TC Document

I. BASIC INFORMATION

Country/Region:	Regional
TC Name:	"Strengthening National Metrology Institutes in the Hemisphere, in support of emerging technologies"
TC Number:	RG-T2682
Team Leader/Members:	Gabriel Casaburi, Team Leader (CTI/CAR); Claudia Suaznabar (CTI/CBO); Pablo Angelelli (CTI/CCH); Rodolfo Graham (LEG/SGO); Mariela Rizo (IFD/CTI); Luciana Garcia Nores (INT/INT); Matthew Shearer (INT/INT)
TC Taxonomy	Client Support
Date of TC Abstract authorization:	July 7, 2015
Beneficiary (countries or entities which are the recipient of the technical assistance):	BENEFICIARIES: INTI Argentina, BNSI Barbados, BBS Belize, INMETRO Brazil, IBMETRO Bolivia, INM Colombia, LACOMET Costa Rica, INN Chile, INDOCAL Dominican Republic, INEN Ecuador, CENAME Guatemala, CENAM México, CENAMEP Panama, INTN Paraguay, INDECOPI Peru, SBS Suriname, TTBS Trinidad and Tobago, LATU Uruguay.
Executing Agency and contact name	National Institute of Industrial Technology (INTI Argentina). Contact: Ezequiel Gonzalez Simkin
Donors providing funding:	Facility for the Promotion of Regional Public Goods (FRPG-OC)
IDB Funding Requested:	US$700,000
Local counterpart funding, if any:	US$1,397,000 (in-kind resources)
Disbursement period (which includes Execution period):	32 months,
Required start date:	March 1, 2016
Types of consultants	Firms and individuals
Prepared by Unit:	IFD/ CTI
Unit of Disbursement Responsibility:	Country Office of Argentina (COF/CAR)
TC Included in Country Strategy:	No
TC included in CPD:	No
GCI-9 Sector Priority:	Institutions for Growth and Social Welfare; Competitive Regional and Global Integration

II. OBJECTIVES AND JUSTIFICATION OF THE TC

2.1 Justification. Measurements play a key role in our daily lives, establishing trust in the marketplace and helping companies ensure their products meet international standards and specifications. Accurate and reliable measurements are critical to productivity and competiveness, since metrology is a cross-cutting tool essential for innovation, scientific advancements, technology development, commerce, health care, environment and security. Access to basic metrology services is an essential element of innovation, especially for SMEs (small and medium-sized enterprises).

2.2 Each country in the hemisphere has identified an institution responsible for measurements, generally referred to as National Metrology Institutes (NMIs). These NMIs establish, improve, and disseminate national measurement standards, and provide linkages globally to the International System of Units. International acceptance of a country's measurement system is essential to access global markets. The NMIs, in each of the countries of the region, share challenges and opportunities best addressed through regional cooperation, and this proposal will enhance the development of robust metrology institutions within our region. The Sistema Interamericano de Metrología (SIM) is the regional institution for cooperation in Metrology in all of the Americas. This cooperation creates an environment for promoting competitiveness and innovation in firms, enhancing hemispheric trade integration, and developing measurement services in support of emerging technologies.

2.3 Since the recognition of the importance of a measurement and standards infrastructure at the 1994 Summit of the Americas, the NMIs throughout the hemisphere have been working together to strengthen the existing regional metrological infrastructure. Understanding basic measurement techniques is critical, but ever changing requirements demand measurement capabilities previously unheard of. The countries of the Americas have developed an understanding of the need for a measurement and standards infrastructure, but there remains a critical need for enhancing current capabilities including competences to address changes in local, regional and international requirements as well as advances in technologies. The lack of measurement capabilities is a barrier that limits the development of new technologies. For example, the introduction of nanotechnologies demands measurement capabilities at the nanometric range (10-9 m) and biotechnology demands new capabilities in biological reference materials (i.e GMOs, biopharmaceuticals, etc). Establishment of these enabling measurement capabilities can be achieved more efficiently through a regional cooperation scheme. This proposal will enhance the development of robust metrology institutions within our region using the existing framework of the SIM, which incluides all these institutions. This cooperation creates an enviroment for improving measurement capabilities in current and advanced measurement areas, developing measurement services in support of emerging technologies promoting competitiveness and innovation in the private sector and enhancing hemispheric trade integration. All these activities will contribute to improve medium and low technological-level economies, enhancing knowledge of current and future measurement needs, the development of regional capabilities and strengthening of regional links.

2.4 Furthermore, the international mutual recognition of these capabilities can only be achieved by the regional cooperative scheme as established by the International Committee for Weights and Measures. With previous support from OAS, regional NMIs have made great strides in improving regional measurement capabilities and increasing understanding of the need for a strong measurement and standards infrastructure to support economic growth and development. This support has leveraged significant local investment by many of the participating countries in their measurement and standards infrastructure. This project intends to further strengthen the NMIs in the region, with a particular emphasis on enhancing the network and improving measurements capabilities in support of emerging technologies. It aims at enhancing the dialogue with governmental, social and industrial stakeholders, and to foster stronger relationships between all the organizations supporting National Quality Infrastructure in the western hemisphere.

In particular, this project will support of the Panama Plan of Action, Working Group 3 on National Quality Infrastructures (NQI) created at the Meeting of Ministers and High Authorities of Science and Technology in Panama in November 2011, which created the Inter-American Quality Council including SIM, the Inter American Accreditation Cooperation (IAAC) and the Pan American Standards Commission (COPANT).

2.5 **Objectives.** The General Objective is: Development and implementation of new measurement expertise available in member countries to address emerging technology needs. The three specific objectives: (i) Promote a climate of innovation, competitiveness and productivity by enhancing the delivery of advanced measurement services needed by firms for the development and adoption of emerging technologies; (ii) Facilitate public-private sector dialogue between the national measurement institutes and stakeholders in government and industry to improve the regulatory framework in the hemisphere needed to develop innovative companies bringing new products and technologies to the marketplace; and (iii) Promote the mutual acceptance of measurement results necessary not only for trade, but also to facilitate cooperative R&D projects between different member countries, and between LAC and other regions.

2.6 The current Sector Strategy: "Institutions for Growth and Social Welfare" (GN-2587-2) identifies improving innovation and productivity as a major area where the Bank can help the region overcome the challenges that hinder growth and social welfare. It specifies enhancing SME Productivity and Growth as well as promoting institutions for innovation and technological development which focuses on increasing private sector firms' investment in improving institutions and policies related to innovation, and strengthening networks and synergies among institutions. To this end, the IDB will work towards strengthening institutions and providing the private sector with the tools to innovate, increase their productivity, and compete more effectively in the global market.

III. DESCRIPTION OF ACTIVITIES/COMPONENTS AND BUDGET

3.1 This project has three Components, involved in three technical areas, with the following objectives, activities and budget:

3.2 **Component I: Measurement science for emerging technologies.** This Component will finance activities such as: (i) joint research projects in advanced areas in the cutting edge of metrology, like advanced manufacturing, nanotechology and biotechnology; (ii) the organization of measurement comparisons and pilot studies to support international recognition of measurement capabilities that support measurement service delivery important to the private sector; (iii) the organization of technical training workshops in support of the development of measurement service for emerging technologies; and (iv) the organization of internships oriented to enhance capabilities in emerging metrology areas (nanotechnology, biotechnology, energy efficiency). These internships will be carried out in the NMIs members of SIM with higher technological development in each field as NIST (USA), NRC (Canada); INMETRO (Brazil) or others.

3.3 **Component II: Strengthening the regional links with the public and private sectors for the regional regulatory environment and emerging industrial quality**

infrastructure. This component will improve NMI´s Management Capacity through the financing of the following activities, among others: (i) training of NMI professionals to conduct industrial needs assessment surveys to improve efficiency and effectiveness of targeting new services offered to the private sector; (ii) the participation of NMIs in sector specific workshops and seminars with industry to identify emerging measurement needs; (iii) training courses in laboratory management best practices to enhance reputation, reliability, and recognition of calibration and measurement services offered nationally and regionally; and (iv) seminars, meetings and workshops to facilitate public-private dialogue to foster NMI´s engagement with industry stakeholders; and (v) dissemination of new knowledge and capabilities acquired by NMIs to the private sector.

3.4 **Component III: Strengthening global positioning of the hemispheric metrology infrastructure in international fora**. This component will aim at engaging participating agencies to enhance productivity by financing activities such as: (i) the participation of firms and NMI staff in a Metrology for Innovation and Entrepreneurship Fora to facilitate and to support the development of innovative companies; (ii) the development of joint quality infrastructure activities with IAAC (InterAmerican Accreditation Cooperation) and COPANT (Pan American Standards Commission); and (iii) and the participation of beneficiary institutions at internacional fora where regulatory and trade issues are discussed for advanced institutional visibility (i.e. BIPM, OIML, ILAC, IAAF, ISO, etc.).

Indicative Results Matrix*

Indicators	Measurement Unit	Baseline		Goal		Source of Verification
		Value	Year	Value	Year	
Outputs						
Component 1: Measurement science for emerging technologies						
Joint research undertaken	Research projects	0	2015	5	2016-2018	NMIs
Internships completed in measurement areas that support emerging technologies	Internships	0	2015	20	2016-2018	NMIs
Component 2: Strengthening the regional links with the public and private sectors for the regional regulatory environment and emerging industrial quality infrastructure						
Technical training workshops held in measurement science	Workshops	0	2015	10	2016-2018	Project Database
Measurement comparison and pilot studies carried out	Measurement comparisons and/or pilot studies carried out	0	2015	3	2016-2018	Project Database
Component 3: Strengthening global positioning of the hemispheric metrology infrastructure in international fora						
Metrology for Innovation Forum organized	Fora	0	2015	1	2016-2018	Project Database
Participation of beneficiary institutions in international fora supported.	Fora	0	2015	5	2016-2018	Project Database
Outcomes						
Outcome 1: Improved delivery of advanced measurement services by National Metrology Institutes						
SMEs that hire the technical advice from NMIs concerning the improved advanced measurement services in order to increase competitiveness	SMEs	0	2015	50	2016-2018	SMEs Contracts with NMIs

Number of services developed to meet local industry needs	# of Services	0	2015	5	2016-2018	Technical reports from NMIs
Outcome 2: Strengthened links with other regions through improved positioning of the hemispheric metrology infrastructure						
Joint quality infrastructure activities between SIM and IAAC and COPANT	Joint activities	0	2015	3	2016-2018	Agenda/ Programs. Final Minute.
Outcome 3: Strengthened capabilities in regional NMIs						
New measurement capabilities in emerging technologies in order to be recognized	Number of participants in international accelerator program	0	2015	10	2016-2018	Submission of new CMCs (Calibration and Measurement Capabilities) by NMIs
NMIs participating in new comparisons and/or pilot studies	comparisons and/or pilot studies	0	2015	15	2016-2018	Comparison ´s reports extended by the pilot lab
Outcome 4: Improved knowledge of industry needs for services						
NMIs that incorporate services to support emerging technology demands from their industries	Number of countries	0	20185	5	2016-2018	NMIs annual reports
NMIs participating in new comparisons and/or pilot studies.	NMIs	0	2015	5	2016-2018	Study assessment report
Outcomes 5: Increased engagement and dialogue with other regions						
Scientific staff trained in current and emerging technology measurement needs	Staff trained	0	2015	100	2016-2018	Lists of participants in training events
Participants from LAC region in Metrology for Innovation Forum.	Participants from LAC	0	2015	70	2016-2018	Lists of participants in Forum

*See Detailed Results Matrix

3.5 The total cost of the project is US$2,097,000 of which US$700,000 will be financed with resources from the Facility for the Promotion of Regional Public Goods and US$1,397,000 with in-kind resources from beneficiary countries.

Indicative Budget (US$)

Activity/Component	IDB/RPG Funding	Counterpart Funding (In Kind)	Total Funding
Component I: Measurement science for emergingtechnologies	370,000	628,700	998,700
Component II: Streghtening the regional links with the public and private sectors for the regional regulatory environment and emerging industrial quality infrastructure.	120,000	243,500	363,500
Component III:Strengthening global positioning of the hemispheric metrology infrastructure in international fora.	130,000	247,800	377,800
Website design for internal and external communication and visibility	10,000	69,000	79,000
Management, coordination and monitoring	40,000	188,000	228,000
External Evaluation and Audit	30,000	20,000	50,000
TOTAL	**700,000**	**1,397,000**	**2,097,000**

*See Detailed Indicative Budget

3.6 **Supervision.** IFD/CTI, through its Project Team Leader, will have technical and basic responsibility for the implementation and general supervision of the project. In addition, the Regional Public Goods Initiative of the Integration and Trade Sector (INT/INT) will monitor the project's overall performance as part of the RPG Program portfolio.

3.7 **Evaluation**. External consultants/firms will be hired to perform the final evaluation and audit of the project.

IV. EXECUTING AGENCY AND EXECUTION STRUCTURE

4.1 **Executing Agency**. The Executing Agency for the project will be the Instituto Nacional de Tecnología Industrial- INTI (Argentina).

4.2 INTI is a decentralized organization of the Argentine State within the jurisdiction of the Ministry of Industry. It was created by Law N° 17138 in December 27, 1957. It plays a key role in the process of Argentine social and productive development. As the government's technology branch, the mission of INTI is to promote generation and transfer of technological innovation in industry, while ensuring the quality of processes, goods and services produced in accordance with global standards and trends. INTI's role is to develop, preserve and maintain the national measurement standards, and disseminate their accuracy as Argentina's metrology institute. This role contributes to assuring quality measurements that protect the environment, health, food, public safety, fair trade and industrial production quality.

4.3 INTI has an institutional annual budget of around US$106 million and its governance is based on a Directive Board, headed by INTI ´s President[1]. The executing agency will be in charge of hiring consultants, organizing events, preparing and submitting periodical reports to IDB and managing the project's financial flows, and presenting all the required financial reports to the IDB. The project manager will be part of INTI counterpart contribution. With project resources, an Administrative and Accounting Assistant will be hired, as referred in Annex II. The Monitoring & Evaluation action will be carried out by an external consultant (Annex II).

4.4 **Steering Committee**. The project execution and management will be coordinated by a 4-member Steering Committee. It will be integrated by the *Sistema Interamericano de Metrología* (SIM) President (INTI Argentina), the SIM Project Coordinator (NIST USA), the SIM Professional Development Coordinator (CENAM Mexico) and the SIM Technical Committee Chair (LATU Uruguay). The committee will have the

[1] Over 2900 people compose INTI's staff and they are distributed over the 24 Argentine provinces throughout 45 Research and Development Centers and a total of 10 management offices. INTI has been working with IDB during the last three years, through a Technical Cooperation oriented to strengthen the instititucional capabilities for the technical assistance and transfer to SMEs. Also, INTI has managed other internationally-funded projects for about US$24 Million dealing mostly with institutional strengthening capabilities, research and development consortia and human resource training. Examples of these projects are "Improvement of Regional Economies and Local Development", financed by EUROPAID, "'Reinforcing disadvantaged communities in Argentina, Brazil, Colombia and Uruguay" financed by AUSAID and "Preparatory project to facilitate the implementation of the legally binding instrument on mercury (Minamata Convention) in Argentina to protect health and the environment" financed by UNEP among others funded by JICA, UE, GIZ and Ministries of Science of different countries.

responsibility to review and approve all major activities of the project: TOR and final reports of the consultancies to be hired, main activities for each of the events planned, and above all, its members will be in charge of liaising with all SIM's member countries. This Committee will work closely with Bank.

4.5 **Participating institutions.** The participating institutions are 24, divided into 18 beneficiaries: INTI Argentina, , BNSI Barbados, BBS Belize, INMETRO Brazil, IBMETRO Bolivia, INM Colombia, LACOMET Costa Rica, INN Chile, INDOCAL Dominican Republic, INEN Ecuador, CENAME Guatemala, CENAM México, CENAMEP Panama, INTN Paraguay, INDECOPI Peru, SBS Suriname, TTBS Trinidad and Tobago, LATU Uruguay; and 6 partners: ABBS Antigua and Barbuda, National Institute of Standards and Technology- NIST USA, National Research Council- NRC Canada, GDBS Grenada, Bureau of Standards St. Kitts and Nevis, SLBS St. Lucia,.

4.6 The 24 Institutes are the national responsibles entities for their country´s national measurement system and for coordinating their country´s involvement in the regional and global metrology system. These institutions will cooperate in the generation of the Regional Public Good (RPG) through the technical exchange and the promotion of the public private dialogue. They are stable institutions in each county created by national laws and with decades of operation and experience of hemispheric cooperation. The new measurement capabilities to be acquired through this project are expected to adress the strategic objectives of the participating NMIs and to be aligned with the national industrial priorities. The cooperation links between the NMIs included in the project has existed for more than 30 years, with a successful history of achievements, and this Project will further strengthen the network and expand those cooperative linkages and create opportunities for more robust measurement science cooperation in support of emerging technologies.

4.7 The global recognition of measurement capabilities are defined within the framework of the "Mutual Recognition Arrangement among National Metrology Institutes¨ established by the International Committee for Weights and Measurements (CIPM-MRA- www.bipm.org). Additionally, within the frame of SIM activities, the NMIs have an annual General Assembly in order to report advances and make plans for the next year. Thus, the project will be executed within a stable long term framework, and will consequently generate a Regional Public Good inserted in consolidated institutions with regional and international links. Next General Assembly will take place in República Dominicana on November 16-17th, 2015.

4.8 **Strategic Partners**. NIST, from USA, and NRC, from Canada, are world recognized in measurement sciences, and they intend to facilitate the transfer of technical know how and broad experience in the area of emerging technologies. Other partners, such as ABBS Antigua and Barbuda, participate in the Project with the intention of developing capabilities to meet local demand for basic measurement services in areas of emerging technologies.

4.9 **Procurement and financial management.** Project procurement will be carried out by the Executing Agency in accordance with the Bank's policies and procedures. A Procurement Plan is included as Annex III and should be regularly updated during project execution. The disbursements will follow the Bank's policies and procedures.

V. MAJOR ISSUES

5.1 The NMIs of the region have long term cooperation background within the SIM framework, established in 1979. Together, they have executed several OAS projects to develop the basis of the metrology in the Americas. This project is a step forward to tackle the challenge of emerging technologies.

5.2 No risk is estimated in the execution of the project. Nevertheless, there is a low potential risk of coordinating a large number of partner institutions. This risk will be mitigated by relying heavily on the established experience and reputation of the SIM as a coordinator of national institutions.

VI. EXCEPTIONS TO BANK POLICY

6.1 There are no exceptions to Bank Policy.

VII. ENVIRONMENTAL AND SOCIAL STRATEGY

7.1 The project will not generate any significant social or environmental negative impacts. According with the toolkit program, this project was classified with a Category "C", meaning that no environmental assessment studies or consultations are required.

Annexes:

- Annex I: Commitment Letters from participating countries
- Annex II: Terms of Reference
- Annex III: Procurement Plan

STRENGTHENING NATIONAL METROLOGY INSTITUTES IN THE HEMISPHERE IN SUPPORT OF EMERGING TECHNOLOGIES

RG-T2682

CERTIFICATION

I hereby certify that this operation was approved for financing under the Facility for the Promotion of Regional Public Goods **(RPG)** through a communication dated July 10, 2015 and signed by Kai Hertz (ORP/GCM) in compliance with resolution DE-62/15 approved by the Executive Directors on July 7, 2015. Also, I certify that resources from said fund are available for up to **US$700,000** in order to finance the activities described and budgeted in this document. This certification reserves resources for the referenced project for a period of four (4) calendar months counted from the date of signature below. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in U.S. dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.

Original Signed — 11/04/2015

Sonia M. Rivera — Date
Chief
Grants and Co-Financing Management Unit
ORP/GCM

APPROVAL

Approved:

Original Signed — 11/06/2015

Jose Miguel Benavente — Date
Division Chief
Competitiveness & Innovation Division
IFD/CTI