SECOND SCIENCE AND TECHNOLOGY PROGRAM

(VE-0112)

EXECUTIVE SUMMARY

BORROWER AND GUARANTOR:	Republic of Venezuela	
EXECUTING AGENCY:	Consejo Nacional de Investigaciones Científicas y Tecnológicas (CONICIT) [National Science and Technology Research Council]	
AMOUNT AND SOURCE OF FINANCING:	IDB:	US$100 million (OC)
	Local counterpart:	US$100 million
	Total:	US$200 million
FINANCIAL TERMS AND CONDITIONS:	Amortization period:	20 years
	Disbursement period:	4 years
	Interest rate:	variable
	Inspection and supervision:	1%
	Credit fee:	0.75%
	Currency:	US$ from the Single Currency Facility

OBJECTIVES:

The general objective of the proposed program is to strengthen the national innovation system. The specific objectives are to: (a) boost the capacity to generate scientific and technological knowledge and help to improve the competitiveness of the country's main production sectors; (b) promote innovation in companies that produce goods and services; (c) foster cooperation between the academic, production, environmental and social sectors for the generation, transfer and use of science and technology; and (d) enhance the capacity for disseminating and popularizing science and technology.

DESCRIPTION:

The program is chiefly designed to support actions by CONICIT to help strengthen the national innovation system (NIS) and surmount its main limitations and includes activities to facilitate interaction and cooperation among different stakeholders in the NIS. To that end, the program includes the following components:

Component 1: Financing for research and development projects (US$40 million). The objective of this component is to strengthen capacity for research and the production of relevant knowledge through nonreimbursable funding for research projects in public and private universities, institutes and research centers.

Component 2: Training for science and technology research (US$50 million). The objective of this component is to boost national capacity to create and manage knowledge in science and technology (S&T). It will provide funding to train specialists in conducting and managing science and technology research projects, including: (a) grants for postgraduate studies (master's and doctoral level) in Venezuela and abroad; (b) training in S&T management; (c) training that does not lead to a degree; (d) grants for postdoctoral studies; (e) positions in institutions for new researchers; and (f) institutional support to strengthen national postgraduate programs and train researchers in Venezuelan universities.

Component 3: Strengthening R&D centers and technology services (US$20 million). The program will help to strengthen scientific infrastructure in emerging academic institutions, sector technology centers and the national laboratory system by granting nonreimbursable cofinancing to beneficiary institutions. The support will be nonrenewable and will diminish over time. In all cases, selection will be based on a competitive process using transparent evaluation criteria established in advance. They will include an evaluation of the demand for services, managerial capacity and project sustainability.

Component 4: Promotion of innovation in the production, social and environmental sectors (US$40 million). The objective of this component is to strengthen the capacity to generate and coordinate demand and transfer of knowledge for innovation in production, social and environmental sectors and in different regions.

The component will include: (a) cofinancing for **innovative projects** to boost business competitiveness, productivity and returns; (b) financing for **technology extension services** for small and medium-sized companies; (c) financing for **social, environmental and production agendas** as a means of bringing different players in a sector together in networks to generate and apply knowledge to help find solutions to the country's problems in that specific sector; and (d) **regional research agendas** to foster science and technology initiatives to solve concrete problems in the country's different regions.

Component 5: Science and technology dissemination and popularization (US$10 million). All the activities to be financed under this component will be selected through competitive public processes and will include: (a) design of publications and audiovisual products; (b) events to popularize and publicize S&T; (c) design and adaptation of contents, materials and methods, printed and audiovisual information, software to improve science teaching, and pilot projects to apply new techniques for teaching science and mathematics; and (d) support for the publication of scientific journals.

Component 6. Information services (US$8 million). This component will include: (a) **information projects** which could involve the development of information tools, systems, products and services, to facilitate access, use, interconnection and dissemination of information to the different social stakeholders involved in science and technology development; and (b) **financing and strengthening of networks on specific topics**, i.e. cooperative science and technology information services in subject areas defined by CONICIT in conjunction with the academic network of national research centers and universities (REACCIUN) to facilitate information supply and demand.

Component 7: Institutional strengthening, innovation policy studies and concurrent costs (US$12 million). This component will finance enhancement of the managerial capacity of CONICIT and other institutions in the national innovation system. The actions include strengthening the Venezuelan intellectual property system, the national systems for metrology, standardization, quality control and certification, and the system of indicators for science and technology activities. It will also include financing to hire specialized consulting services for program follow-up and evaluation and policy and planning studies, and will cover other concurrent costs of the program.

THE BANK'S COUNTRY AND SECTOR STRATEGY:

The Bank's strategy in Venezuela has the following main objectives: (a) to maintain macroeconomic stability; (b) to reduce inequity and alleviate poverty; and (c) to boost competitiveness and efficiency in the use of the country's resources through private sector development. The proposed program is intended to strengthen the capacity to generate new knowledge, boost productivity and competitiveness and foster innovation in the production and social sectors and is therefore expected to make a significant contribution to achieving the above objectives.

The country paper on Venezuela is nearly ready and will be discussed soon with the new government that took office on February 2, 1999. The loan portfolio review will continue with the government and a new review mission is slated for the second quarter of the year. The present operation is the second stage in a program that has received wide backing in the country and has been ratified by the new authorities. It dovetails with the new government's priorities. It is anticipated that the country paper will be completed in the first half of this year as part of the programming exercise.

CONICIT has been playing a major role in building the Venezuelan NIS, through sustained and growing support for scientific research in relevant areas, training for high-level researchers, promotion of cooperation among the different players in the NIS and innovative activities for finding solutions to concrete problems facing the country, through novel mechanisms such as sector agendas.

This second stage of the program is particularly important in the difficult circumstances in Venezuela at present because it ensures that the science and technology capacity that the country has been building over several decades will be maintained, since it would be very difficult and costly to recoup if it were lost owing to cyclical downturns. Continued support for CONICIT by successive governments betokens the priority that Venezuela attaches to continued efforts to build up its capacity to generate scientific knowledge and promote innovation in the production, social and environmental sectors, in order to spur growth and greater economic diversification.

SOCIAL AND ENVIRONMENTAL REVIEW:

CONICIT promotes research to find solutions to problems in Venezuelan society through the mechanism of research agendas, which will be supported under the proposed operation. Some of the agendas are working on the analysis of major social problems such as health in border areas, education and problems in today's cities. Other social areas will be examined during the program, such as problems related to the labor market, comprehensive protection for children, public security, and other significant issues.

The program will bolster actions already initiated by CONICIT to support research on environmental protection, biodiversity, urban pollution, and clean technologies in innovative projects. Based on CESI/TRG's recommendations, the Operating Regulations for the program include specific criteria to ensure that the subprojects will take steps for suitable environmental management, including waste disposal, particularly the disposal of laboratory waste.

BENEFITS:

The program will help to strengthen Venezuela's capacity in science and technology, consolidating the progress made in stage one. It has been designed to promote the quality and relevancy of research projects, the development of specialized human resources for scientific and technological research, linkage between research centers and potential users of the results, and innovation and technological development in the production sectors.

The program will have a positive impact on modernizing higher education since it will support diversification of funding sources for universities and spur internal changes in those institutions to improve the quality and relevance of academic programs. The research activities promoted by CONICIT will enhance the qualifications of a considerable group of university researchers and professors, raising the quality of a good number of academic programs on the undergraduate, graduate and doctoral levels.

Closer coordination among the different players in the national innovation system, particularly closer ties between academe and industry and participation by researchers through the agenda mechanism in solving problems that are linked to the country's development, will also help to make the academic programs of the country's universities more relevant.

The subcomponents for stronger sector technology centers, innovative projects in companies, technology extension services, industrial agendas and institutional strengthening of the intellectual property, metrology and standardization systems will help to modernize the production apparatus and boost its competitiveness.

With regard to the incentives established under the new execution mechanisms, funding for research projects chosen on a competitive basis can help to have several positive impacts, including: (a) diversification of the sources of funding for universities and centers by boosting their income from the sale of research and technology services, thus making them less reliant on direct government transfers; (b) consolidation of a mechanism to assign more funds to the universities and research and technology centers that present the best projects, creating a climate of competition for public funding as an alternative to the tradition of automatic allocation of public funds based on historical considerations, and introducing or strengthening result-based allocations; and (c) the most active and competitive researchers and programs will be rewarded, which will lead to better working conditions and single them out from others that are less committed to change.

By tapping the potential of information technologies and electronic data networks, the program will facilitate access and strengthen and expand technical information systems in different sectors. It will also make a start on actions to improve science teaching in schools and to publicize and popularize science and technology.

Strengthening Venezuela's science and technology capacity is a necessary factor for modern development but it is not the only one. Demand and interest must be aroused in the production sectors if that capacity is to bring the anticipated benefits. Therefore, the program has planned for a series of concurrent actions – such as the industrial agendas and technology extension services – to promote, foster and facilitate linkage between companies, especially smaller operations, and sources of scientific and technological knowledge and information.

RISKS:

From an institutional standpoint, the program would have two main risks: (a) delays in implementing the plan to reorganize CONICIT's structure and procedures; and (b) the level of institutional backing for CONICIT.

The first risk is mitigated by the commitment of CONICIT's administration to implementing the changes identified when the proposed operation was being prepared. The program monitoring plan includes indicators to verify whether the planned institutional changes have been made. Venezuela has a critical mass of researchers and institutions that makes the program's activities viable. The new method of decentralized implementation, actions to strengthen CONICIT's line units, and the contracting of specialized external support will ensure that the program is executed satisfactorily within the planned time frame.

With respect to the second risk, the program enjoys wide backing in Venezuela. The new government has reaffirmed the priority of this second stage and has assigned a central role to science and technology as a key in boosting the country's capacity to generate and assimilate knowledge, improve the competitiveness of the production sectors and continue with the process of internationalization and diversification of the economy. CONICIT is recognized for its drawing power and the leadership it shows in getting the main players in the NIS to take concerted action and do their part.

Last, one financial risk that could affect the program is timely contribution of the local counterpart, although the government has been providing the necessary contributions for the first program. In the last seven years CONICIT's real budget has grown substantially, almost quadrupling in real terms between 1991 and 1998. Since 1992, funds for the first program have represented on average close to 15% of CONICIT's operations and over that period the government's contributions have matched or exceeded the required disbursement rate.

SPECIAL CONTRACTUAL CONDITIONS:

Conditions precedent to the first disbursement for the program: The borrower will present evidence to the Bank that:

a. The plan for the administrative restructuring of CONICIT's Innovative Programs Management Office has been approved (paragraph 3.9).
b. An agreement has been signed with CONICIT whereby the borrower undertakes to transfer the loan proceeds and local counterpart to CONICIT, and CONICIT undertakes to carry out its obligations as program executing agency (paragraph 3.17).
c. The new program Operating Regulations have been placed in effect in accordance with the terms and conditions agreed upon with the Bank and the new instructions have been drawn up to guide the

beneficiaries of the subprojects to be funded by the program (paragraph 3.10).

Special conditions precedent to the first disbursement for subcomponents 4(a) and 4(c): The borrower will present evidence to the Bank that CONICIT has established a high-level industrial technology committee, in accordance with the personnel, functional and procedural profiles agreed upon with the Bank, which will be responsible for evaluating, approving and monitoring innovative projects (paragraph 3.8).

Contractual conditions for project execution:

a. A meeting to launch the program is to be held within three months after the loan is declared eligible for disbursement (paragraph 3.22).
b. An external advisory and monitoring committee is to be established within six months after the loan contract is signed (paragraph 3.20).
c. A trust for up to US$12 million to finance grants is to be established within three months after the commitment period for the loan has expired (paragraph 3.11).
d. A maintenance plan is to be prepared for program works and equipment (paragraph 3.15).
e. Retroactive financing and cost recognition are to be arranged (paragraph 3.18).
f. Regular program follow-up meetings are to be held (paragraph 3.23).
g. An evaluation of results is to be performed at the end of the program (paragraph 3.25).

PROCUREMENT: International public bidding will be required for goods worth more than US$350,000 and works costing over US$3 million.

POVERTY-TARGETING CLASSIFICATION: The proposed program does not qualify as a poverty- or geographically-targeted investment.

EXCEPTIONS TO BANK POLICY: None