EURAB 05.032

EUROPEAN RESEARCH ADVISORY BOARD
FINAL REPORT

INTERNATIONAL RESEARCH COOPERATION

June 2006

Recommendations

1. During the last two decades, a new competitive international system of science and technology has emerged. To promote its goals, the EC needs a new proactive international policy in science and technology. This policy should both strengthen its scientific, technological and economic position, help to solve global environmental, health and other problems, and give opportunities to EU researchers to develop strong international partnerships. The EC has to develop large, visible projects that would attract attention especially in the emerging centres of economic power

2. The EC should clearly spell out its priorities on and establish a long-term policy framework to promote international cooperation in S&T. High among these priorities is to make Europe attractive for the best researchers in the world and for investment in scientific infrastructures, including global large-scale facilities. In particular, this goal requires that the EC should revitalise the European R&D system by investing new resources in and lowering barriers to cross-border mobility as well as between the public and private sectors at national, intergovernmental and EU level.

3. The EC should differentiate clearly between target countries – e.g. advanced industrial countries, emerging economies and developing countries – to define its own interests and select the right kinds of instruments to promote international cooperation. The EC has to develop a proper mix of research and technology, business relations, and aid to properly address the interests of different partners. Moreover, the instruments of cooperation are quite different in areas that require large-scale scientific infrastructures compared, for instance, with fieldwork.

4. A working division of labour and cooperation among the Commission services is crucial for the effective implementation of the EC's international strategy on science and technology. The Commission should establish an efficient management structure to initiate and coordinate international actions across administrative boundaries. This would require the establishment of a strong focal point in DG Research to deal with partner countries and have the capacity to organise coordination with other EU agencies, Directorate Generals, and – where appropriate – with Europe's intergovernmental research organisations.

5. DG Research as a whole and particularly the thematic areas should see to that international cooperation becomes an integral part of the Framework Programmes and that it receives adequate funding. In addition, each theme should have a single horizontal budget line for international cooperation to ensure participation of EU and non-EU research communities in research actions. This budget should be reallocated to the themes on the work programme level and adjusted in regular updates according to the needs and capacity to utilise resources.

EXECUTIVE SUMMARY

The European Union needs a stronger commitment to research, development and innovation. It also needs more active, purposeful cooperation in science and technology with other regions, both to strengthen its competitive position and contribute to the solution of global problems that imperil also its own future. Much of the responsibility in creating and implementing a new international strategy falls on member governments and business actors. However, the Community can make an important difference by beefing up its own international strategy in science and technology that so far has been lacking ambition and coherence.

The aim should be to make the EU a strong actor and attractive partner in international research cooperation. The pursuit of this aim could be facilitated by consolidating small projects into large entities, flagship projects that would be visible both in the EU and the partner countries. Stronger efforts should be made to advertise, through different channels and contact points, the availability of European financial and human resources for mutual gainful cooperation. One possibility would be to explore the opportunities for co-funding of research projects with interested partner countries.

The new EC strategy must be goal-oriented both in terms of establishing priorities among partner countries and defining areas of cooperation. Such priorities can only be established by differentiating among partner countries on the basis of their competitive capabilities and societal needs. Different groups of partner countries need different philosophies and instruments of cooperation. The Framework Programmes and their international component are important means in pursuing the European objectives both through cooperation and competition.

A working division of labour and cooperation among the Commission services is crucial for the effective implementation of the EC's international strategy on science and technology. The Commission should establish an efficient management structure to initiate and coordinate international actions across administrative boundaries. This would require the establishment of a strong focal point in DG Research to deal with partner countries and have the capacity to organise coordination with other actors.

These are some of the key points that the EURAB Working Group on International Research Cooperation puts forward in this report[1]. Below you find some of the key recommendations of the Working Group and a more extended analysis to argue for them.

[1] This report is a follow-up to an earlier paper on the same topic; see EURAB Recommendation on Cooperation with Third Countries (EURAB 05.032).

1. The global scene and the challenge of competition

International economic, technological and scientific competition is increasingly driven by national investments in knowledge-intensive institutions and industries. The growing transnational scientific and technological networks among universities, research funding agencies and corporations shape international competition. As a result, the national and international dimensions of science and technology are increasingly intertwined and often crystallised in concentrations of knowledge-intensive activities. These centres of scientific and technological excellence have a spatial aspect but they are also situated in networks of connectivity and mobility.

Adopted in March 2000 by EU leaders, the Lisbon strategy sets an ambitious goal for the Union to become the most dynamic and competitive region in the world economy by 2010. This would require, among other things, the investment of three per cent of GDP in R&D. There are strong doubts about the realism of this target. The report of the High Level Group, chaired by Wim Kok, noted in November 2004 tersely that "halfway to 2010 the overall picture is very mixed and much needs to be done in order to prevent Lisbon from becoming a synonym for missed objectives and failed promises."[2]

The European Union has undertaken several measures to reactivate the Lisbon agenda, for instance by requesting the Member States to prepare national plans to reach the targets set five years ago. It is worth noting, however, that the Council conclusions on the national programmes focused solely on domestic and regional measures, especially on the sustainability of public finance, labour market performance, knowledge and innovation and business climate.[3] In the conclusions, there is not a single reference to global cooperation in science and innovation.

Today, the EU as a whole has failed to reach even the two per cent target in the R&D share of GDP, while the US stands at 2.59 per cent and Japan at 3.15 per cent. In China, the share is 1.31 per cent but it has been growing at an annual rate of some ten per cent since 1997. The differences are almost entirely due to business performance in R&D. The Barcelona goal states that two-thirds of R&D spending should come from the private sector (only Finland, Ireland and Sweden have reached this target). In the entire EU, business R&D spending amounts to only 1.23 per cent of GDP while the corresponding figure in the US is 1.78 per cent and in Japan 2.36 per cent. In China the share is 0.81 per cent, but again it is growing rapidly.[4]

The harsh economic and technological realities are further reflected in the fact that out of 15 indicators of innovation, both Japan and the US did better than the EU on eleven indicators.[5] There is a risk that the R&D and innovation gap is growing between the EU and its main global competitors, and over the long term the Union may also face the challenge of being surpassed by

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[2] Facing the Challenge. The Lisbon Strategy for Growth and Employment, Report from the High Level Group chaired by Wim Kok. Luxembourg: European Communities 2004, p. 10.

[3] Council Conclusions on Lisbon National Reform Programmes. The Council of the European Union (14957/1/05). Brussels, 6 December 2005. In a similar manner, a recent Communication from the Commission fails to develop any analysis on the international aspects of the European recovery, see "Implementing the Community Lisbon Programme. More Research and Innovation – Investing for Growth and Employment: A Common Approach". COM (2005) 488. Brussels, 12 October 2005.

[4] Towards a European Research Area. Science, Technology and Innovation. Key Figures 2005. European Commission: Brussels 2005, pp. 9–11.

[5] For details see, European Innovation Scoreboard. Comparative Analysis of Innovation Performance. European Trend Chart on Innovation 2005.

some of the BRIC nations[6]. *European Innovation Scoreboard 2005* lists Sweden, Finland, Denmark, Germany and Switzerland as the innovation leaders; they account for 60 per cent of the leadings slots on innovation indicators.[7]

In 2004, among the twenty leading R&D companies in the world there were eight EU-based global business entities, each of them spending a minimum of three billion euros per year.[8] The list of leading global companies is becoming less European; in 2004, the R&D investment among the top 50 EU firms increased by more than five per cent in 22 companies and decreased in 15 companies (in the remaining 13 it remained pretty stable). The corresponding numbers among the top non-EU companies were 33 and eleven companies. Moreover, it is worth pointing out again that the contribution of private companies to European R&D is declining.[9]

A fact of life is that the European R&D system is much more fragmented than in North America and Japan, despite the efforts to create a European Research Area (ERA) and a variety of new institutions such as the European Research Council (ERC) and the Joint Technology Initiatives (JTI). Today, the European Union and its Member States are facing several problems. First, the EU has to revitalise the European-wide system of research and development by lowering the barriers to the mobility of talent between nations as well as between the public and private sectors. Second, it must develop a consistent policy of linking its R&D efforts with the rest of the world.

The international economic contacts of the EU cover multiple fields: international trade, foreign direct investment, technology transfer, licensing and patenting and development cooperation, just to name a few. The challenge for the EU is to find appropriate links and balance between different kinds of flows. This is not an easy task as they contain varying degrees of competitive and cooperative elements with third-country partners. In fact, it is an enormous task for the Commission to balance the ability to compete in the international market with the need for increased cooperation.

For this reason, the EC needs a systematic international policy in science and technology that both provides for European contribution to the global efforts and utilises the potential elsewhere for its own development.[10] To this end, the EU should also establish a policy framework that creates incentives for the Member States to enhance the contribution that the Union itself is unable to offer. Without active involvement of Member States, the Commission cannot succeed in enacting an effective global strategy for science and technology. As part of that policy, Member States activities conducted via their membership in intergovernmental research organisations will have to be taken account. The European intergovernmental research organisations have often a leading role within their own areas of expertise, conducting some of the largest European flagship projects.[11]

On paper, the Union has recognised the need for such policies. It has been pointed out, for instance, that the ERA should be made "an attractive place for the world's best researchers to come and help European researchers and industry to work with organizations outside Europe so that all parties can profit from new skills and technologies… and develop research activities that can help to implement

[6] BRIC = Brazil, Russia, India and China.
[7] European Innovation Scoreboard. Comparative Analysis of Innovation Performance. European Trend Chart on Innovation 2005. p. 17.
[8] These companies were Daimler-Chrysler, Siemens, Volkswagen, Glaxo Smith Kline, Sanofi-Aventis, Nokia, Roche and Novartis. Thus, the European top performers are from the auto, pharmaceutical and electronic industries.
[9] Monitoring Industrial Research. The 2005 EU Industrial R&D Investment Scoreboard, vol. I: Analysis. Brussels: Directorate General Research, the European Union, November 2005.
[10] The Commission is preparing a Communication for International R&D activities to be published in the second half of 2006.
[11] Towards a Europe of Knowledge and Innovation pp. 51-53, EIROforum 2005

EU foreign and development aid policies".[12] Ultimately, this means that all areas of FP7 and its successor programmes should be open for non-European partners – high tech, emerging and developing countries alike – provided that mutual benefit and reciprocity can be assured in this cooperation. The visibility of the EC in other regions would be greatly increased if minor projects would be consolidated in larger entities that would convince the partners about its strength as a scientific and technological actor. In countries such as Brazil, China and India, the EC would need large-scale flagship projects in areas important both for them and the Union.

Recommendation 1:
During the last two decades, a new competitive international system of science and technology has emerged. To promote its goals, the EC needs a new proactive international policy in science and technology. This policy should both strengthen its scientific, technological and economic position, help to solve global environmental, health and other problems, and give opportunities to EU researchers to develop strong international partnerships. The EC has to develop large, visible projects that would attract attention especially in the emerging centres of economic power.

2. International challenges to and responses by the EU

The European Union is a major economic and even political player in the global system, although it is in the minority in a demographic perspective. For these reasons, it is expected to make a major contribution to the solution of global problems that range from political instability and rapid urbanisation through the risks of epidemics and famine to the availability of safe food and drinking water.

Global problems can be divided into three main components. Some of these problems – such as climate change and the militarisation of space – are collective in the sense that their effects cannot be divided between individual states or persons. Therefore, their solution requires a universal approach in which the rights and obligations of each participant are spelled out. The stability and fairness of the international financial system and the multilateral trading system are important aspects of the global economic governance. The EU must make its own contribution to the international governance of such global problems without shunning its responsibilities.

Second, other global problems have primarily regional roots and manifestations; examples include drug and human trafficking across borders, piracy in international waters, international transfer of hazardous materials and violent regional conflicts. These problems can be addressed, for instance, in regional institutions or regular bilateral meetings between the EU and other regions (such as ASEM, EU-LAC, ACP-EU as well as EU-Russia and NIS). Such transregional meetings have become a permanent feature of the EU's international cooperation.

Third, one set of global problems can be reduced to events in individual countries. They include deep local economic crises, the gross violation of human rights, the breakdown of political democracy and stability, and the acquisition of weapons of mass destruction. The EU has means available in its Common Foreign and Security Policy as well as trade and development cooperation policies to address these threats by means of policy dialogue or, in the case of need, economic sanctions and other enforcement measures. From a research point of view, it is important to realise

[12] A Worldwide Vision for European Research. Perspectives for International Cooperation in Science and Technology. European Commission, DG Research (EUR 20874). Brussels 2003.

that all these three sets of problems call for multi- and interdisciplinary approaches, including the social sciences and humanities.

In dealing with the global economic, environmental, scientific, technological and social problems, the EU has to keep in mind the basic objectives of its policy. The aim is, of course, to increase the capabilities of the partner and thus contribute to economic growth, which would serve both the economic and social needs of the populace and enhance the prospects for future gainful cooperation.

Developing nations should benefit from the transfer of European technology and expertise. Research indicates that, even in the absence of strong collaborative links, there are positive spillover effects of R&D in industrialised countries for developing nations, although such links make the effects more tangible.[13] Even if the research potential of the partner is limited, its involvement would be needed to avert disasters such as the spread of epidemics and global warming.

On the other hand, the greater the scientific and technological potential of the partner, even if its current level of development remains modest, the more the EU should aim at active, symmetric cooperation. Over the long term, such cooperation would serve the economic and social needs of both the partner country and the EU. It is clear that in emerging economies, investments in innovation serve also as tools to catch up industrialised countries. In other words, emerging countries are both partners and rivals. This duality, and concomitant differences of interests, must be kept in mind in forging international links in science and technology.[14] Naturally, the duality of competition and cooperation also shapes international cooperation with technologically advanced countries.

In the EU's external policy on science and technology, assistance and gainful cooperation should not be seen as incompatible alternatives. In a competitive world, it is legitimate that the Union promotes its own economic goals as long as it does not result in detrimental economic, social or political consequences in the partner countries. In fact, the more attractive the future economic prospects in the partner country, the more desirable it is to open up new markets, enhance international standards, and thus fetch added value for European actors. On the other hand, the EU policies vis-à-vis developing countries should be guided by Millennium Development Goals (MDGs) promulgated by the UN General Assembly and aiming at the reduction of poverty, enhancing education and improving health conditions.[15]

The greater the challenges faced by the EU in the competitive world economy, the more valuable is cooperation with the new growth centres. Member States need to create conditions that foster public spending on science and technology and keep the most valuable corporate R&D at home while attracting, on the other hand, the best international talents to work with Europe. The Framework Programme and its international element should send a credible message that the programme deserves to work in various areas of science and technology together with European scholars.

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[13] Bayoumi, Tamin, David T. Coe & Elhanan Helpman, "R&D Spillovers and Global Growth". Journal of International Economics, vol. 47, no. 2 (1999), pp. 399–428.

[14] See Forbes, Naushad & David Wield, "What is R&D. Why Does It Matter?" Science and Public Policy, vol. 41, no. 4 (2004), pp. 267–77 and Hu, Mei-Chih & John A. Mathews, "National Innovative Capacity in East Asia". Research Policy, vol. 34, no. 5 (2005), pp. 1322–49.

[15] See Investing in Development. A Practical Plan to Achieve the Millennium Development Goals. The United Nations, The Millennium Project: New York 2005; The World Development Report 2006. Equity and Development. The World Bank: Washington, D.C. 2005; The Human Development Report 2005. International Cooperation at a Crossroads. Aid, Trade and Security in an Unequal World. United Nations Development Programme: New York 2006.

Moreover, Europe needs more mobility of researchers both within the Union and from the rest of the world as the authoritative Gago Report points out.[16]

The attractiveness of the EU as a research environment for international scholars and industry is a crucial condition for its competitiveness. In practical terms, the attractiveness presupposes smooth collaboration between academia and industry, supply of competent human resources through education, adequate public and private funding for R&D, and a predictable and enforceable legal framework for intellectual property rights (IPR). In the private sector, large corporations in knowledge-intensive branches are the beacons of technological innovation. Innovative small- and medium-sized companies (SMEs) usually prosper under the umbrella provided by the industrial drivers of technology.

Recommendation 2:
The EC should clearly spell out its priorities on and establish a long-term policy framework to promote international cooperation in S&T. High among these priorities is to make Europe attractive for the best researchers in the world and for investment in scientific infrastructures, including global large-scale facilities. In particular, this goal requires that the EC should revitalise the European R&D system by investing new resources in and lowering barriers to cross-border mobility as well as between the public and private sectors at national, intergovernmental and EU level.

Recommendation 3:
The EC should differentiate clearly between target countries – e.g. advanced industrial countries, emerging economies and developing countries – to define its own interests and select the right kinds of instruments to promote international cooperation. The EC has to develop a proper mix of research and technology, business relations, and aid to properly address the interests of different partners. Moreover, the instruments of cooperation are quite different in areas that require large-scale scientific infrastructures compared, for instance, with fieldwork.

3. International research cooperation and its implementation

3.1. General principles

A main condition for international cooperation in the Framework Programme (FP) is to promote high-level research in Europe. Only a strong European Union can benefit from international cooperation in science and technology and be an attractive partner in the eyes of others. In order to succeed in international cooperation, it has to develop an approach that combines the constructive European response to global and regional problems with the promotion, restructuring, growth and employment in the EU economies.

In many respects results of international cooperation have been successful. Among others, intergovernmental organisations – such as CERN, ESA, and ESO - have produced useful contributions. However, in general, the results of international cooperation have been inadequate. Therefore, a new approach is needed. In a word, the FP must become a strategic programme to serve both global and European needs to enhance each other. Its international aspect must cover the entire scope of the Programme; in other words, it must be mainstreamed. This stance has profound implications for the implementation of the Programme.

[16] Increasing Human Resources for Science and Technology in Europe. Report of the High Level Group on Human Resources for Science and Technology in Europe. The European Communities: Luxembourg 2004.

One set of challenges to the international science and technology policies of the EU lie in the heterogeneity of its partner countries. In the EU jargon "third countries[17]" are defined as "those outside the EU", non-EU-countries. These countries range from highly industrialised nations to those suffering from deep economic and humanitarian crises with scant possibilities to participate in EU projects. "The international cooperation partner country", in the Community jargon, conversely leaves the industrialised countries out.[18] This state of affairs reflects, of course, the strong polarisation of the world society, but it also poses significant problems of implementation; the EU must use multiple tools in its FPs to address the complex international reality.

The international dimension of the FP should create win-win situations for all partners. This principle should be applied in all target objectives and action plans of the FP. The Union must attract the best researchers in the world and create innovative research environments and thus gain over the long term more from networking and "brain circulation". To persuade third-country researchers to participate in the FP, its aims should be important even in global terms. Researchers from third countries often seem to consider the FP too Eurocentric and thus not necessarily of genuine benefit for them.

At the moment, the thematic priorities are often seen as rather narrow and politically defined reflecting the internal needs of the EU. This may result from the demand of European added value in the FP context that is reflected in the call for "defining the added value … in a more consistent manner than has been the case until now"[19]. It appears the European added value should be seen more broadly – as part of the two-way street (win-win) in international scientific and technological cooperation.

To spread correct information on Framework Programmes and build capacity in the partner countries, the Commission should create mechanisms to prepare non-EU partners to participate in international actions. It has to be realised that third-country participants are usually not well aware of Community procedures. The Commission must ensure that the simplification process which begun successfully from the Marimon[20] panels recommendations will be continued. There are, of course, other obstacles as well; among others, the fear of an excessive risk of failure of receiving Community funding, as well as administrative and financial restrictions in the EU countries.

It appears there is only limited coordination in the Commission among various international R&D programmes. Thus, third countries may have separate cooperative actions with, for instance, DG Relex, DG Agro and DG Environment. These bilateral arrangements may lead to useful results, but they may also suffer from the lack of transparency, efficiency and coordination. This calls for a "single address" in the EU for external research funding. This aim could be visualised in a matrix that would cover all relevant agencies, instruments and actions by the EC within the area of research – not only the programmes of DG Research. Information contained in such a matrix

[17] "Third country means a State that is neither a member State nor an associated State", Chapter 1, Art. 2, Par. 15. Regulation (EC) No 2321/2002 of the European Parliament and of the Council of 16 December 2002 concerning the rules for participation.

[18] In the draft of the Rules for participation for FP7 "Third country means a State that is not a Member State" and "International cooperation partner country means a third country which the Commission classifies as a low-income, lower-middle-income or upper-middle-income country and which is identified as such in the work programmes".

[19] Five-Year Assessment of the European Union Research Framework Programmes 1999–2003. 15 December 2004. p. 8.

[20] Evaluation of the effectiveness of the New Instruments of Framework Programme VI, 21 June 2004. Report of a high-level Expert Panel chaired by Professor Ramon Marimon.

should be made publicly available through a well-functioning website and/or through expanding *Cordis.*

Third-country participants – as well as the majority of the European participants – tend to complain that the amounts of money allocated to their participation are often very small and in any case much smaller than those received by EU scholars. If this is the case, the reasons should always be transparent and justifiable.[21] These and other hurdles have driven eminent scholars and industry representatives from active participation in the FP to other European and non-European funding instruments. The European system of innovation is not well served if the best and most experienced researchers are not interested in funding opportunities provided by the EC. The situation could perhaps be improved and the FP funding made more attractive if the R&D projects would have a guaranteed credible and transparent evaluation process trusted by the research community.

The administrative obstacles to the mobility of researchers – e.g., visa requirements, tax and pension policies and health care arrangements – are often too complicated and time-consuming. To avoid unnecessary complications and delays, the Commission and Member States should give all the necessary support to the European Network of Mobility Centres (ERA-MORE, European Research Area – Mobile Researchers). This system, which should be given a permanent status, consists of organisations that provide practical assistance to researchers and their families before, during and after their move abroad.

Recommendation 4:
A working division of labour and cooperation among the Commission services is crucial for the effective implementation of the EC's international strategy on science and technology. The Commission should establish an efficient management structure to initiate and coordinate international actions across administrative boundaries. This would require the establishment of a strong focal point in DG Research to deal with partner countries and have the capacity to organise coordination with other EU agencies, Directorate Generals, and – where appropriate – with Europe's intergovernmental research organisations

3.2. Operational measures, lessons learnt

The history of the international research component of the Framework Programmes can be traced back to the beginning of the 1980s. Since that time, the nature of international research projects funded by the Community has changed from a centralised, theme-oriented approach with particular groupings of countries into a horizontal approach, covering the entire range of the Programme from thematic priorities and mobility schemes to SMEs and infrastructures. The unenviable task of the Commission has been to transform the international policy in the FP6 from the centralised INCO approach to stress the thematic priorities in a more flexible manner.

International cooperation in FP6 has three dimensions: (a) the opening of the thematic priorities to third-country organisations, (b) specific measures in support of international cooperation (INCO), and (c) international mobility of researchers (Marie Curie). In the decision by the European Parliament and the Council concerning FP6, 600 M€ was allocated to the first and second dimensions of international cooperation. First, a total of 285 M€ was set as the aim to finance the participation of INCO target countries in the thematic priorities (each of which has the task to

[21] The funding received by third-country partners vary in the thematic priorities (average 11,000€/partner) and in the INCO projects (average 100,000€/partner).

commit the funds for international cooperation). Second, a dedicated budget of 315 M€ was earmarked to fund measures in support of INCO in the "specific activities covering a wider field of research" initiative.

In terms of volume, FP6 has been one of the largest R&D programmes in the world, with a budget of 17.5 billion euros for the period 2002–2006 (increased in 2004 to 19.2 billion euros with the enlargement of the Union). In 2003, more than 16,000 proposals were submitted for funding, involving nearly 160,000 participants from more than 50 countries. Some 2,600 of these proposals – with 27,000 participants – were selected for funding.[22]

Participation of all third countries in programmes connected with thematic priorities is reported in detail in the *Statistical Annex of the 2003 Annual Report*[23]. In 2003, the most popular priority areas for international cooperation were information society technologies IST (444 proposals) followed by sustainable development, global change and ecosystems (302) and nanosciences (284). With a total of 508 proposals, human resources and mobility (HRM), i.e. Marie Curie, was more popular than any of the above mentioned priority areas. Specific measures in support of international cooperation (INCO) received 428 proposals from third-country participants.

As mentioned earlier, the EU has conducted policy dialogues with other regions of the world. In such dialogues, the promotion of science and technology is often mentioned as an instrument to foster a knowledge-based society. Thus, the Guadalajara summit in 2004 between the EU and Latin American and Caribbean countries stated: "considering the importance of science and technology for the economic and social development of our countries…we agree to launch a partnership on scientific and technological cooperation with a view to including Latin America and Caribbean as a target region for the EU Framework Programmes." In FP6, Latin America provides a concrete example of a region that has conducted a dialogue process with the European Community (ALCUE). In a recent Communication, the Commission envisages growing economic, scientific and technological ties between the regions. However, "if Europe is ready to commit itself further to Latin America, it also expects a firm commitment in return."[24]

FP6 was supposed to be the first Programme to be opened up to almost all countries of the world. In this regard, the goal has hardly been reached, but many gaps remain in the implementation of international cooperation. Reasons for the failure are listed clearly in the assessment of the performance of the EU-Argentina agreement on science and technology; the complexity of project types in FP6 and the tendency of European coordinators to omit third-country partners. Coordinators may not even know the contents of and how to have access to the funds allocated to their projects. There are also hardly any links with European companies.[25]

Latin America is only one example of a region with which the EU strives to promote cooperation in science and technology. Other target regions are the African, Caribbean and Pacific (ACP) countries, Asia, Mediterranean countries, Western Balkans, and Eastern Europe and Central Asia. In all, there are some 150 partner countries. However, the participation of third countries in FP6

[22] Report from the Commission. Annual Report on Research and Technological Development Activities of the European Union in 2003. COM (2005) 233 final. Brussels, 3 June 2005.
[23] Statistical Annex to Commission Staff Working Document: Annual Report on research and technological development activities of the European Union in 2003.
[24] Communication from the Commission to the Council and the European Parliament. "A Stronger Partnership between the European Union and Latin America". SEC (2005)1590, 8 December 2005. COM(2005)636 Final. p 4.
[25] Impact assessment report of the S&T agreement concluded between the European Community and the Republic of Argentina. A report by an independent expert, Professor, Dr. Manuel J.T. Carrondo.

varies considerably depending on the geographical location and economic development of the region concerned, and also on the degree of common interests between the parties.

Third countries are treated today too much as a homogenous grouping. Developing, emerging and industrialised countries have very different needs and resources. Funding and policy instruments should be honed to address the specific conditions in each of these country groups. Moreover, forms of international cooperation in science, technology and innovation are intrinsically different depending on issues and fields of inquiry. Approaches are, for example, different for issues that require work in laboratories, those that require access to large infrastructures, or others which need work in the field. Thus, the EC should differentiate between different issues and approaches when setting up its international strategy.

It is not unusual to hear criticism from third parties for a number of reasons. In sum, the EC is clearly facing the challenge of greater policy coherence and administrative coordination. On balance, it has to be borne in mind that a considerable number of successful projects has been carried out with partners from third countries. For instance, in the fields of environmental and health research, INCO can be considered a success story. Research programmes ranging from the El Niño phenomenon to water initiatives and mosquito profusion have provided excellent platforms for cooperation. In FP6, for the first time in the history of programmes, the Commission, most Member States, and third countries were able to use the Article 169 of the Treaty to establish a joint programme, i.e. the European and Developing Countries Clinical Trials Partnership (EDCTP). The EDCTP is a major long-term initiative to develop new clinical interventions to fight HIV/AIDS, malaria and tuberculosis, in particular in Sub-Saharan Africa, though its success has still to be proved.

Other positive examples of INCO cooperation include the Forum for European-Australian Science and Technology Cooperation (commonly known as “FEAST”). It is an organisation established by the Australian Government and the EU to highlight and promote research collaboration between their respective research communities. This initiative has been followed by information events in partner countries and regions. It is a common impression that events in partner countries and regions have been successful; for instance, participation in the FP has grown in those countries where they have been actively promoted.

Another example of good practices has been the active collaboration between the EC and South African R&D actors. This cooperation has been facilitated by the National Contact Point (NCP) system in the RSA promoting the implementation of the international aspect of FP6. As a result of the NCP system, the participation of South African researchers and their teams in FP6 has been growing. There are good reasons to endorse the further development of the NCP system in third countries as well as the need to continue FEAST-type events also in other regions.

Finally, the Commission and other science actors have been able to establish a new type of coordinated research programme (ERA-NET) with some regions, in particular China, Western Balkan Countries and Latin America. If implemented in a proper way, these inter-regional initiatives can play a crucial role in coordinating joint international research funding efforts between institutions in EU Member States and third countries. One may doubt, though, whether EU Member States are truly able to develop common policies vis-à-vis other regions of significance, but despite that the need remains to avoid unnecessary duplication and competition between national undertakings.

Recommendation 5:
DG Research as a whole and particularly the thematic areas should see to that international cooperation becomes an integral part of the Framework Programmes and that it receives adequate funding. In addition, each theme should have a single horizontal budget line for international cooperation to ensure participation of EU and non-EU research communities in research actions. This budget should be reallocated to the themes on the work programme level and adjusted in regular updates according to the needs and capacity to utilise resources.

4. Conclusions

The international dimension of the Framework Programmes has opened up new opportunities of sustainable scientific and technical cooperation with partner countries. The dialogues and agreements with a host of countries have made it possible to crystallise mutual interests and involve third-country partners in EU projects. On the other hand, the possibilities for international cooperation have not been realised in all thematic areas and for all Community funding instruments. To be sure, the complexity of the world and the heterogeneity of partners have made the tasks of the Commission onerous.

Material for the interim conclusion on the workings of INCO can be obtained from the evaluation of its impact under FP5 in 1998–2002.[26] The assessment considers the INCO programme, based on S&T policy dialogues with third countries, a key part of the European Research Area. INCO is "aimed at promoting the development of long-term durable research partnerships". It also seeks to "increase coordination of Member States' bilateral cooperation and to support the implementation of Community policies with respect to third countries".[27] During its existence, INCO has acted in science as a bridgehead for several new EU Member States as well as Accession Countries. For example in FP5, INCO funded 20 centres of excellence in ten Candidate Countries.

The Impact Assessment of INCO reaches several conclusions. The INCO programme is seen as a multifaceted instrument, but perhaps even as too diverse and disjoined. INCO is said to be well-known, particularly in the developing world and several of its achievements are noted with appreciation. The Impact Assessment suggests, however, that INCO should develop a stronger scientific essence. The most important future message of the report concerns the EU's international agreements and their implementation. It notes that, "whatever the circumstances, it is important that the Agreements are given substance through the provision of resources that can guarantee their implementation with tangible scientific downstream actions rather than the act of signature of the agreement itself signifying the final stage of the process."[28] This observation still holds true.

There is an urgent need to modernise the country and regional categories employed by the FP. The present geographic categories reflect in part the old colonial relations of some Member States and in part a rather mechanical division of the world into regions. Now the internal variation of various geographical regions is too large to permit a coherent policy approach. To make sense, different countries with which the EU aims to promote scientific and technical cooperation should be divided into regions more by functional than geographical criteria.

[26] Impact Assessment of the Specific Programme International Science and Technology Cooperation (INCO) under FP5 (1998–2002), submitted by The Evaluation Partnership (TEP), a consultancy firm employed by the Commission. 30th September 2004.
[27] Ibid., p. 2.
[28] Ibid., p. 5.

International cooperation under the auspices of the Framework Programme is and has been open to all countries, but industrialised countries have received funding only exceptionally. It goes without saying that the objectives and forms of cooperation, including funding instruments, differ between various functional categories of countries. An important category consists of other technologically advanced, research-intensive countries with whom the EU should develop new patterns of scientific and technological cooperation (to be able, paradoxically, to compete successfully). In global manufacturing, the old value chains have broken down and, in addition to production, also R&D has become internationally mobile. In order to retain critical scientific and industrial R&D capacity in Europe, there is a need to develop new approaches on how the new mobility of talent and technology can best be managed.

To promote international interdependence in S&T and strengthen its own position, the EU should deepen its ties with emerging economic and technological centres, including China, India, Russia and Brazil. Cooperation initiated by public funding agencies and technology organisations should be long-term and facilitate the mobility of researchers across borders. The openness of the EU for scholars and specialists from emerging poles of scientific and technological power is critical for its future vitality. The Commission and Member States should lower the barriers to mobility by both simplifying their administrative procedures and funding mechanisms concerning the non-European partners.

Many of the third countries have only limited human and financial capabilities to contribute to cooperation in S&T. At the same time, many of these countries pose political, economic, humanitarian and environmental risks to their own regions and the entire international community. Their condition speaks for the emphasis on an aid element in mutual cooperation in which appropriate R&D resources could be integrated, for instance to promote capacity building through tertiary education and infrastructural development. In the case of these countries, their demand for technologies concerns products that are relatively inexpensive and easy to maintain, and that can be integrated in the local economy and society.

The EC has developed a decent track record in international scientific and technological cooperation. Now is the time to make this strategy internally more coherent and effective and externally more visible. Only in this way can the EC improve its own position and contribute to the settlement of global problems.