☐ | ☐ | ☐ |
| Exchange of personnel | ☐ | ☐ | ☐ |
| Insight into other scientific culture(s) | ☐ | ☐ | ☐ |
| Insight in and access to other markets | ☐ | ☐ | ☐ |
| Insight into other ways to organize research | ☐ | ☐ | ☐ |
| Improved skills for working in international project consortia | ☐ | ☐ | ☐ |
| Establishing new partnerships for future transatlantic research cooperation | ☐ | ☐ | ☐ |
| Publications in peer-reviewed journals | ☐ | ☐ | ☐ |
| Publications in other journals | ☐ | ☐ | ☐ |
| Co-authored publications | ☐ | ☐ | ☐ |
| PhD theses | ☐ | ☐ | ☐ |
| Presentations at European conferences | ☐ | ☐ | ☐ |
| Presentation(s) at US conferences | ☐ | ☐ | ☐ |
| Patent(s) | ☐ | ☐ | ☐ |
| Information on and access to US funding sources | ☐ | ☐ | ☐ |
| Higher international visibility | ☐ | ☐ | ☐ |
| Gain in prestige and reputation | ☐ | ☐ | ☐ |

Other (please specify):

**Q18.** Please rate the following statements about benefits from your EU/US project

| | Strongly agree 5 | 4 | 3 | 2 | Strongly disagree 1 |
|---|---|---|---|---|---|
| The EU-US cooperation was successful | ☐ | ☐ | ☐ | ☐ | ☐ |
| The EU-US cooperation was essential for achieving the project results | ☐ | ☐ | ☐ | ☐ | ☐ |
| The cooperation with US partners improved quality and relevance of project outcomes | ☐ | ☐ | ☐ | ☐ | ☐ |
| The benefits of working jointly with a EU-US team met my expectations | ☐ | ☐ | ☐ | ☐ | ☐ |
| Contacts and cooperation developed during the project will continue after the project has finished | ☐ | ☐ | ☐ | ☐ | ☐ |
| My organisation has used the project to build other networks between the EU and US | ☐ | ☐ | ☐ | ☐ | ☐ |
| My organisation will actively seek EU-US collaboration in subsequent EU and other projects. | ☐ | ☐ | ☐ | ☐ | ☐ |

- Others (please specify):

**Q19.** Which of the following caused you difficulties when cooperating with EU-US counterparts?

| | Did cause difficulty | Did not cause difficulty |
|---|---|---|
| Cooperation with the EU/US research team | ☐ | ☐ |
| Differences in management approaches/cultures | ☐ | ☐ |
| Size of the consortium | ☐ | ☐ |
| Complexities of decision taking | ☐ | ☐ |
| Dependency on deliverables of project partners | ☐ | ☐ |
| Communication, exchange of information | ☐ | ☐ |
| Reporting requirements, deadlines | ☐ | ☐ |
| Substantial travel and other costs | ☐ | ☐ |
| Intellectual property issues | ☐ | ☐ |
| Lack of support from your parent organisation | ☐ | ☐ |

- Others (please specify):

## THE EC-US SCIENCE AND TECHNOLOGY AGREEMENT

**Q20.** Which of the following statements best describes your awareness of the EC-US Science & Technology Agreement and/or its implementing arrangements?

- I know the EC-US Science & Technology Agreement in detail.
- I know the EC-US Science & Technology Agreement by name only.
- I don't know anything about the EC-US Science & Technology Agreement.
- Other (please specify)

## FINAL GENERAL COMMENTS AND INFORMATION

**Q21.** What could improve EU-US project cooperation in the future?

Text!

**Q22.** Here you can make any further comments about the project you have been involved in, or about the EU-US Science & Technology Cooperation in general.

Text!

**Q23. INFORMATION ON ORGANISATION, PERSON, FP PROJEC**T (OPTIONAL)

Name of your organisation:
Your name:
Title of your FP project:

Project acronym:
Project status (dates): Project start: Project end:

**Thank you very much for your cooperation!**

Manfred Horvat & Keith Harrap

## 3 Results of the Online Survey on EU-US cooperation in the 6th and 7th EU RTD Framework Programme for Research, Technological Development and Demonstration (FP6 and FP7)

Date: 2008-11-30 12:27:05
Returned queries: 149

### BASIC DATA ON THE SURVEY

The survey addressed coordinators of FP6 and FP7 projects with involvement of US partners and the US partners.

For FP6, a total of 1.185 email addresses were available. 238 were not valid anymore, so that 947 were still active.

For FP7, a total of 190 email addresses were available. 20 emails were not valid anymore, so that 170 email addresses were still active.

### GENERAL PROJECT INFORMATION

**Question 1: Please indicate whether your EU project involvement is under the 6th EU RTD Framework Programme (FP6) or the 7th EU RTD Framework Programme (FP7)**

| FP | Number | % |
|---|---|---|
| FP6 | 102 | 68,90% |
| FP7 | 46 | 31,10% |
| **Total:** | **148** | **100,0%** |

The total response rate was 13,34%.
For FP6, the response rate was 10,77%.
For FP7, the response rate was 27,06%

**<u>Question 2:</u> Which one of the following best describes your involvement in the project?**

| Role in project | Number | % |
|---|---|---|
| Project leader/coordinator | 78 | 52,70% |
| Project participant (researcher) | 44 | 29,70% |
| Administrator | 7 | 4,70% |
| Other | 19 | 12,80% |
| **Total:** | **148** | **100,0%** |

More than 80% of the respondents were project coordinators or participating researchers.

**Question 3: Where is your organisation based?**

**European Union and Associated countries**

| Country | Responses | % of total | % of Europe total |
|---|---|---|---|
| Austria | 1 | 0,68% | 1,16% |
| Belgium | 3 | 2,04% | 3,49% |
| Cyprus | 0 | 0,00% | 0,00% |
| Czech Republic | 2 | 1,36% | 2,33% |
| Denmark | 2 | 1,36% | 2,33% |
| Estonia | 0 | 0,00% | 0,00% |
| Finland | 1 | 0,68% | 1,16% |
| France | 6 | 4,08% | 6,98% |
| Germany | 11 | 7,48% | 12,79% |
| Greece | 5 | 3,40% | 5,81% |
| Hungary | 2 | 1,36% | 2,33% |
| Ireland | 3 | 2,04% | 3,49% |
| Iceland | 0 | 0,00% | 0,00% |

| Country | Responses | % of total | % of Europe total |
|---|---|---|---|
| Israel | 0 | 0,00% | 0,00% |
| Italy | 10 | 6,80% | 11,63% |
| Netherlands | 5 | 3,40% | 5,81% |
| Norway | 1 | 0,68% | 1,16% |
| Poland | 3 | 2,04% | 3,49% |
| Portugal | 0 | 0,00% | 0,00% |
| Romania | 0 | 0,00% | 0,00% |
| Slovak Republic | 0 | 0,00% | 0,00% |
| Slovenia | 0 | 0,00% | 0,00% |
| Spain | 9 | 6,12% | 10,47% |
| Sweden | 3 | 2,04% | 3,49% |
| Switzerland | 2 | 1,36% | 2,33% |
| United Kingdom | 17 | 11,56% | 19,77% |
| **Total EU+AC** | **86** | **58,50%** | **100,00%** |

86 respondents (58,5%) of the respondents are based in the European Union or in an Associated Country. These respondents are from 16 EU Member states and from 2 Associated countries. The strongest feedback came from UK, Germany, Italy and Spain.

**United States of America**

| State | Responses | % of total | % of US total |
|---|---|---|---|
| Alabama | 0 | 0,00% | 0,00% |
| Alaska | 0 | 0,00% | 0,00% |
| Arizona | 2 | 1,36% | 3,28% |
| Arkansas | 1 | 0,68% | 1,64% |
| California | 16 | 10,88% | 26,23% |
| Colorado | 1 | 0,68% | 1,64% |
| Connecticut | 0 | 0,00% | 0,00% |
| District of Columbia | 3 | 2,04% | 4,92% |
| Delaware | 0 | 0,00% | 0,00% |
| Florida | 1 | 0,68% | 1,64% |
| Georgia | 2 | 1,36% | 3,28% |
| Hawaii | 0 | 0,00% | 0,00% |
| Idaho | 0 | 0,00% | 0,00% |
| Illinois | 2 | 1,36% | 3,28% |
| Indiana | 0 | 0,00% | 0,00% |
| Iowa | 2 | 1,36% | 3,28% |
| Kansas | 3 | 2,04% | 4,92% |

| State | Responses | % of total | % of US total |
|---|---|---|---|
| Nebraska | 0 | 0,00% | 0,00% |
| Nevada | 0 | 0,00% | 0,00% |
| New Hampshire | 0 | 0,00% | 0,00% |
| New Jersey | 3 | 2,04% | 4,92% |
| New Mexico | 1 | 0,68% | 1,64% |
| New York | 5 | 3,40% | 8,20% |
| North Carolina | 2 | 1,36% | 3,28% |
| North Dakota | 0 | 0,00% | 0,00% |
| Ohio | 0 | 0,00% | 0,00% |
| Oklahoma | 0 | 0,00% | 0,00% |
| Oregon | 0 | 0,00% | 0,00% |
| Pennsylvania | 1 | 0,68% | 1,64% |
| Rhode Island | 1 | 0,68% | 1,64% |
| South Carolina | 0 | 0,00% | 0,00% |
| South Dakota | 0 | 0,00% | 0,00% |
| Tennessee | 1 | 0,68% | 1,64% |
| Texas | 1 | 0,68% | 1,64% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Kentucky | 0 | 0,00% | 0,00% | Utah | 0 | 0,00% | 0,00% |
| Louisiana | 0 | 0,00% | 0,00% | Vermont | 0 | 0,00% | 0,00% |
| Maine | 0 | 0,00% | 0,00% | Virginia | 1 | 0,68% | 1,64% |
| Maryland | 1 | 0,68% | 1,64% | Washington | 1 | 0,68% | 1,64% |
| Massachusetts | 3 | 2,04% | 4,92% | West Virginia | 0 | 0,00% | 0,00% |
| Michigan | 1 | 0,68% | 1,64% | Wisconsin | 2 | 1,36% | 3,28% |
| Minnesota | 3 | 2,04% | 4,92% | Wyoming | 1 | 0,68% | 1,64% |
| Mississippi | 0 | 0,00% | 0,00% | **Total US** | **61** | **41,50%** | **100,00%** |

61 respondents (41,50%) are based in the US. The responses came fro 27 US states. The strongest states are California (16), New York (5). 3 replies came from the District of Columbia, Kansas, Massachusetts, Minnesota, and New Jersey each.

**Question 4: Which of the following best describes the type of organisation you work for, in the context of the FP6 project?**

| Type of Organisation | Number | % |
|---|---|---|
| Higher Education Institution | 91 | 62,30% |
| Research organisation | 39 | 26,70% |
| Industry | 5 | 3,40% |
| Small or medium sized enterprise (SME) | 4 | 2,70% |
| Other (please specify) | 7 | 4,80% |
| **Total:** | **146** | **100,0%** |

90% of the respondents are from universities and research organisations.

**Question 5: Which types of organisations were involved in your project?**

| Type of organisation | Number | % |
|---|---|---|
| Higher Education Institution | 131 | 41,60% |
| Research organisation | 100 | 31,70% |
| Industry | 38 | 12,10% |
| Small or medium sized enterprise (SME) | 40 | 12,70% |
| Other | 6 | 1,90% |
| **Total:** | **315** | **100%** |

Respondents belong to projects with some 73% of project participants from universities and research organisations. Some 25% of the project participants are from industry and SMEs.

**<u>Question 6:</u> Which of the following best describes the scientific area covered by the project?**

| FP Area | Number | % |
|---|---|---|
| **FP6** | | |
| Life sciences, genomics and biotechnology for health | 14 | 9,40% |
| Information society technologies | 10 | 6,70% |
| Nanotechnologies, materials and new production processes | 7 | 4,70% |
| Aeronautics and space | 3 | 2% |
| Food quality and safety | 7 | 4,70% |
| Sustainable energy | 6 | 4% |
| Sustainable transport | 0 | 0% |
| Sustainable development, global change and ecosystems | 6 | 4% |
| Citizen and governance in a knowledge-based society | 1 | 0,70% |
| Research for policy support | 7 | 4,70% |
| New and emerging science and technology (NEST) | 4 | 2,70% |
| Marie Curie actions - Human resources and mobility | 33 | 22,10% |
| Research infrastructures | 1 | 0,70% |
| Science and society | 0 | 0% |
| International cooperation activities (INCO) | 1 | 0,70% |
| **FP7** | | |
| Health | 4 | 2,70% |
| Food, agriculture and fisheries, and biotechnology | 9 | 6% |
| Information and communication technologies | 4 | 2,70% |
| Nanotechnologies, materials and new production technologies | 1 | 0,70% |
| Energy | 0 | 0% |
| Environment (including climate change) | 2 | 1,30% |
| Transport (including aeronautics) | 0 | 0% |
| Socio-economic sciences and the humanities | 1 | 0,70% |
| Space | 0 | 0% |
| Security | 0 | 0% |
| ERC Starting Grant | 0 | 0% |
| ERC Advanced Grant | 0 | 0% |
| Initial training of researchers | 4 | 2,70% |
| Life long training and career development - COFUND only | 0 | 0% |
| Marie Curie: International dimension - outgoing fellowship (IOF) | 14 | 9,40% |
| Marie Curie: International dimension - incoming fellowship (IIF) | 2 | 1,30% |
| International research staff exchange scheme (IRSES) | 1 | 0,70% |
| Research infrastructures | 5 | 3,40% |
| Science in society | 2 | 1,30% |
| Other | 0 | 0% |
| **Total:** | **149** | **100,0%** |

For FP6, the strongest group of respondents relate to Marie Curie actions followed by IST and Life Sciences. For FP7, again Marie Curie respondents are in the lead, followed by Food, etc., Health and IST.

**Question7: Your project is/was performed under the following FP funding instrument:**

| Funding instrument | Number | % |
|---|---|---|
| FP6 Integrated project (IP) | 23 | 16,50% |
| FP6 or FP7 Network of Excellence (NoE) | 3 | 2,20% |
| FP6 Specific targeted research project (STRP) | 17 | 12,20% |
| FP7 Collaborative project | 17 | 12,20% |
| FP6 or FP7 Coordination action | 3 | 2,20% |
| FP6 or FP7 Specific support action | 11 | 7,90% |
| FP7 ERC Starting Grant | 0 | 0% |
| FP7 ERC Advanced Grant | 0 | 0% |
| FP6 or FP7 Marie Curie grant | 59 | 42,40% |
| FP6 or FP7 Specific project for SMEs | 1 | 0,70% |
| FP6 or FP7 Specific action to promote research infrastructure | 0 | 0% |
| Other (please specify) | 5 | 3,60% |
| **Total:** | **139** | **100,0%** |

Marie Curie actions are the favourite scheme followed by FP6 Integrated Projects, FP6 Specific targeted research projects and FP7 Collaborative projects.

## INFORMATION ON THE PREPARATION OF THE PROJECT

**Question 8: Where did the initiative/idea for the activity under FP6 originate?**

| Origin of research idea | Number | % |
|---|---|---|
| Researcher or research group in Europe | 97 | 67,80% |
| Researcher or research group in US | 7 | 4,90% |
| Joint initiative by researcher or research groups in Europe and US | 37 | 25,90% |
| Other (please specify) | 2 | 1,40% |
| **Total:** | **143** | **100,0%** |

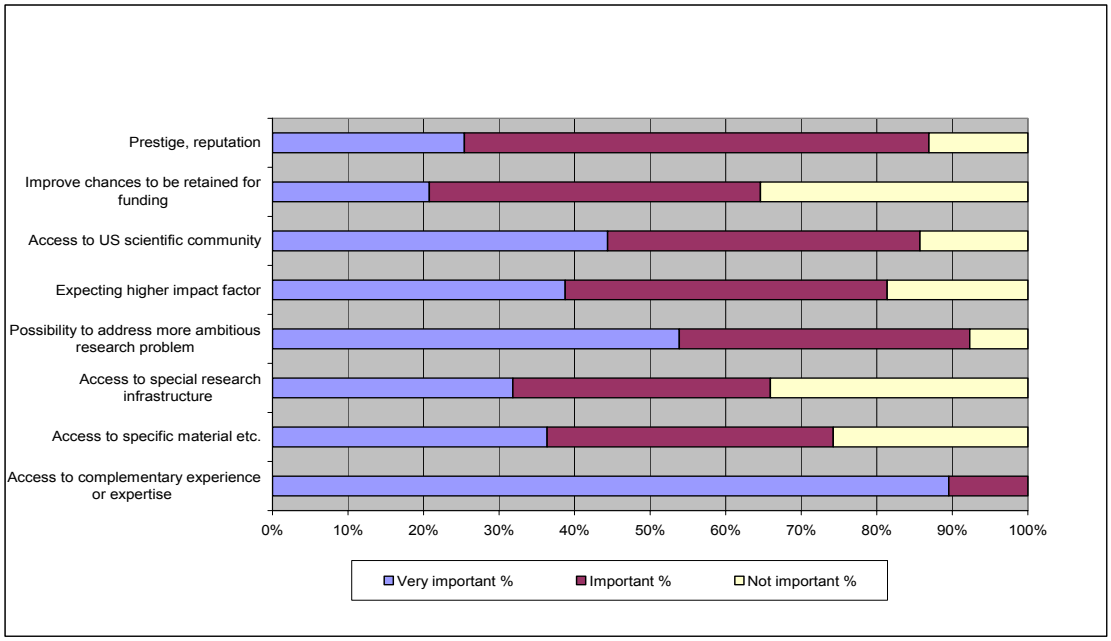
More than two thirds of the projects were initiated from Europe; a bit more than 25% were joint initiatives.

## Question 9: How was the contact with the US project partner established?

| Contact established | Number | % |
|---|---|---|
| Existing contact with the coordinator | 89 | 61,40% |
| Existing contact with other project partner | 30 | 20,70% |
| Known from literature | 14 | 9,70% |
| Meeting/conference | 4 | 2,80% |
| Via National Contact Point or other intermediary | 1 | 0,70% |
| Via partner search database (e.g. CORDIS) | 0 | 0% |
| Other (please specify) | 7 | 4,80% |
| **Total:** | **145** | **100,0%** |

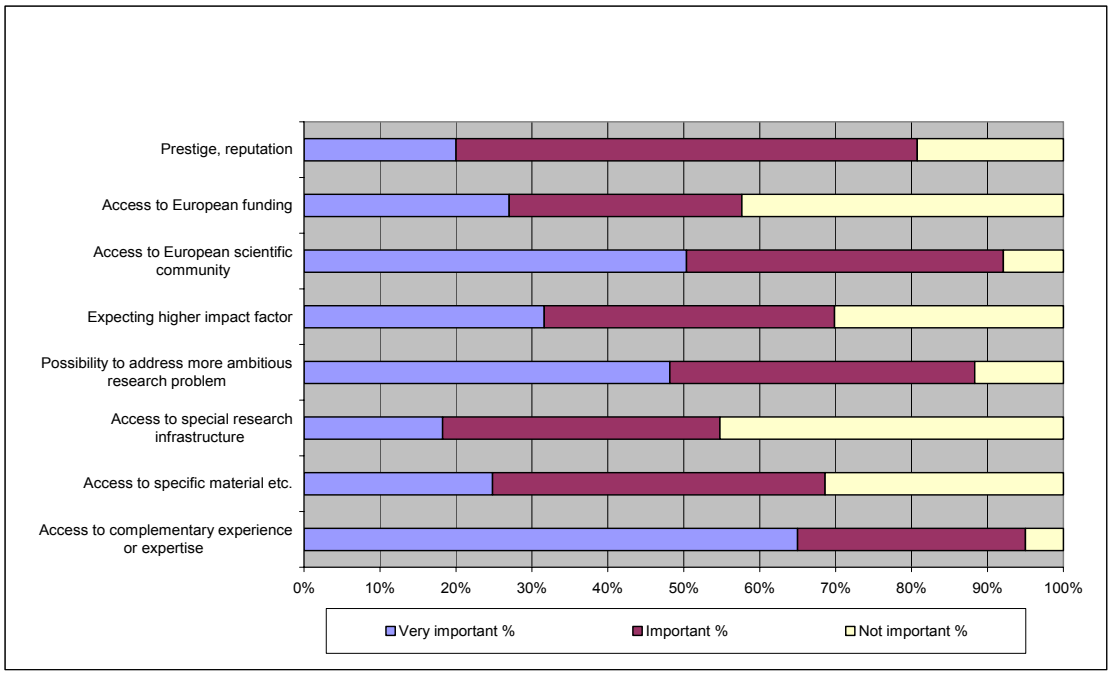
More than 80% of the projects were based on existing contacts, mainly of the project coordinators.

## Question 10: Main reasons for European partners to involve US partner?




For the European project coordinators, the most important reasons to involve US partners are access to complementary experience and expertise, the possibility to address more ambitious problems, and the access to the US scientific community.

## Question 11: Main reasons for US partner to get involved in European project?




For the US participants, the most important reasons to get involved in EU projects are access to complementary experience and expertise, access to the European scientific community, and the possibility to address more ambitious problems.

## Question 12: How was your project proposal developed?

| Project developed by | Number | % |
|---|---|---|
| Mainly by the project coordinator | 59 | 40,10% |
| Mainly by one other partner | 7 | 4,80% |
| By core team of project partners | 51 | 34,70% |
| In teamwork of most project partners | 30 | 20,40% |
| **Total:** | **147** | **100,0%** |

More than 50% of the proposals were prepared either by a core team of project partners or in teamwork involving most of the project partners; in about 40% of the cases, project proposals were prepared by the project coordinators.

## Question 13: Involvement of US partner in preparing the proposal

| Involvement of US partner | Number | % |
|---|---|---|
| Strong involvement | 44 | 29,90% |
| Average | 62 | 42,20% |
| Less | 28 | 19% |
| No involvement | 13 | 8,80% |
| **Total:** | **147** | **100,0%** |

In some 40% of the projects, the involvement of the US partners was average, while in 30% of the projects the US partners were strongly involved in preparing the proposal.

### INFORMATION AND ASSISTANCE, HISTORY OF THE PARTNERSHIP

## Question 14a: For coordinator: Who provided information and assistance for preparing the proposal?

| Coordinator: Information and assistance | Number | % |
|---|---|---|
| I didn't use external information and assistance | 50 | 42,70% |
| Ministry | 3 | 2,60% |
| National Contact Point | 15 | 12,80% |
| Other intermediary | 3 | 2,60% |
| Experienced colleague | 25 | 21,40% |
| Others | 21 | 17,90% |
| **Total:** | **117** | **100,0%** |

More than 40% of the European coordinators didn't use external information and assistance. Their main sources of information were experienced colleagues and others. Only about 13% of coordinators used the services of National Contact Points.

## Question 14b: For US partner: Who provided information and assistance for preparing the proposal?

| US partner: Information and assistance | Number | % |
|---|---|---|
| I didn't use external information and assistance | 47 | 36,40% |
| State Department | 0 | 0% |
| Other Department | 2 | 1,60% |
| NSF or other agency | 5 | 3,90% |
| The coordinator | 54 | 41,90% |
| Other project partner | 7 | 5,40% |
| Other experienced colleague | 2 | 1,60% |
| EC Delegation in Washington | 0 | 0% |
| Other | 12 | 9,30% |
| **Total:** | **129** | **100,0%** |

For the US participants, it was mainly the coordinator who provided information and assistance. One third didn't use external information and assistance. None of the respondents used the services of the EC Delegation in Washington.

**<u>Question 15:</u> If you used external information and assistance for preparing a proposal, what was it for?**

| Information and assistance for … | Number | % |
|---|---|---|
| I didn't use external information or assistance | 56 | 46,30% |
| General information on the Framework Programme | 23 | 19% |
| How to prepare a proposal? | 17 | 14% |
| Information on the contents of the annual work programme and the content of the Call for Proposals | 8 | 6,60% |
| Information on rules for participations (evaluation criteria, eligibility, financial rules, contract issues, IPR, etc.) | 11 | 9,10% |
| Finding partners | 1 | 0,80% |
| Others (please specify) | 5 | 4,10% |
| **Total:** | **121** | **100,0%** |

Some 20% of the respondents used external assistance for gaining general information on the Framework Programme, and 14% were interested in "How to prepare a proposal?".

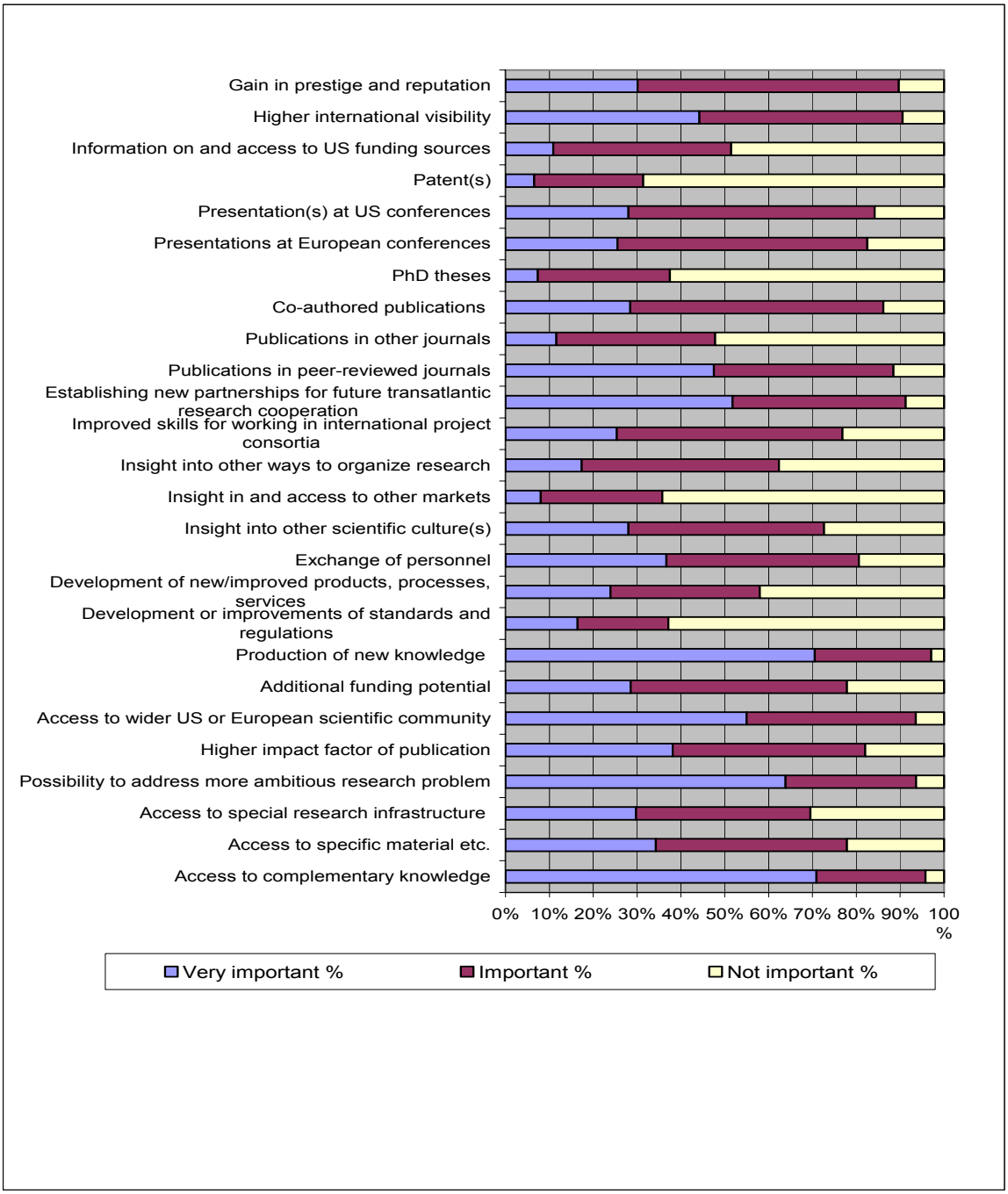
**<u>Question16:</u> Have you or your organisation worked with EU / US partners before?**

| Previous cooperation | Number | % |
|---|---|---|
| Yes, in the Framework Programme | 46 | 32,60% |
| Yes, in other programmes or initiatives (please specify) | 66 | 46,80% |
| No | 29 | 20,60% |
| **Total:** | **141** | **100,0%** |

In accordance with the replies to Q9, some 80% of the project participants have already worked together previously. A bit less than one third had worked together in the Framework Programme already.

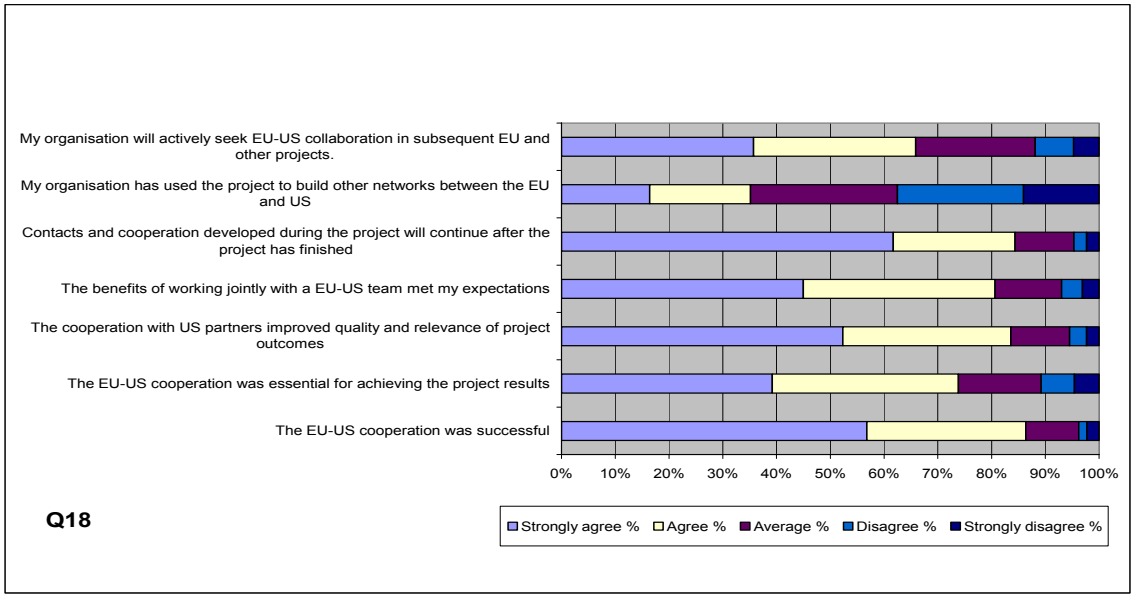
## INFORMATION ON THE OUTCOMES AND RESULTS OF THE PROJECT

**<u>Question 17:</u> Please assess the importance of the following outcomes / results of your project**



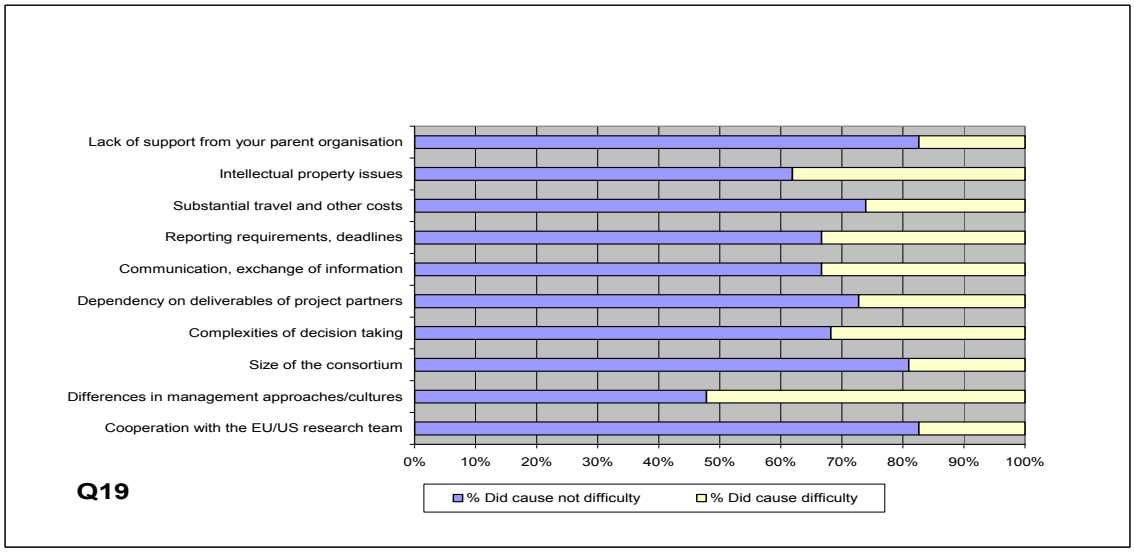

In general, the most important outcomes are access to complementary knowledge and the production of new knowledge, followed by the possibility to address more ambitious problems and the opportunity to establish new partnerships for future transatlantic research cooperation.

## Question 18: Please rate the following statements about the benefits from your EU/US project




Almost 90% of the respondents strongly agree or agree the EU-US cooperation was successful. The cooperation in the project will continue after the project's end, and the quality and relevance of the project was improved by the EU-US cooperation.

## Question 19: Which of the following caused you difficulties when cooperating with EU-US counterparts?




Main causes for difficulties are: differences in management approaches and cultures (more than 50%), IPR issues (about 38%), reporting requirements, communication and exchange of information in the consortium.

## THE EC-US SCIENCE AND TECHNOLOGY AGREEMENT

**Question 20: Which of the following statements best describes your awareness of the EC-US Science & Technology Agreement (STA) and/or its implementing arrangements?**

| Information about the EC-US S&T Agreement and Implementing Arrangements | Number | % |
|---|---|---|
| I know the EC-US Science & Technology Agreement in detail. | 9 | 6,20% |
| I know the EC-US Science & Technology Agreement by name only. | 80 | 55,20% |
| I don't know anything about the EC-US Science & Technology Agreement. | 54 | 37,20% |
| Other | 2 | 1,40% |
| **Total:** | **145** | **100,0%** |

A small minority of about 6% of the respondents know the STA in detail; more than 50% know the STA by name. 37,2% of the respondents don't know the STA at all.

## FINAL GENERAL COMMENTS AND INFORMATION

**Question 21: What could improve EU-US project cooperation in the future?**

### *General aspects*

The EC-US S&T agreement is hardly known. Opportunities for support for EC-US cooperation should be more widely advertised. There is a need for advocates who facilitate the relations between US and EU groups. There are also general problems for US participants to understand the EC terminology. Respondents see a need for more clarity concerning EU regulations and procedures and to improve the understanding of the administrative requirements of the management of (large) collaborative projects. National Contact Points could play a stronger role in promoting and facilitating EC-US S&T cooperation.

An agreement between NSF and EU could improve cooperation, ensuring funding for US partners and extra visibility to the US-EC scientists involved in the joint projects.

Synchronisation of US and EC funding mechanisms and evaluation process would improve the framework for EC-US S&T cooperation. Coordinated or joint calls for proposals with clearly defined conditions for submission and funding as well as project management would be welcome by participants.

### *Funding*

It is a clear feedback from participants that optimal S&T cooperation can only be achieved if partners work under comparable financial conditions for all project partners.

Lack of funding for the US partners - either from EC or US sources - was a main problem of and barrier for EC-US S&T cooperation under FP6. US partners and possible US partners who provide special input in EC-US projects but are not funded for their participation are feeling abused and not motivated for such 'cooperation'. For US research organisations unfunded participation of researchers in research activities presents a great difficulty.

Although, in principle, funding of US partners was possible the approach of EC services was different across thematic priorities and frequently funding of US partners was discouraged.

Even in projects where US partners were funded, they were not reimbursed for all costs incurred on behalf of the project, costs that are normal and acceptable under US regulations and policies. It would be necessary to align financial rules as far as possible.

There exist large differences in the project budget process and it would be helpful to somehow streamline the process so that it becomes easier for the US partner to prepare a budget. The funding structures and auditing requirements used by Europe and the US are very different, causing enormous problems. There should be better planning on this. European Union funding system is a challenge for US partners to understand, more information might be helpful.

Researchers from US national labs are not funded for such activities by the Department of Energy and are not eligible for NSF funding. There is also a need for greater funding stability on the US side.

***Project/Programme management and administration***

In general, EU and US researchers would wish more alignment between EC FP and US funding schemes and less bureaucracy both in EC and US funding. Simplification of the rules for participation of US institutes in EU projects would be helpful. Also, reducing 'time to contract' is an issue addressed by coordinators. Simplification of project administration will improve cooperation. There is a general wish for reducing the 'paperwork' (both technical and financial reporting).

EC contractual arrangements for US partners without funding cause serious problems.

The legal documents of EC FP projects are phrased very rigidly and are unacceptable for a number of US institutions (e.g. state universities are forbidden to enter into a contract which is solely governed by Belgian law and Brussels jurisdiction). Many attractive cooperation opportunities are missed because of this every year. Problematic issues surrounded legal agreements and red tape mostly. More flexibility on the EC side would be necessary. Standard formulations for Consortium and Grant Agreements should be adjusted to reflect interests, rules and restrictions valid for the US partners.

The US and EU research infrastructures and cultures are quite different from one another. It would be quite helpful having joint planning meetings where these differences could be discussed along with ideas for joint or collaborative research projects.

In general, care should be taken not to impose excessive administration on US partners whose systems and culture are not well adjusted to this. It leads to potential misunderstandings of EU ideals and values.

US grant application procedures emphasize scientific quality and/or e.g. health and technology applications. For US partners, it appears that EU applications focus also on EC political considerations. They suspect that in practice the review procedure is based on scientific excellence, rather than political considerations, but the application forms do not give this impression to them.

There was little feedback regarding IPR issues or problems except general requests for simpler handling and greater clarity. However, under Q19, 38% of respondents report difficulties regarding IPR issues.

***Specific aspects of mobility of researchers***

Marie Curie actions and Marie Curie fellowships, though modest in cost relative to project costs, have been extremely helpful to the research and to exchanges with European partners (and competitors!).

There are requests that specific instruments are designed to ease requirements for money flow between EC-US. Several respondents reported that for Marie Curie fellowships the financial transactions were extraordinary difficult and time consuming.

US partners see a need for less red-tape and bureaucracy in administering the grant, particularly in getting reimbursements for expenditures. Some US host organisations complained about the lack of overheads for international host institutions regarding the Marie Curie Grants.

**Question 22: Further comments:**

***General aspects***

Many respondents emphasised that the projects exceeded their expectations and produced benefits both for EU and US partners. In many projects, US participation is essential for achieving the objectives of the projects.

More detailed information on the EC-US Science & Technology Agreement would be highly appreciated.

***Funding***

The only way that EC-US cooperation will be truly fostered is to provide joint funding to both EU and US institutions to work on the same project together.

***Programme/project management and administration***

FP6 projects had many legal and administrative issues with respect to US partners that it was very complicate to agree for US partners (e.g. audit certificate, administrative model, consortium agreement related to liabilities) and meet the expected date for reporting, audit etc.

Difficulty on the side of the EC partner against the use of any products coming from US partners inhibited the achievement of some project objectives.

***Specific issues of mobility of researchers***

Marie Curie fellowships contribute to the career development and perspectives of the fellows and to the strengthening of research cooperation between EC and US research organisations.

In some Member states re-integration of MC Outgoing International Fellows is difficult or not possible at all.

**Response statistics: Returned questionnaires per day :**

| Date | Returned questionnaires | % |
|---|---|---|
| 8. Nov (Sat) | 18 | 12% |
| 9. Nov (Sun) | 33 | 22% |
| 10. Nov (Mon) | 32 | 21% |
| 11. Nov (Tue) | 17 | 11% |
| 12. Nov (Wed) | 13 | 9% |
| 13. Nov (Thu) | 5 | 3% |
| 14. Nov (Fri) | 5 | 3% |
| 16. Nov (Sun) | 2 | 1% |
| 17. Nov (Mon) | 8 | 5% |
| 18. Nov (Tue) | 4 | 3% |
| 19. Nov (Wed) | 3 | 2% |
| 21. Nov (Fri) | 2 | 1% |
| 22. Nov (Sat) | 2 | 1% |
| 24. Nov (Mon) | 2 | 1% |
| 25. Nov (Tue) | 1 | 1% |
| 26. Nov (Wed) | 1 | 1% |
| 29. Nov (Sat) | 1 | 1% |
| **Total** | **149** | **100%** |

KI-80-09-694-EN-N

An expert group conducted a review of EU-US cooperation in the field of science and technology (S&T), assessing in particular the implementation and impact of the S&T Cooperation Agreement concluded between the European Community and the Government of the United States of America and taking into account similar Agreements between EU Member states and the USA. The review was carried out in 2008 through desk studies, interviews, analysis of questionnaires and other first hand evidence. The results presented in this report include recommendations for the further development of EU-US S&T cooperation.