

**INTER- AMERICAN SCIENCE AND TECHNOLOGY PROGRAM**

**(PRICYT)**

## **I. BACKGROUND**

The strategic areas and policy guidelines below have their logical foundation in the Declaration of Cartagena and in the Action Plan adopted by the ministers responsible for science and technology at their March 1996 meeting. They take into consideration the Inter-American Council for Integral Development's (CIDI) Strategic Plan for Partnership for Development 1997-2001, and the mandates of the General Assembly of the Organization of American States and of the Summits of the Americas as well as the region's wealth of accumulated experience with designing and implementing science and technology policies, and the significant contribution of the MERCOCYT Program. They also take into account recent documents "Knowledge for Development"

## **II. CONCEPTUAL FRAMEWORK**

In order to benefit from scientific and technological progress and build societies that are increasingly based on know how, a necessary, though not sufficient, condition is that the countries of the region open up to international capital, technology, and information flows.

In order to help solve the economic, social, and environmental problems that have arisen in the course of economic development and assist in training the human resources needed to build a knowledge-based society, the countries of the region must strengthen national and local innovation systems and promote new mechanisms for regional cooperation that will empower and enrich national and local efforts.

In addition to formal research and development efforts, the formulation of national policies for technological innovation takes into consideration the informal efforts of countless agents and public and private institutions that, in one way or another, participate in the process of absorbing, generating, and disseminating knowledge and innovations within modern societies. It holds that an incentive-rich environment facilitates the mutual interaction and synergy between agents and institutions that are essential in bringing about the collective learning process that will lead to a richer and more intense flow of knowledge and innovations and ensure that better use is made of them in solving the problems faced by each country and region.

This approach encourages the creation of knowledge, gives equal importance to the dissemination and generation of innovations alike, and emphasizes the importance of interconnecting the different scientific and technological learning processes of the various agents and institutions.

### III. OBJECTIVES

(PENDING) The principal objective is to concentrate the scientific and technological efforts carried out in the Hemisphere and concentrating human and financial resources on those activities and projects that are able to generate a critical mass and at the same time resolve high-priority problems. These problems relate to the competitiveness of companies that produce goods and services and to the social and environmental conditions prevailing in our countries.

Inter-American cooperation should contribute to reaching that goal by promoting joint research projects and activities involving two or more countries of the Hemisphere.

### IV. MECHANISMS FOR ACTION

The Inter-American Science and Technology Program complements the Strategic Plan for Partnership for Development 1997-2001, which articulates the policies, programs and measures in the area of cooperation for development and which operates on three mutually-reinforcing levels: as a forum for inter-American dialogue on development, as a catalyst and promoter of programs, projects, and other cooperation activities; and as a mechanism to facilitate the exchange of information, experiences and knowledge. At each level, the OAS initiates specific activities under the appropriate areas of action at the request of member states and either coordinates such activities through the Secretariat or delegates coordination to the requesting country or countries.

1. *Forum for Inter-American Dialogue on Development.* Pursuant to the Strategic Plan for Partnership for Development 1997-2001, the structure of CIDI foresees the convocation of ministerial meetings in science and technology that allow the formulation of policies, the design and execution of cooperation for development on this theme. Moreover, the structure facilitates the meetings of the Inter-American Science and Technology Committee (COMCYT) for the purpose of sharing experiences and exchanging information.
2. *Exchange of information.* Drawing on its accumulated experience, the OAS will foster the analysis and exchange of information on experiences acquired by the member states in the areas of scientific and technological development, through both printed and electronic publications.
3. *Partnership for Development.* CIDI has cooperation mechanisms that operate through programs, projects and activities oriented toward institutional strengthening, human resource development, studies and research, and information exchanges. CIDI has a programmatic structure that allows the presentation of cooperation proposals that are approved in accordance with the financial resources deposited in the Sectoral Account for Scientific Development,

Exchange and Transfer of Technology of the Special Multilateral Fund of CIDI (FEMCIDI).

## **V. AREAS FOR ACTION**

The three broad areas deemed critical for the region's development within the framework of the Inter-American Science and Technology Program are therefore the following:

1. Science, Technology, and Innovation for Promoting Social Development.
2. Science, Technology, and Innovation for Strengthening the Business Sector.
3. Science, Technology, and Innovation for Sustainable Development and Protection of the Environment.

In order to make progress in designing and implementing national and regional policies and projects in these three broad areas, the following must be promoted:

- a. Strengthening the ability to draw up, design, and implement science, technology, and innovation policies.
- b. Development and application of communications and information technologies.

### **1. Science, Technology, and Innovation for Promoting Social Development**

The potential of science and technology—not just as a cultural factor, but also as a key to poverty reduction and improvement in the quality of life—has not been fully exploited in the region.

This contribution can take several shapes, ranging from a thorough diagnosis of major problems to the appropriation of research knowledge by the beneficiaries and society as a whole, through research-action processes.

Particular importance should be given to the rigorous, but complex, determination of the social impact of science and technology investments, especially in areas of strategic importance within health care, education, housing, and job creation. Equally vital in these areas is the role of research in determining the effectiveness of social intervention policies, plans, and programs conducted by both the public and private sectors. In addition, these efforts must necessarily include the examination, assessment, and appropriate use of the knowledge and practices generated and proven over generations by indigenous, rural, and urban communities.

Priority Area for Action:

Promote information exchanges and cooperation programs to support the design and execution of innovative projects in the fields of education, food supplies, and nutrition, in basic health services and systems, and in preventing violence.

**Other Areas for Action:**

1. Carry out research related to improving the capabilities and effectiveness of social development policies and social intervention programs, stressing the identification of techniques for ensuring the participation of potential beneficiaries, the dissemination of duly proven technologies and practices, and assessment programs.
2. Strengthening public dialogue on matters of social interest and research findings, among researchers and the different users and beneficiaries, at the national, subregional, and regional levels, with a view to disseminating those findings to society as a whole.
3. Promoting creativity and an innovative outlook among young people through the dissemination and inclusion of science and technology in study plans, particularly in primary and secondary school education.
4. Ensuring equitable gender participation in programs for human resource training and for scientific and technological development.

**2. Science, Technology, and Innovation for Strengthening the Business Sector**

The 21st century will be dominated by the paradigm of competitiveness and knowledge, expressed through new methods for producing, distributing, and marketing goods and services. In this paradigm, the key resources are information and knowledge. This paradigm is also characterized by the prevalence of new technologies, such as automation, microelectronics, computer science, new materials, and biotechnology.

The availability of natural resources does not, in itself, guarantee that a given country will achieve its development goals. The knowledge necessary for making good use of those natural resources and for conserving them and increasing their potential must also be on hand. The new concept of innovation adopts a systemic approach, in that in addition to comprising the knowledge incorporated into the products, processes, and machines of production systems, it requires a new vision of business and a business culture that are consistent with interactive and permanent communications with the communities and agents of the society of the future.

New technologies facilitate access to knowledge and ensure its accumulation. Specifically, information and communications technologies are the vehicle

through which knowledge is accessed. Learning, the basic process of knowledge-based societies, strives toward creating and strengthening the capacity and ability to handle information and knowledge, as factors that increase the dynamism of change within society and corporations. Latin America and the Caribbean will be able to overcome their existing economic and social disparities and gaps if they make knowledge a factor for social change and competitiveness.

The modernization of Latin American institutions for globalization demands, above all, a new culture for business development based on innovation and on greater corporate responsibility toward society, the environment, consumers, and quality.

Among the main problems to be solved is the strengthening of a business culture that favors innovation, social appropriation of knowledge in order to distribute the benefits of technological progress, swifter international transfers of technology so that opportunities to access new markets are not lost, the adoption of new educational models for releasing creativity and learning how to generate knowledge of use to society, and the dynamic participation of regions in constructing national and local innovation systems.

**Priority Area for Action:**

Strengthening and creating regional research and development programs in strategic areas of multilateral interest.

**Other Areas for Action:**

1. Research and technology transfers for improving the productivity and competitiveness of small and medium-sized companies that produce goods and provide services.
2. Promoting interaction between governments, productive sectors, academic institutions, research centers, and other potential partners in the field of science and technology.
3. Supporting the development of local and national innovation systems in the countries of the region through supplies of technological services, technological research, and strengthened relations between institutes of higher education and the productive sector, paying particular attention to small and medium-sized businesses.
4. Developing cooperation programs involving scientific and technological institutions and small- and medium-sized companies, with a view to establishing companies with a technological base and strengthening technological innovation.

5. Promoting training and specialization programs in innovation and technology management for technology specialists, scientists, and businessmen.
6. Promoting exchanges of information on intellectual property rights and patent law and their effects on development in the region.

### **3. Science, Technology, and Innovation for Sustainable Development and the Protection of the Environment**

The Hemisphere's environmental outlook is complex. It is characterized by economic imbalances, rural migration and poverty, informal urbanization, polluting industrialization, and agricultural practices that are not in harmony with biodiversity. It can therefore be argued that the development of most of the countries of the region is not sustainable. Seen in these terms, certain aspects of the preservation of a healthy environment reflect the particular nature of social organization and society's interaction with its natural surroundings and, as such, should not be seen as just another problem to be overcome by means of a development model nor as an additional variable therein.

It is therefore necessary to act on the basis of the concept and approaches underlying those models, particularly since most of them have contributed to the degradation and deterioration of the natural and social environment. Such is the case with the current guidelines for using water resources, which pose a grave threat to the water supply in a considerable number of places and ecosystems over the coming century.

Biodiversity not only has important esthetic, cultural, and recreational worth; it is also vitally important in the social and economic arenas and, in addition, it is a crucial factor in our ability to adapt to changing conditions. It is also essential in maintaining the long-term viability of agriculture and fisheries, and it is a basic factor in many industrial processes and for the production of both new and old medicines. Fortunately, current and future scientific and technological advances will be able to make a decisive contribution, along with correct political decisions, to the unavoidable three-fold challenge we face with regard to biodiversity: understanding it, using it, and conserving it.

It is therefore necessary to take action within the framework of the Declaration and Plan of Action on Sustainable Development, signed on December 7, 1996 in Santa Cruz de la Sierra, Bolivia, which reaffirms that development strategies need to include sustainability as an essential requirement for the balanced, interdependent, and integral attainment of economic, social and environmental goals.

Priority Area for Action:

Promoting technological cooperation among state-owned and private companies with a view to adopting, developing, and implementing clean technologies in order to increase the efficiency with which resources and by-products are used, step up pollution controls, and reduce the environmental impact of dumped waste, and to adopting relevant rules, such as those dealing with total environmental quality management.

**Other Areas for Action:**

1. Developing region-wide research on the following strategic issues: tropical ecosystems and biogeochemical cycles; the impact of climate change on biodiversity; the El Niño phenomenon and climate variability; interactions between the oceans, atmosphere, and land in tropical America; comparative studies of processes in oceans, coastlines, and estuaries in temperate zones; ecosystems of small islands and low-lying coastal states; comparative studies of terrestrial temperate ecosystems and high-latitude processes; and the social and economic impact of global environmental change, particularly on agriculture, health, fisheries, and hydroelectricity.
2. Strengthening information systems dealing with biodiversity. Exchanges of information on the environment with a view to protecting life and property, scientific research, and planning sustainable development.
3. Supporting training programs in natural resource management, sustainable development, and environmental management.
4. Promoting region-wide joint research projects into biodiversity, recovering degraded ecosystems, environmental monitoring, and rural and urban environmental management.
5. Supporting research, technological development, and monitoring processes related to the study, conservation, and use of genetic resources.
6. Strengthening international agricultural research, together with regional and subregional systems, paying particular attention to the development of sustainable agricultural production and the management of fragile ecosystems. Of special importance is strengthening the interaction among international, regional, and national research systems in this field.
7. Promoting and supporting regional cooperation in environmental sciences and in education programs intended to raise the ecological awareness of individuals across the world and to enhance scientific understanding of planet Earth.

8. Encouraging lines of research to explore, assess, and validate local knowledge as a source of knowledge for the use and management of natural resources.

In order to make progress in designing and implementing national and regional policies and projects in these three broad areas, the following must be promoted:

**a. Strengthening the Ability to Draw Up, Design, and Implement Science, Technology, and Innovation Policies**

Since science and technology are still the most powerful tools for building knowledge-based societies, education for the coming century must concentrate largely on improving and increasing the region's scientific and technological capabilities.

These capabilities are not limited to the construction and maintenance of a scientific community. They also have to do with the ability to design and execute scientific and technological development policies in the face of the keenest social needs; to administrate the activities and institutions arising from the implementation of those policies; to learn how to cooperate efficiently at the national, subregional, regional, and international levels; to introduce a scientific approach to all educational levels and within society in general, as an element of rationality in efforts to understand one's surroundings and achieve personal and organizational goals; to understand and implement the processes of innovation and social learning and the importance of strategic and forward-looking thinking.

The challenges posed by the design and execution of policies in economies that are open to international trade, investment, and technology flows; the international debate on the opportunities and limitations of the national and local Innovation Systems approach; the need to stress the requirements of demand in the design of science, technology, and innovation policies; the changes in the orientation of planning seen in the developed nations (e.g., the European Union's Fifth Framework Program); the importance of evaluating programs and institutions; and the best institutional practices for implementing these policies: all these amount to a full agenda for research and regional cooperation.

**Priority Area for Action:**

Strengthening the ability to draw up, design, plan, and execute science, technology, and innovation policies at the local and national levels; exchanges of experiences with the best inter-American practices; and implementation of a regional training program in this field.

**Other Areas for action:**

1. Developing approaches and methods for evaluating the region's science and technology agencies and programs, and implementing a regional evaluation training program.
2. Supporting the training of top-level researchers through the creation and strengthening of regional doctoral programs, and providing scholarships to facilitate exchanges of students and researchers.
3. Supporting the development of indicators for science, technology, and innovation.
4. Encouraging the creation, strengthening, and networking of centers of excellence in areas of strategic importance for the scientific and technological development of the countries of the region.
5. Supporting the creation and strengthening of databases covering institutions, researchers, programs, and projects, and their incorporation into information networks.
6. Supporting the establishment of binational and multinational companies and institutes involved in to the generation, dissemination, and application of knowledge and technology, using as a basis the region's valuable existing experience with cooperation of this kind.
7. Promoting and supporting the creation and strengthening of training and specialization programs for science and technology administrators and managers.
8. Supporting the creation of centers for the popular dissemination of science and technology, for primary and secondary school pupils and the general public, and the interconnection of these centers in specialized networks.

**b. Development and Application of Information Technology**

The applications of communications and information technology (CIT), in a broad context, have grown enormously and become increasingly complex. Solid infrastructure is being built at the global and national levels. Multilateral institutions like the Inter-American Development Bank have emphasized the important connection between handling this growing storehouse of electronic global knowledge and attaining development goals.

Furthermore, it is clear that the developing nations can no longer base their hopes on maintaining their comparative advantages of cheap labor and abundant natural resources. Growing emphasis is being placed on the application and generation of knowledge. Failure to meet these challenges could cause CIT to

heighten the existing disparities of income, well-being, and opportunity instead of reducing them.

Constant, accelerated socio-economic change across the globe underscores the importance of designing specific CIT policies and strategies. There is a need to forge new types of alliances and to concentrate on institutional and organizational change in the context of development. Policies can promote or hinder critical learning processes that are necessary for developing society's ability to make effective use of CIT. Consequently, strategies for creating the necessary components must be drawn up, consistent with the creative application of CIT for maximizing the potential economic and social benefits associated with regional cooperation for development.

It thus follows that the factors that could hinder the spread and use of CIT must be acted upon, because although the costs of the infrastructure needed to build knowledge-based societies are high, the costs that would be incurred by remaining outside that revolution are far greater.

**Priority Area for Action:**

Promoting the region-wide development of initiatives for applying information technologies to health, education, and the satisfaction of basic human needs.

**Other Areas for Action:**

1. Supporting the improvement of national information infrastructures, allowing optimum communications at the regional and international levels and thus ensuring contact between the different sectors involved in scientific and technological activities.
2. Promoting and supporting the dissemination of research findings from different fields through the intensive use of new information technologies and the creation of databases.
3. Promoting active participation by the countries of the region in the construction, design, and standardization of the global information infrastructure, and encouraging its interconnection over global networks such as the Internet. Securing access to existing and emerging information technologies.
4. Promoting the dissemination and adoption of information technologies in business sectors, in order to raise productivity, increase competitiveness, and support job creation, with particular emphasis on small and medium-sized businesses.

**VI. ROLE OF THE GENERAL SECRETARIAT**

The OAS General Secretariat, through the Executive Secretariat for Integral Development and with the support of the competent specialized offices and units, in coordination with the Office of Science and Technology, will support the activities that arise from the Inter-American Science and Technology Program.

At their request, the Office of Science and Technology will support member states in the formulation of projects to implement this Program and will cooperate with them in the search for external funding and cooperation sources for the execution of those projects. Moreover, the Office of Science and Technology will provide support for the design and implementation of pilot science and technology projects to promote effective participation in innovative programs.

The Office of Science and Technology will present to CEPCIDI an annual work program of activities and bi-annual progress reports on its execution. The annual work program will define a strategy for the mobilization of external funds for the Inter-American Program.

## **VII. FINANCING**

As an integral component of CIDI's Strategic Plan, the Inter-American Science and Technology Program conforms to the guidelines and mechanisms provided to promote partnership cooperation for development.

Voluntary contributions from the member states to the Sectoral Account for Scientific Development, Exchange and Transfer of Technology of the Special Multilateral Fund (FEMCIDI) will finance activities and projects presented and approved by the member states in these areas. The cooperation activities may have access to additional financing sources, originating in public and private institutions.

Further, the Statutes of the FEMCIDI foresee that contributions or grants made for a specific objective, by any state, public or private entity, to carry out partnership for development projects or activities may be deposited in Specific or Trust accounts, administered by the General Secretariat and will be allocated according to the terms of the written agreements between the contributor and the OAS General Secretariat.

## **VIII. ROLE OF COMCYT**

In order to carry out the activities of the Inter-American Science and Technology Program and evaluate the results, the following functions assigned by CIDI to the Inter-American Science and Technology Committee (COMCYT) will be taken into account:

- a. Support preparation for and follow-up to meetings of science and technology ministers.

- b. promote hemispheric cooperation policies in the area of scientific development and the exchange and transfer of technology.
- c. identify and formulate proposals for partnership for development activities and projects within the framework of the Inter-American Science and Technology Program, for consideration in accordance with FEMCIDI provisions, and taking into account the objectives of the MERCOCYT Program.
- d. promote and support the raising of additional resources to fund partnership for development activities within CIDI.
- e. perform other tasks determined by CIDI or CEPCIDI.