

## 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):	<b>BENEFICIARIES:</b> 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:	N/A
IDB Funding Requested: Facility for the Promotion of Regional Public Goods (FRPG-OC):	US\$700,000
Local counterpart funding, if any:	US\$1,397,000 (in kind resources)
Disbursement period (which includes Execution period):	36 months, 32 months of execution
Required start date:	March 1, 2016
Types of consultants (firm or individual consultants):	Firms and individuals
Prepared by Unit:	IFD/ CTI
Unit of Disbursement Responsibility:	Country Office of Argentina (COF/CAR)
TC Included in Country Strategy (y/n):	No
TC included in CPD (y/n):	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 competitiveness, 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, being the Sistema Interamericano de Metrología (SIM) an example of these institutions. 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 Sistema Interamericano de Metrología (SIM) which includes all these institutions. This cooperation creates an environment for improving measurement capabilities in advanced measurement areas, developing measurement services in support of emerging technologies promoting competitiveness and innovation in the private sector and enhancing hemispheric trade integration.
- 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, nanotechnology 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).
- 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.

- 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<sup>1</sup>**

Indicators	Baseline	Goal	Source of Verification
<b>Component I: Measurement science for emerging technologies</b>			
<b>Result: Improved capabilities availables in regional NMIs and in enterprises</b>			
Number of new measurement capabilities in emerging technologies in order to be recognized	0	10	NMIs
Number of SMEs that use the afore mentioned measurement services	0	50	NMIs
Number of R+D+i projects in metrology related to emerging technologies in the region	0	5	NMIs
Number of internships completed in measurement areas that support emerging technologies	0	20	NMIs (internship program)
Number of technical training workshops designed and deployed in these areas	0	10	Project database
Number of participation of NMIs in new comparisons and/or pilot studies	0	15	Comparison’s reports
<b>Component II: Streghtening the regional links with the public and private sectors for the regional regulatory environment and emerging industrial quality infrastructure.</b>			
<b>Result: Dialogue between public- private sector deepened</b>			
Number of NMIs that incorporate development of services to support emerging technology demands from their industries	0	5	NMIs
Number of needs assessments conducted to determine local industry needs	0	5	Local reports
Number of services developed to meet those needs	0	5	NMIs technical reports

<sup>1</sup> See Annex IV: [Detailed Results Matrix](#)

NMI's training opportunities established in support of industry	0	5	Project database
<b>Component III: Strengthening global positioning of the hemispheric metrology infrastructure in international fora. Result: Strengthened links between the different regions</b>			
- Number of scientific staff trained in current and emerging technology measurement needs	01	100	Lists of participants in training events database
Metrology for Innovation Forum organized	0	1	Project database
Number of joint quality infrastructure activities between SIM and IAAC and COPANT	0	3	Agenda/ Programs. Final Minute
Number of documents presented at international fora that mention SIM engagement	0	5	Documents in project database

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

Activity/Component	IDB/RPG Funding	Counterpart Funding (In Kind)	Total Funding
<b>Component I: Measurement science for emerging technologies</b>	<b>370,000</b>	<b>628,700</b>	<b>998,700</b>
Activities:			
Joint research projects (personal exchange support)	90,201	135,599	225,800
Collaborative multinacional research efforts	69,972	135,828	205,800
Measurement comparison and pilot studies	50,135	85,365	135,500
Technical training workshops in support of service development for emerging technologies	79,846	136,954	215,800
Internships to enhance capabilities in emerging metrology areas	79,846	136,954	215,800
<b>Component II: Strengthening the regional links with the public and private sectors for the regional regulatory environment and emerging industrial quality infrastructure.</b>	<b>120,000</b>	<b>243,500</b>	<b>363,500</b>
Activities:			
Laboratory management best practices workshops	30,705	60,195	90,900
Training NMI professionals in the conduct of industrial needs assessment surveys	34,947	70,953	105,900
Participation of NMIs in established sector specific workshops with industry	19,824	50,976	70,800
Public- Private dialogue to engage NMIs with industry stakeholders (seminars, meetings, workshops)	34,524	61,376	95,900
<b>Component III: Strengthening global positioning of the hemispheric metrology infrastructure in international fora.</b>	<b>130,000</b>	<b>247,800</b>	<b>377,800</b>
Activities:			
Metrology for Innovation and Entrepreneurship Forum and related activities	55,420	94,780	150,200
Joint quality infrastructure development activities with IAAC and COPANT	44,864	95,336	140,200
Participation at international forums where regulatory and trade issues are discussed	29,716	57,684	87,400

<b>Website design for internal and external communication and visibility</b>	<b>10,000</b>	<b>69,000</b>	<b>79,000</b>
<b>Management, coordination and monitoring</b>	<b>40,000</b>	<b>188,000</b>	<b>228,000</b>
<b>External Evaluation and Audit</b>	<b>30,000</b>	<b>20,000</b>	<b>50,000</b>
<b>TOTAL (U\$S)</b>	<b>700,000</b>	<b>1,397,000</b>	<b>2,097,000</b>

- 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 U\$S106 million and its governance is based on a Directive Board, headed by INTI 's President<sup>2</sup>.
- 4.4 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.
- 4.5 **Steering Committee.** The project execution and management will be coordinated by 4-member Steering Committee. It will be integrated by the *Sistema Interamericano de Metrología* (SIM) President (INTI Argentina), the

<sup>2</sup> 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 institutional capabilities for the technical assistance and transfer to SMEs. Also, INTI has managed other internationally-funded projects for about 24 Million USD 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.

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 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 IBD.

- 4.6 **Participating institutions.** The participating institutions are 34, divided into 26 beneficiaries: INTI Argentina, MLLG Bahamas, BNSI Barbados, BBS Belize, INMETRO Brazil, IBMETRO Bolivia, INM Colombia, LACOMET Costa Rica, INN Chile, INDOCAL Dominican Republic, INEN Ecuador, CONACYT El Salvador, CENAME Guatemala, GBS Guyana, MCI Haití, CEHM Honduras, JBS Jamaica, CENAM México, LANAMET Nicaragua, CENAMEP Panama, INTN Paraguay, INDECOPI Peru, SBS Suriname, TTBS Trinidad and Tobago, LATU Uruguay, SENCAMER Venezuela; and 8 partners: ABBS Antigua and Barbuda, National Institute of Standards and Technology- NIST USA, National Research Council- NRC Canada, Bureau of Standards Dominica, GDBS Grenada, Bureau of Standards St. Kitts and Nevis, SLBS St. Lucia, Bureau of Standards St. Vincent and Grenadines.
- 4.7 The 34 Institutes are the national responsible 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 country 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 address 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.
- 4.8 The international 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). Additionally, the 34 Institutes 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.
- 4.9 **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.
- 4.10 **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 IDB project is a step forward to tackle the challenge of emerging technologies. No risk is estimated in the execution of the project.

#### **VI. EXCEPTIONS TO BANK POLICY**

- 6.1 None

#### **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](#)

Annex IV: [Detailed Results Framework](#)