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COMMUNICATION FROM THE COMMISSION

Promoting RTD cooperation with the world's emerging economies

Promoting RTD cooperation with the world's emerging economies

Foreword

On 20 October 1995, the Commission submitted to Council a communication on *"Perspectives for International Cooperation in Research and Technological Development"*. This communication provides global orientations for cooperation policies with third countries outside the Union.

An important feature of the above-mentioned communication is that it singles out various groups of countries (Europe and her neighbours; Highly industrialised countries; Developing countries; Emerging economies - NICs), and urges the Union to address them selectively, by tailoring appropriate cooperation schemes and instruments.

The communication in object addresses the so called *"Emerging Economies"* and recommends to implement with these countries a new cooperation frame, capable to meet the global challenge posed by their booming industrialisation.

Emerging Economies

This name designates a group of developing countries currently involved in deep economic reforms and undergoing rapid industrialisation. These countries differ from the *"less advanced developing countries"* because they display a marked dual character and behaviour, with large zones of poverty and archaic infrastructure bordered by oases of leading-edge technology. Examples of emerging economies are China, India, Brazil, as well as other countries mainly located in South East Asia and Latin America.

Emerging economies are, at the same time, legitimate candidates for development cooperation and strong competitors in some sectors of trade. It follows that if the Union wants to address the dual features of their S&T apparatus, it should also dispose of a dual cooperation scheme. Thus, the communication in object: *"Promoting RTD cooperation with the world's emerging economies"*, recommends to complement the current "problem-solving" approach of the INCO-DC programme, conceived to tackle specific problems of the developing world, with a new "opportunity-oriented" cooperation initiative aiming at high-technology sectors conducive to the promotion of European S&T innovation on the emerging markets.

Tackling the developed segment of Emerging Economies

The policy driving the new cooperation initiative is similar to that currently in force with the *"Industrialised countries outside Europe"*, and is grounded on two basic principles:

- the main objective of the cooperating parties shall be that of achieving mutual benefit;
- the major task of RTD cooperation will be that of triggering industrial cooperation.

Corollaries to the above principles, are the reciprocal opening of RTD activities, the co-financing of joint projects and the development of appropriate conventions securing effective protection and equitable distribution of intellectual property rights.

The implementation of the above principles and corollaries requires the possibility of opening to selected countries the Community research programmes. To do so, the Commission should dispose of a legal base which, for programmes not unilaterally opened for participation to all third countries (Article 8 opening), can only be provided by the conclusion of country-specific S&T cooperation agreements.

In preparation of such a major thrust of RTD cooperation with the emerging economies, the communication in object foresees an action plan aimed at the exploitation of the whole range of opportunities offered by the current institutional framework. This will comprise:

- the promotion of the participation of EEs' research institutions in specific programmes of the 4th Framework Programme;

- the identification of a hard core of narrowly defined topics, where RTD cooperation is expected to have clear potential industrial spin-offs;

- the launch of a substantial scheme of exchange of scientists and the organisation of a series of targeted scientific workshops;

- whenever it proves necessary and in the framework of the external relations policy and its instruments (Framework Agreement and Joint Committee), the conclusion of a complementary Science and Technology cooperation agreement with an emerging economy.

The execution of the above plan will result in the creation of a web of scientific partnerships in targeted areas. It will also lay down the bases necessary to foster further collaborative ventures on a larger scale.

The communication in object also stresses the highly instrumental role that S&T cooperation agreements may play in the setting up of new, structured relationships with these countries of particular strategic interest for the Union.

COMMUNICATION FROM THE COMMISSION

Promoting RTD[1] cooperation with the world's emerging economies

Foreword

Global orientations for Community's S&T cooperation with third countries were presented in the Commission's Communication: "***Perspectives for International Cooperation in Research and Technological Development***"[2], issued on 18 October 1995. A section of this document, quoted below, pinpoints the common features of a group of countries, referred to as "*emerging economies*", and urges the Union to address them with appropriate RTD cooperation actions.

> *After the experience of the debt crisis in the 1980s several developing countries in Latin America and Asia reformed their economic policy successfully. (...) They have become a target for foreign investment from industrialised countries and a meeting place for global competitors (e.g. China, India, Brazil etc.).*
>
> *In spite of their economic success, significant parts of their societies still share development deficiencies. RTD operation sometimes lack refinement or environmental and health requirement, while, on the other hand, they have proved able to leapfrog traditional steps in technological development. Thus, emerging economies appear as partners for RTD cooperation under two different aspects. Objectives for EU cooperation with these countries therefore refer, on the one hand, to those valid for developing countries and, on the other hand, to the acquisition of knowledge relevant for an improved production of environmental and socially sustainable technologies. To increase also European competitiveness, cooperative RTD will focus on emerging markets.*
> *(...)*
> *The development of some of these countries may evolve in such a way that it might become interesting to conclude bilateral RTD agreements providing for project-by-project participation on a reciprocal basis.*

Drawing on the above arguments, the present Communication provides more detailed analysis on why the Union should endeavour to boost RTD cooperation with emerging economies, and how this can be achieved within the current institutional framework. It is also intended to fuel the overall reflexions on RTD cooperation with third countries in view of the fifth Framework Programme and can clear the ground toward possible negotiations to establish bilateral RTD cooperation agreements with selected emerging economies of particular strategic interest for the Union.

The dual features of emerging economies

We are using the term "*emerging economies*" to designate those developing countries currently involved in deep economic reforms, notably liberalisation, and undergoing rapid industrialisation. As the term "*emerging*" infers, these countries are still confronted, although to different extents, with the typical problems of the developing world. They are, however,

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[1] Research and Technological Development, including demonstration
[2] COM(95) 489

well advanced in the process of industrialisation and dispose of real scientific and technological capabilities in various leading-edge sectors.

According to the above definition, several countries in the world can reasonably claim an "emerging economy" status. Some of them, however, are growing at such a high rate and their potential markets are so vast that their eventual "emergence" will have a tremendous impact on the global economy. As already mentioned in the previous Communication, China, India and Brazil are examples of such emerging economies, of vital importance for the Union.

For emerging economies with continental-scale populations and equally large economies, the process of transformation from a "*developing*" to an "*industrialised*" society may take a long period of time. During this time the countries display a dual character and behaviour, with zones of poverty and archaic infrastructure neighbouring oases of leading-edge technology.

Science in China

Remote Urumky (Xinjiang) tracks satellites and boasts a 25-meter radio telescope that is part of the global Very Long Baseline Array to observe the most distant objects in the universe.

Semitropical Hainan island is the site of field tests of genetically modified plants on a scale unknown in the West.

Hefei, provincial capital of Anhui is home to elite University of Science and Technology of China, the national synchrotron radiation lab, and four Chinese Academy of Science institutes.

Industrial Shenyang (Liaoning), is home to the highly rated Institute of Metal Science, specializing in advanced amorphous metals.

Municipal and regional authorities of Shanghai are pumping funds into Fudan and other major universities, a new life science research centre, a biotech park, and a 3.5-generation synchrotron facility to join the 16 CAS institutes and 24 state key labs in a bid for high-tech leadership.

With less than 20 months left before Beijing takes over, Hong Kong is going all out to become an R&D base for China. The ultramodern University of Science and Technology aspires to be China's top scientific centre by decade's end.

Indian software in the world

Commuters on the London underground probably do not realise that they have a Bombay-based computer company to thank when the trains run on time.

Elsewhere, passenger travelling on many international airlines, should thank Indian software companies for ensuring most aircraft leave on time.

In the manufacturing sector, several American companies use software developed in India.

An important European society uses a distribution management application package designed and built by Indian scientists to integrate sales forecasting.

Even the Barcelona Olympics relied on Indian software engineers from a Delhi-based company who designed a system for TV graphics.

While North America and Europe are still asleep, programmers in Bangalore are maintaining software systems and fixing "bugs" for financial services companies around the world, using high speed satellite data links.

Brazil: physicists hand-build a synchrotron

Campinas. - On a hilltop on the outskirts of this university town in southeastern Brazil, physicists and artisans have been engaged for the past 10 years in a unique and, many would say, wildly ambitious project. They are building an electron storage ring: a 29-meter-diameter accelerator for electrons. Within a year, if it all goes as planned, the ring will spring to life as the heart of the first and only synchrotron light source in the Southern Hemisphere.

Because of their dual features, emerging economies are, at the same time, legitimate candidates for development cooperation, strong competitors in some sectors of trade and a currently expanding market which will reach very important dimensions in the years to come. Development concerns have thus to be seen against the backdrop of global strategic considerations.

Cooperation with the emerging economies: a competitive background

The economic rationale for a greater involvement of the Union with the emerging economies is based on the steep rise of their economic power and the need for the Union to secure a substantial participation in their markets. Given that economic advance in the emerging economies is increasingly driven by the expansion of their technology-based industries, the proactive deployment of Europe's S&T strength in these countries could represent a powerful mechanism for achieving a substantial increase of the Union's market share. It will also contribute to the socio-economic development of the region by helping the partner countries to adopt best practice and learn from the experiences of the Union.

The use of S&T to strengthen the presence of the European industry in the emerging markets will have, however, to face a highly competitive background: for historical and geographical reasons the US and Japan have already achieved a strong position in these emerging markets, also through an enterprising S&T cooperation policy.

Japanese companies going global in Asia

A close look at recent Japanese foreign investments in Asia reveals that Japanese companies are increasingly setting up research laboratories in neighbouring countries. In doing so, they are integrating their activities from R&D to manufacturing and trade.

The bursting of the financial bubble in the early '90s had already led to a massive wave of companies transferring their operations abroad. The number of industrial and commercial units in Asia rose from 3370 in 1988 to 6632 in 1994.

The country which has benefited most from these trends is China, whereas India does not seem to represent a major target for Japanese manufacturing activities.

The classic enterprise partnership/networking scheme of the "keiretsu" is reproduced in many cases: the big firms bring their own subcontractors with them, leaving little room for competitors.

The setting up of R&D centres in Asia is also a way of compensating for the weakness of home based manufacturing R&D. This is already quite clear in the case of the software industry. Several Japanese companies have transferred R&D facilities in Shanghay and Beijing. Globalisation is an attempt to exploit the comparative advantages of the parties involved

But this situation can change. For example, not only several European firms have established themselves as leading competitors in local markets, but official representatives of emerging economies have formally sought increased involvement of the Union in S&T cooperation: they value the Union both as a source of advanced S&T know-how and as an important partner for their future.

With a few notable exceptions, European companies have been slower than their US counterparts to spot the opportunities in India..... A number of initiatives have been taken to try and correct this imbalance. These include the establishment of a Bangalore-based company called 3SE by the European Commission and the Indian Government to promote cooperation between the EU and India in computer software.

The interest shown by emerging economies' policymakers in strengthening and deepening scientific collaboration with the Union goes beyond the mere recognition that Europe was the cradle of western scientific methodology and home for the largest number of Nobel laureates. It rather results from a series of circumstances, such as the strong ties still existing between some of the emerging countries and some Member States, the interest they may have for the European market or, also, the perception that the European scientific space is a component of a wider cultural space, where science and scientific cooperation develop in submission to essential ethic requirements.

The success of the Framework Programmes and, in the late '80s - early '90s, that of the "International Scientific Cooperation (ISC)" programme, has brought the Union itself to the forefront of the attention of third countries. This not only strengthened the perception of the Union as the focal point for advanced technology sourcing in Europe; it also designated the Union as a special partner in cross-border scientific collaboration, carrying a unique multicultural cooperation know-how, capable of setting off from its competitors in terms of the value of what it has to offer.

The Union cannot afford to stay at the edge of this global challenge. It is essential to the economic and geopolitical interests of the EU to engage in broader cooperation with the emerging economies. Action needs to be taken promptly and the strategy adopted should be tailored to meet the challenges of each individual country, taking into account the actions of the Union's competitors.

Past and present policies for S&T cooperation with the Emerging Economies

The European Union has been cooperating in S&T sectors with these economies since 1983. Cooperation took place, until 1994, under two programmes: *"Science and Technology for the Development (STD)"* and *"International Scientific Cooperation (ISC)"*.

With the adoption of the Fourth Framework Programme, these two interrelated initiatives were merged to form the Part C of the INCO programme: *"Scientific and Technological Cooperation with the Developing Countries (INCO DC)"*, which started operation in 1995.

With the INCO DC programme the Union disposes of an instrument for RTD cooperation with developing countries *sensu stricto*. It has been conceived to address problems common to all developing countries, notably basic needs and quality of life, and it plays an important role

in associating the DC's scientific communities with the relevant knowledge and the technologies available in Europe. This programme, to which more than 209 Mioecu were allocated for the period 1995-98, is open to three "Sectors of general importance": sustainable management of renewable natural resources; improvement of agricultural and agroindustrial production; and health. It also foresees cooperation in "Additional sectors of mutual interest": information and communication technology, non nuclear energy, biotechnology and production sectors.

Examples of DC's specific problems addressed by the INCO DC programme
Tropical forests resource development - Prevention of losses of soil and biodiversity in drylands and highlands - Improvement of livestock farming - Increased productivity of animal and plant species in wetland - Health care delivery models - Prevention and combating of predominant diseases (e.g. support for research for a malaria vaccine) - Malnutrition - Reproductive health.

It is now time that this work be complemented by a new approach to take account of the dual nature of emerging economies within the global framework of the political, economic and cooperation relationships which the European Union has already established with these countries.

The new cooperation initiative will address the developed segment of these countries and target technology sectors close to industry, such as those addressed under the 4th Framework Programme by the specific programmes and the Task Forces, or by any other similar form of Community research that will be implemented under future Framework Programmes.

Examples of high technology RTD themes where cooperation with the emerging economies should be strengthened and oriented toward industry
Computer and multimedia technologies - Personal communication networks - Clean manufacturing technologies - Space technology and applications - Coastal zone and shelf seas management - Technologies to increase the safety and efficiency and decrease the environmental impact of transport systems - Nuclear safety - Biomedical technology and engineering - Vaccinology - Pharmaceutical research - Clean energy sources - Energy-saving RTD - Earthquake engineering -, etc.

The above examples of core technologies are growing rapidly in the emerging economies, and official representatives of these countries have repeatedly asked the Union to move the centre of gravity of RTD cooperation toward them.

Considering that it is in this bracket of science that joint efforts are most likely to produce industrial cooperation spillovers, the Union should wait no more and tailor its cooperation instruments accordingly.

Guidelines for a new policy of RTD cooperation with the Emerging Economies

Following on from previous arguments, it is in the Union's interest to set a new and ambitious agenda of RTD cooperation with the emerging economies. The scale of this cooperation should be commensurate with the challenge posed by the booming industrialisation of these countries and the benefits that the Union can expect from a far-sighted deployment of its cooperative strength.

The policy driving the new cooperation initiative should complement the problem-solving approach of the INCO-DC programme. It should adopt instead a proactive opportunity-oriented perspective aiming at core science sectors conducive to the promotion of European S&T innovation on the emerging markets, while remaining watchful that cooperative research is not be used for military purposes.

The policy of RTD cooperation with the highly developed segment of the emerging economies will therefore be grounded on the following principles:

- **the main objective of the cooperating parties shall be that of achieving mutual benefit** (from the Union's viewpoint this will mean, chiefly, promotion of the European industry presence in the emerging markets; e.g. by implementing well targeted technology demonstration projects in jointly selected sectors);

- **where appropriate, RTD cooperation should be used to trigger industrial cooperation** (this should be achieved through the creation of a network of alliances, linking European and EEs' centres of excellence in RTD topics of industrial relevance).

From the above principles stem the following corollaries:

- cooperation sectors should be agreed on jointly by the parties. This will provide both sides with the opportunity to target narrowly defined RTD themes with good prospects of industrial cooperation in the short term. In this context, the Union may foster RTD cooperation by financing partially the initial steps of the collaborative work provided by its partners in the emerging economies;
- cooperation between the Union and the emerging economies should be set up on equal and reciprocal grounds. An accomplished expression of such partnership will thus consist in the eventual participation of research and technical institutions of one party into the publicly funded RTD programmes of the other. In practice, this would imply both the opening to the emerging economies of some Community RTD activities and, reciprocally, the opening to European companies of selected outside programmes;
- transnational research projects carried out within the framework of a mature partnership will not require transfer of funds from one party to the other;
- joint activities should be implemented under appropriate conventions securing effective protection and equitable distribution of intellectual property rights. This is particularly necessary when the partner country has not endorsed the relevant international conventions, including the TRIPS Agreement of the GATT-WTO, the Berne Convention (Paris Act 1971), and the Paris Convention (Stckholm Act 1967).

The implementation of the above principles and corollaries suggests the adoption of a flexible cooperation scheme similar to that currently in force with *"Industrialised countries outside Europe"*. However, due to the particular features of emerging economies, it is important to tailor the new scheme appropriately.

Blueprint for a new RTD cooperation scheme with the emerging economies

Experience gathered at Community level shows that a mere, passive opening of Community RTD programmes to third countries is not sufficient to trigger a significant response of their

scientific operators. Conversely, if the opening of the same programmes is endorsed by a political commitment to promote RTD cooperation, the resulting collaboration may become substantial.

It follows that, since the Union is determined to launch a high profile RTD cooperation with the emerging economies, it shall be ready to account for a substantial political and managerial investment. This can be outlined as follows.

- The Union should first undertake to seize all cooperation opportunities already offered by the opening-up of various specific programmes to the participation of third countries.

- To carry out cooperation with the emerging economies in sectors of advanced technology, the Commission should also be able to open their participation in additional specific programmes. According to Council decision of 21 November 1994 (94/763/CE), the Union must then envisage to conclude with selected emerging economies **S&T cooperation agreements**. The implementation of this procedure is not only the ultimate expression of a political will to foster RTD collaboration. It also allows the parties to tailor country-specific RTD cooperation frames and orientate the scientific communities towards selected RTD themes and technological challenges of common interest.

- In most cases, relations with the emerging economies are covered by Framework Agreements for cooperation. Such Framework Agreements contain a "Future developments" clause which allows the level of cooperation to be enhanced by the addition of agreements on specific sectors or activities. Thus, whenever political and other considerations (participation in otherwise closed programmes, reciprocity, intellectual property rights, etc.) demand, an S&T Cooperation Agreement, referring explicitly to the Framework Agreement and the Joint Committee, will be concluded.

- If it proves opportune to conclude an S&T Cooperation Agreement with an emerging economy which has not concluded with the Union a Framework Agreement for cooperation, the specific S&T Agreement will be consistent with the general policy of the Union towards the country concerned.

- The follow-up of each S&T Cooperation Agreement shall be insured by a **Joint Group for Cooperation in Science and Technology (JGSTC);** forum of dialogue, orientation and monitoring of cooperation activities. These Joint Groups should comprise senior civil servants, prominent scientists, industrialists and policy makers from both sides. When an emerging economy has concluded with the Union a Framework Agreement for cooperation, to insure the coherence of the external action the Joint Group will be a sub committee of the Joint Committee.

- The key to the success of the entire operation will depend on the capacity of the JGSTCs to trigger the growth of "bottom-up" cooperation proposals and to orientate them towards selected target sectors. The Joint Groups should be particularly vigilant in relation to the implementation of the **reciprocity principle**. Participation in each other's programmes should be real and produce a two-way flow of information, scientific workforce and innovative projects.

- It is important to stress that, in case of participation of outside partners in Community research programmes, the JGSTCs will have no power of intervention in the Community internal procedures of submission, evaluation and selection of projects.

- The impact of the cooperation scheme on the development of cooperation activities should be monitored periodically. Evaluation reports should be thoroughly discussed by the JGSTCs in order to take the necessary steps to comply with the recommendations.

Concertation with Member States; dialogue with the industry

The success of the above-mentioned S&T cooperation policy rests on the will of the Union and its Member States to produce a coherent thrust aiming at the strengthening of the competitive position of European high-tech companies in the markets of the emerging economies. This is not simply to underline the principle of subsidiarity, but rather it is the expression of a crucial step which needs to be taken and the very justification for this new European initiative.

Member States have already been cooperating, on a bilateral basis, with the emerging economies in scientific and technological sectors. Some of these States have achieved particularly good results and established durable relationships. They pride the success obtained through their national collaboration schemes and prepare themselves to face the challenge of market globalisation.

On the other hand, European firms are generally favourable to the idea of a more active role of the Union in international S&T collaboration. They consider that a Community-driven framework for RTD cooperation activities, can provide their ventures with a high profile and a strong negotiating leverage. They also point out that poor Community coordination might allow twin cooperation projects to mature into the cooperation schemes of different Member States, and consider such potential duplications as a threat to European credibility.

Thus, the fundamental pattern of the cooperation initiative foreseen in this Communication, and the ground on which it will have to grow, shall and will be an intensive concertation with the Member States. The Delegations in the respective countries, will be called to play a central role in the accomplishment of this task.

The Union and the Member States have here a new opportunity to seize: that of promoting a European dimension in the RTD cooperation with the world emerging economies, that of orienting scientific research towards innovation and that of using European innovation to help the European enterprise position itself in the emerging markets.

Particular attention should be paid to the actual involvement of European industry in this endeavour. IRDAC, in its role of advisory body to the Commission in the field of industrial research and development, should be associated with the implementation of the new policy at all stages. In the preparatory phase it could assist the Commission in the identification of the most promising cooperation themes and actions, as well as of the industrial operators most suitable to play an active role internationally. Later on, it should be associated with the different activities of the Joint S&T Cooperation Committees.

IRDAC's part in the consultation process will not only help maintaining a permanent dialogue between European RTD and European industry; it may also encourage the cooperating Parties in the emerging economies to request the involvement of similar bodies, capable of interfacing between their RTD establishments and their respective national industries. This will create a true forum of dialogue and negotiation between all the operators involved in the planning and management of cooperation activities, and, hopefully, will contribute to breaking down the barriers still existing between scientific and industrial operators.

Action plan

The action plan will address two different objectives:

- **to seize the whole range of opportunities offered by the fourth framework programme to develop and redirect the present orientations;**
- **to prepare a major thrust of RTD cooperation with the emerging economies.**

This will be executed by means of the following actions:

- The Commission should optimize the opportunity offered by the current INCO programme and encourage cooperation initiatives in industry-oriented sub-sectors opened for participation of the emerging economies;

- An information campaign should be launched in Europe and in the emerging economies, to promote the participation of EEs' research institutions in relevant Community specific programs;

- In parallel with this action and in collaboration with the partner governments, the Commission will launch a first pilot scheme for exchange of scientists[3] This action will offer several distinct advantages:
  - in conformity with the subsidiarity principle it will complement the complex array of scientific mobility schemes already implemented by several Member States with individual emerging economies;
  - focussed on scientific sectors relevant to the specific programmes of the 4th Framework Programme, it may help reinforce the research capacity of European consortia already operating in these programmes;
  - it will create a first web of partnerships between the Union and the emerging economies in areas of Community's competence, thus paving the way for formal participation of research institutions located in these countries in Community research programmes;
  - it will also allow the Commission to identify a hard core of narrowly defined topics, where RTD cooperation with the different emerging economies is expected to be

[3] The Commission implemented previously, under the ISC programme, a large scheme of fellowship allocation to leading scientists of third countries to spend 6-12 months in European laboratories. A scheme of exchange of scientists should revive the success of that promising action, adding to it the new dimension of reciprocity, more suited to a policy of equal partnership with emerging economies

manageable, with clear potentials for industrial cooperation spin-offs, and particularly beneficial for both parties.

- it will finally allow the obtention of precious information in view of the implementation of a further and much wider scheme for the exchenge of leading scientists between the Union and the emerging economies. This scheme, which the Commission plans to implement in future Framework Programmes, will allow the establishment of a vast network of durable relationships.

- Finally, whenever it proves necessary and in the framework of the external relations policy and its instruments (Framework Agreement and Joint Committee), the Commission will enter negotiations aiming at the conclusion of a complementary Science and Technology cooperation agreement with an emerging economy in accordance with the rules and mechanisms proposed at the paragraph *"Blueprint for a new RTD cooperation scheme with the emerging economies"*.

FINANCIAL STATEMENT

1. Title of the operation

International scientific cooperation : Proposal for the implementation of a new cooperation scheme aimed at the promotion of S&T collaboration between the Union and the "Emerging Economies" of the world, in sectors with industrial spin-offs.

2. Relevant budget headings

Costs for accompanying measures and pilot activities will be charged to specific budget headings of the programme: Cooperation with Third Countries and International Organisations (INCO).

B6-7211

3. Legal Basis

Council Decision 94/807/EC of 23 November 1994.

4. Description of the operation

4.1. Specific objectives of the operation

The essential objective is to open a new cooperation channel with the EEs of particular strategic interest for the Union. This channel will complement the current "problem-solving" approach of the INCO-DC programme, conceived to tackle specific problems of the developing world, with a new "opportuinity oriented" initiative aiming at high technology sectors conducive to the promotion of European S&T innovation on the emerging markets.

4.2. Duration

Ongoing annual budget entry, subject to annual budget disponibilities under the present INCO programme 1996-98.

5. Classification of the expenditure

5.1. Non-compulsory expenditure
5.2. Differentiated appropriations

6. Type of expenditure

Financing of missions to various EEs by Commission officials and EU experts; organisation of joint workshops; joint studies; implementation of a pilot phase for the exchange of scientists.

7. Financial Impact

7.1. Method of calculating the total annual cost of the action (estimate)

- 5 Workshops [China, India(x2), Brazil and Mexico] on space technologies, engineering seismology and advanced materials:

  0.450 MECU

- 5 Studies (China, India, Brazil, Mexico, Argentina) to define a new strategy for RTD cooperation with the emerging economies:

  0.280 MECU

- Travel and subsistance expenses for visits to the Emerging Economies by EU officials and experts:

  0.050 MECU

Total (estimate) : 0.780 MECU

7.2. Breakdown of the elements of the action (MECU)

Commitment appropriations in MECU
(current prices, estimate)

Breakdown	1996	1997	1998	Total
Workshops	0.450	0.450	0.450	1.350
Studies	0.280	0.280	0.280	0.840
Missions	0.050	0.050	0.050	0.150
Total	**0.780**	**0.780**	**0.780**	**2.340**

7.3. Schedule Commitments appropriations / Payments appropriations

	1996	1997	1998	Total
Commitments appropriations	0.780	0.780	0.780	2.340
Payments appropriations				
1996	0.780			0.780
1997		0.780		0.780
1998			0.780	0.780
Total	**0.780**	**0.780**	**0.780**	**2.340**

8. Anti-fraud measures

There are many administrative and financial controls at each stage of the signature and implementation of research contracts. Among these controls are the following:

At the stage prior to the conclusion

- Initial selection of proposals based on the scientific merit of the project and on the realism of research costs relative to the content, duration of the project and its potential implications.

- Analysis of financial details submitted by the proposers in the contract negotiation form.

After signature of the contract

- Examination of expenditure at a number of levels (financial officer, scientific officer) before payment.

- Internal audit performed by the Financial Controller.

- On-site audit, which should allow the detection of errors and other irregularities by examination of supporting documents. In order to improve the efficiency of these controls, the Commission services have established an audit Unit which coordinates all controls taking place. These controls are carried out either by members of this audit Unit, or by audit firms with which the Commission has concluded a contract, under the supervision of personnel from this Unit.

- On the spot inspections made by the Financial Controller of the Commission and by the Court of Auditors of the European Union.

9. Cost-effectiveness analysis

9.1. Specific objectives, target population

- The new scheme for cooperation with the Emerging Economies is designed to enable the European Union and the EEs to profit, on the basis of the principle of mutual benefit, from the scientific and technical progress achieved under their reciprocal research programmes;

- beneficiaries in the European Union and the Emerging Economies will be the scientific communities, the industrial sector and the general public, thanks to the direct and indirect effects of cooperation.

9.2. Justification of the operation

Community budget intervention is indispensible because the planned cooperation comes under the implementation of the Framework Programme, including the budgetary section.

9.3. Monitoring and evaluation of the operation

An evaluation of all the cooperation activities in the context of this action will be made by the Commission's departments at the end of 1998.

10. Implications for administrative expenditure

- The Commission is not requesting any additional posts for the management of this cooperative action.

- No officials are being specifically assigned to manage this action. It will be managed by the staff authorised for the 4th Framework Programme.