

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

REGIONAL

CREATION OF A REGIONAL NETWORK OF TECHNOLOGY DEVELOPMENT CENTERS FOR CENTRAL AMERICA

(RG-T1581)

PLAN OF OPERATIONS

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BASIC SOCIOECONOMIC DATA

For basic socioeconomic data, including public debt information, please refer to the following address:

<http://www.iadb.org/RES/index.cfm?fuseaction=externallinks.countrydata>

ABBREVIATIONS

CTCAP	Comisión para el Desarrollo Tecnológico de Centroamérica y Panamá
ESR	Environmental and Social Review
FSO	Fund for Special Operations
IDB	Inter-American Development Bank
IDRC	International Development Research Center
R&D	Research and Development
TDC	Technology Development Centers

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EXECUTIVE SUMMARY

Beneficiary:	Member countries of the Comisión para el Desarrollo Tecnológico de Centroamérica y Panamá (CTCAP): Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Dominican Republic.		
Executing agency:	Comisión para el Desarrollo Tecnológico de Centroamérica y Panamá (CTCAP)		
Financing:	IDB (Net income from FSO):	US\$	250,000
	Local Counterpart:	US\$	35,000
	Total:	US\$	285,000
Objectives:	The general objective is to contribute to the strengthening of a knowledge-based regional system of innovation in Central America-Panama-Dominican Republic. The specific objective of the project is to design a workable and viable mechanism for the development of a Regional Network of Technology Development Centers clustered around the provision of products and services demanded by well identified local and international clients and users of the Network's outputs.		
Exceptions to Bank Policies and Procedures:	None		
Relation to the Bank's regional strategy.	This TC is consistent with the Bank's Document "Science and Technology for Development: An IDB Strategy" (GN 1013-2) which emphasizes a strong regional, sectoral and system-wide approach as well as viable institutional mechanisms.		
Environmental and social review:	Environmental impacts are not expected in this project. Consultants will be required to consider environmental criteria and gender issues in the diagnostics and Strategic Master Plan. Based on the information mentioned above, on the 25 th of August of 2008, the ESR Safeguard Classification toolkit, classified the operation as "C".		
Prior conditions	Selection of the general coordinator will be a prior condition to first disbursement. Prior to disbursement of Component 2, and for each Technology Development Center participating in the project, an agreement stating the responsibilities of the parties will be signed including provision of counterpart funding.		

**Execution and
Disbursement
deadlines**

The execution and disbursement periods have been estimated to be 9 and 12 months respectively, to commence after the date of effectiveness of the Letter of Agreement.

I. BACKGROUND AND JUSTIFICATION

- 1.1 During the year 2005, a study was undertaken entitled “Priorities in Science and Technology in Central America” that was financed by the Norwegian Fund of the Inter-American Development Bank. This study observed that despite the serious financial and political limitations of the science and technology sector, there exist in Central America a small number of specialized laboratories and a significant group of human resources and professionals trained both generally in the area of Bio-Science and more specifically in its applications to the agricultural sector.
- 1.2 In hindsight, this was a predictable result since the low transaction costs associated with access to the rich bio-diversity of the countries of the region make it possible for research centers to undertake interesting projects, particularly in areas such as agriculture, forestry, aquaculture, and biology.
- 1.3 However, there were significant weaknesses. One major one was the lack of sectoral focus: too few resources (human, physical and financial) were chasing too many areas of research interest. That mismatch, in turn, resulted in small scale or unsustainable efforts, which added little to national productivity and competitiveness. Also related to this mismatch is the absence of adequate policies and/or funding for the support of infrastructure, training, information exchange, joint ventures, inventorship, electronic information sharing platforms for research, free movement of skilled workers among countries, as well as a tendency to pay insufficient attention to demand from business users, and others.
- 1.4 It is noteworthy that the study and later technical discussions with stakeholders point to two economic sectors where the mismatch is smaller –and which have the greatest potential to contribute to economic growth: agro-industry and bio-pharma. As noted above, it is not surprising given the biodiversity and agro-industry as well as export experience.
- 1.5 Nonetheless, the biotech sectoral systems of innovation of some countries enjoy less of a national commitment and/or institutional/technical capacity than others. As a result, a major concern for any new regional effort is to assure each participating country that it has an equal stake in designing a regional network – i.e., no “big brother” leading the rest.
- 1.6 The same study noted the importance of technology development centers (TDC). The goal of most TDCs is to solve technically complex issues related to productivity, cost-efficiency, competitiveness, and innovation in business enterprises, as well as provide assistance to public agencies requiring serious technical support. In countries that lag behind with respect to technology, such as those of Central America and Panama, the services provided by TDCs are essential. But their investment and infrastructure weaknesses seriously limit the quantity, quality, and dissemination of research. Additionally, it was observed that

these centers should have a greater orientation toward businesses' demand of their products, a classic weakness of these types of organizations.

- 1.7 Considering the initial conditions noted above, it would be sensible in terms of the long term development goals of the Central American countries to take advantage of the strengths and opportunities in these sectors. Namely, it would be prudent to devise ways to enhance both the TDCs' capacities to produce research and their ability to produce results relevant for the private sector. Given the economic size of each of the nations involved and the absolute necessity of achieving a minimal critical mass to generate world class results, a strategy to foster collaboration between these centers is needed.
- 1.8 In this venue, this technical cooperation aims to foster collaboration among those TDCs that have the greatest potential to grow by offering services more focused on the needs of their current and potential clients. Instead of immediately devising ambitious schemes for promoting alliances, the project proposal will start with a diagnostic of the existing TDCs which would then lead to concrete initiatives, including the provision of a communication platform to allow the centers to better interact among themselves and a stimulus package to induce joint research efforts in specific areas. The Bank has received five non-objection letters to the project from beneficiary countries.
- 1.9 Similar initiatives have been successfully carried out in Mexico, leading to the creation of the Mexican Life Science Alliance, which is helping four biotech centers (Cuernavaca, Monterrey, Irapuato and Guadalajara) collaborate and share information and resources.¹

II. PROGRAM DESCRIPTION

A. Components

- 2.1 The technical cooperation will consist of two components: (1) a diagnostic of the TDCs and of the bioscience/biotechnology policy, entrepreneurial and R&D environment; (2) a proposal of the institutional mechanisms, policies and procedures to promote and stimulate collaboration both among the TDCs of Central America and with other regions. The latter component will consist, in turn, of two subcomponents: (a) a proposal for an ICT platform for communication and research collaboration among the TDCs on national, regional and extra-regional levels; and (b) a Regional Strategic Master Plan and calendar to carry out the steps needed to turn the proposals into reality.

¹ http://www.sandiegodialogue.org/pdfs/Brochure_MLSA.pdf and http://www.sandiegodialogue.org/pdfs/Borderless_Biotech.pdf

- 2.2 CTCAP will provide the consultants with the list of the most promising biotech-based TDCs that will participate as well as relevant contact information. CTCAP will also schedule the visits to each of the countries as well as any logistical information that may facilitate the consultants' job performance. The agreement between CTCAP and the participating TDCs will establish the responsibilities and benefits to be derived from the cooperation to execute the project.
- 2.3 **Component 1: Diagnostic of the TDCs (US\$178,500).** The Bank will hire individual consultants capable of performing the following services. (i) an analytical description of the institutional capacity –understood as the rules, regulations and incentives– of the biotech/bioscience sector; (ii) a serious effort must be applied to identifying the clients and describing the clients' market characteristics and likely research directions –especially applied work that might produce results for commercialization, and any other research topics that the Network might be able to work on; (iii) analysis of demand from local enterprises and other potential users of TDC services and of the supply capacity to fill the demand, as well as a discussion of the trends of the most promising biotech-based TDCs in each country –with particular attention paid to explaining the gaps; (iv) analysis of the countries' ability to produce, attract, mobilize and/or access the right quality and quantity of human and physical capital; (v) a clear analysis of the appropriateness of the financial environment and institutions and how well they enable R&D and adoption of technologies –e.g., are the local financial regulations friendly enough to attract international venture capital? Are they friendly to multinational corporations, or laboratories that demand pre-commercial inputs? Or is the financial environment oriented only to local small and medium enterprises that can utilize and commercialize the outputs of the TDCs in the Network? Or is it or is it not open to R&D labs in universities that want to procure early stage research results from the Network? (vi) analysis of policies, regulations and practices that may act as disincentives for the dynamic participation of TDCs in the Network –clearly recommending alternative incentives necessary to motivate researchers and managers (at the individual level) to commit themselves to work in the Network such as a reward for getting a joint project funded; and (vii) organization of a Regional Workshop to be held in a selected Central American country. This meeting will serve to discuss the results of the diagnostics and allow for consensus-building concerning the identified weaknesses. The consultants will include the active participation of private sector stakeholders such as enterprises and providers of risk financing in their analysis.
- 2.4 **Component 2: Proposal of institutional mechanisms, policies and procedures (US\$57,000).** This component consists of two subcomponents:
- 2.5 **Subcomponent A: Proposal for an ICT platform for communication and research collaboration.** Bank resources will be used to contract individual consultants to design the connectivity requirements to facilitate R&D collaboration among the TDCs. That is, the consultants will write a proposal for an ICT platform for communication and research collaboration among TDCs –

nationally, regionally and extra-regionally. Due to its regional character, the design must integrate an information/data system which will serve as a tool to maintain communication and coordination among the actors in the system. This instrument will allow the distribution of reliable and timely information to support permanent and efficient communications among the TDCs. In particular, the consultants will design the vehicles and protocols to process data from afar utilizing R&D equipment located in other TDCs. Additionally, the proposal will allow for the consolidation of existing inventories of studies, resources and facilities of the TDCs –therefore, reducing waste and duplication. The design of this system includes a review of the capabilities, connectivity alternatives, and existing and potential platforms between the various actors of the network.

- 2.6 The International Development Research Center (IDRC) of Canada has expressed a serious interest in partnering with the Bank to complement this operation because it considers it important for the region. The IDRC is currently evaluating the most effective way to complement the Technical Cooperation. Preliminary discussions point towards fleshing out the ICT platform proposal that will be designed with the present operation –including equipment specifications, maintenance considerations, specialized ICT labor requirements, and training activities, among others.
- 2.7 **Subcomponent B: Regional Strategic Master Plan** (including a detailed timetable for its implementation): This subcomponent will finance individual consultants to elaborate and discuss with national stakeholders –including and especially those from the private sector– the steps necessary to achieve the goals agreed under the proposals submitted under Component 1. In particular, identifying clients, detailing the technical capacity of the Network, determining how enabling the financial environment is, and discerning the policies and regulations that could lead to a Strategic Master Plan in the coming three years. The following minimum number of activities and outputs will be delivered: (a) stakeholder workshops to obtain comments and feedback on the experts' assessments of needs and adequacy of existing economic resources – infrastructure, equipment, human capital, training and services in each participating country as well as the policies and mechanisms proposed. The workshop should also arrive at a consensus on a shortlist of potential areas or topics for R&D focus, as well as on a proposal per country for larger capacity building work to do –in order to better prepare to engage and attract potential clients; (b) a description, by country, of the requirements needed to coordinate the implementation of a Regional Network of TDCs (for instance, establishing the convenience of a mechanism (and funding) to bring in an on-site peer review scheme, or a strategy to procure the equipment needed to implement the ICT communications platform); (c) a proposal for a mechanism to further identify and engage potential clients in discussions regarding the R&D demand from the Central American TDCs; (d) a methodology and mechanism proposal to link and coordinate the technical resources of the participating countries, in order to build such a Regional TDC Network which includes connections with neighboring countries, particularly the USA and Mexico; (e) facilitation of a dialogue process

to build consensus on the priority of the previously identified shortcomings and (f) based on the above, consultants will draw up project profile proposals which the participating countries can then use to request financing from an international financial institution. This will entail a workshop (perhaps through video conferencing) to discuss and agree on the **Strategic Master Plan** with activities, responsibilities, dates and estimates of the resources needed. The Strategic Master Plan will contain the concerns and demands that each participating country deems essential as a condition for their own participation.

- 2.8 In addition, the Strategic Master Plan will include the definition and characteristics of a minimum number of indicators that will allow the TDCs to monitor and adjust their performance on a timely basis once the Network has been implemented. Once the mission and objectives of the Network have been agreed upon the indicators will help the network users and other stakeholders, including donors, assess whether the network is making progress. The Table below provides a sample list of indicators for each country.

TABLE 2: TDC INDICATORS
Process indicators: <ul style="list-style-type: none"> • Speed to access information • Availability of on-going project opportunities • Number of collaborative projects in progress • Records of delays • Time to complete contracting
Output indicators <ul style="list-style-type: none"> • Number of collaborative research proposals published in reputable journals • Number of patents requested and granted • Number of collaborative initiatives finished on time • Cost overruns or savings
Outcome indicators: <ul style="list-style-type: none"> • Number of licenses for tech transfer issued • Value of licenses issued for tech transfers

- 2.9 **Relation to the Bank's regional strategy.** This TC is consistent with the Bank's Document "Science and Technology for Development: An IDB Strategy" (GN 1013-2) which emphasizes a strong regional, sectoral and system-wide approach as well as viable institutional mechanisms. In addition, one of the main objectives of the Bank's regional strategy, as stated in the meeting of Central American and Mexican Presidents in Tuxtla, Mexico (2008) is to contribute to growth and competitiveness. This TC contributes to that goal by enhancing the

capabilities of TDCs to provide technological services to enterprises which, in turn, will contribute to productivity and/or cost savings. Further, it increases opportunities to learn and gauge the TDCs' degree of competitiveness vis a vis comparable benchmark institutions. It should be noted that the original proposal for this project was awarded a prize in a Bank's call (competition) for proposals for regional TCs.

III. COST AND FINANCING

A. Budget

- 3.1 The total amount of the overall project is US\$285,000. The amount to be financed with the net income of the Fund for Special Operations (FSO) of the Bank is estimated at US\$250,000 while the counterpart to be provided by the TDCs is estimated to be US\$35,000. The budget is outlined in Table 1. The duration of the project is 12 months.

Table 1 Indicative Budget

COMPONENTES	BID	LOCAL	TOTAL
COMPONENT 1. Diagnostic of the TDCs	143,500	35,000	178,500
i) Diagnostic of the TDCs and the bioscience/biotechnology policy, entrepreneurial and R&D environment			
consultants * U\$800/day * 90 days	72,000		72,000
Travels	60,000		60,000
ii) Organization and coordination of a Regional Workshop to be held in a selected Central American country.	11,500	35,000	46,500
COMPONENT 2. Proposal of institutional mechanisms, policies and procedures	57,000		57,000
i) Subcomponent A: Proposal for an ICT platform for communication and research collaboration:			
ii) Subcomponent B: Regional Strategic Master Plan			
Tentative expenses for i)			
consultants * U\$600/day * 40 days	24,000		24,000
Travels	10,500		10,500
Tentative expenses for ii)			
1 senior consultant * U\$600/day * 20 days	12,000		12,000
Travels	10,500		10,500
General Coordinator			
1 senior consultant U\$3,500/month * 12 months	42,000		42,000
Contingencies	7,500		7,500
TOTAL COST	250,000	35,000	285,000

IV. EXECUTING AGENCY AND MECHANISM

- 4.1 The executing agency will be the Comisión para el Desarrollo Tecnológico de Centroamérica y Panamá (CTCAP). The CTCAP, created in 1970, is the official regional office for science, technology and innovation of the Central American Integration System (SICA in Spanish). CTCAP operates through a Pro-tempore President and a Permanent Executive Secretariat (Guatemala's CONCYT). The Pro-tempore Presidency rotates amongst the CTCAP countries on a two year basis. Currently, both the Pro-tempore Presidency and the Permanent Executive Secretariat lie with Guatemala. The Project will be executed through the Permanent Executive Secretary which corresponds to Guatemala.
- 4.2 CTCAP has administered and executed previous technical cooperations with the Bank and other international donors. It manages its own budget which is provided by the various member governments. It has a mandate to formulate and coordinate regional science, technology and innovation policies and activities.
- 4.3 The TC will provide resources to contract a project coordinator and one assistant to support CTCAP coordinate all activities and procure the services necessary to execute the project. The project coordinator will respond to CTCAP Administration and will maintain regular communications with the Bank. The project coordinator will be responsible for presenting the periodic follow-up reports agreed to with the Bank. The coordinator will have timely access to relevant CTCAP specialized personnel to advise him/her on technical matters.

A. Executing Period and Disbursement Schedule

- 4.4 Considering the time to prepare and conclude diagnostics in 7 countries, and given the extensive consultations with stakeholders during and after the preparation of the Strategic Master Plan, the execution and disbursement periods have been estimated to be 9 and 12 months respectively, to commence after the date of effectiveness of the Letter of Agreement.

B. Procurement

- 4.5 Procurement of goods, services and consulting services will be conducted in accordance with Bank policy (document GN-2349-7 on policies for the procurement of works and goods financed by the IDB, and document GN-2350-7 on policies for the selection and contracting of consultants financed by the IDB).

V. MONITORING AND EVALUATION

A. Monitoring

- 5.1 The Bank will carry out at least three monitoring meetings with the executing agency to review the progress of execution and its adherence to the objectives agreed to with the Bank. One meeting will take place to launch the project with

the participation of the contracted consultants. The second will occur once the subcomponents for diagnostics, strategies, policies and programs have been completed. The final meeting will happen during the presentation of the final Strategic Master Plan report by the consultants to major stakeholders.

B. Evaluation

- 5.2 Three months after the execution has been completed, the executing agency will present a final report, which will include a description of the activities that have taken place, the outcomes and lessons learned. In addition, it will present updated financial statements, scrutinized by an independent auditor, of the expenses incurred by the project.

VI. PROGRAM BENEFITS AND RISKS

A. Benefits

- 6.1 The project will contribute toward a robust, knowledge-based regional economy capable of accelerating each of the Central American countries' growth rates. International best practices and state-of-the-art planning tools will help assure that the correct enabling conditions and policies are in place, and that those lead to investments, both private and public, which focus on areas offering the greatest possible synergies and spillover effects. Additionally, by identifying and better understanding the characteristics of potential TDC-clients, collaborators and donors (both local and international), the Strategic Master Plan resulting from this operation will provide a design to engage these actors in an effective and sustainable fashion.
- 6.2 The project will contribute greatly towards building consensus and support for the newly created Network of TDCs. This, in turn, will help build a positive collective attitude in the region not just among the closest stakeholders but also among the population at large, supporting follow-on future decisions and activities as well as financial sustainability.

B. Risks

- 6.3 One risk is that the participating governments do not include sufficient financial provisions to expand the quality and quantity of human and physical capital required by the Strategic Master Plan. Another risk is that the key stakeholders do not actively and enthusiastically participate in the dialogue and fail to support the requirements to implement the Strategic Master Plan. To mitigate both risks resources from this TC aim at promoting dialogue and dissemination of results so that the benefits and investment required are properly understood. A final risk is that the necessary technical information for optimal analysis may not always be available. In these cases focus group (of experts) analyses will be pursued.

VII. ENVIRONMENTAL AND SOCIAL REVIEW

A. ESR Review

- 7.1 Environmental impacts are not expected in this project. Consultants will be required to consider environmental criteria and gender issues in the diagnostics and Strategic Master Plan. Based on the afore-mentioned, and according to the ESR Safeguard Classification toolkit, the operation has been classified as "C".

B. Environmental and Social Aspects

- 7.2 The project involves only consulting services. It does not entail the construction of buildings or infrastructure, or feature any activity that directly deals with the environment or requires an environmental impact assessment. The project may indirectly enhance the CTCAP members' capacities for conservation, and environmental and social responsibility through its consensus building activities leading to the Strategic Master Plan.

VIII. CERTIFICATION

- 8.1 The Grants and Cofinancing Management Unit (VPC/CGM) certifies that the amount of US\$250,000 from the Fund for Special Operations (FSO) are available for the financing of the proposed program budget of the current Plan of Operations.

(original firmado)

11-7-2008

Marguerite S. Berger
Chief
Grants and Cofinancing Management Unit
VPC/GCM

Date

IX. APPROVAL

(original firmado)

11-7-2008

Flora Montealegre Painter
Chief
SCL/SCT

Date