

In this page the interested people will find information about projects already accomplished or in process in the scope of the SIM.

## **Project Concept**

**Project Name: "Implementation of metrology Infrastructures of the Americas to support Free Trade and Quality of Life"**

**Submitted By: United States of America**

### **Executing Institution:**

National Institute of Standards and Technology (NIST), United States of America -  
Coordinator  
Centro Nacional de Metrologia de Mexico (CENAM), Mexico  
Laboratorio Tecnologico de Uruguay (LATU), Uruguay

Other Participating Countries:

The project is multinational and all 34 countries are members of OAS and are participating in the project, by taking part in the training, seminars, workshops, and technical activities.

AR AB BA BO BS BR BZ CA CH CO CR DO EC ES GR GU GY HO HA JA KN ME NI  
PE PN PY RD SL SU SV TT UR US VE

**Execution Period: 2005 - 2008**

## **1. Project Description and Objectives:**

### **General Objective**

To provide tools and mechanisms in support of the FTAA and to help improve the Quality of Life through the use of improved measurement capabilities within the Americas, through capacity building and sustainability of the Interamerican Metrology System (SIM) Specific objectives of the proposal

- To engage the improved measurement capabilities established within the members of SIM as a means of reinforcing the structure that supports the mutual confidence and recognition of the metrology services among the member states of the OAS, through measurement comparisons and training of human resources.

- To provide the coordination for the cooperation activities between national metrology laboratories within the Americas and international organizations.
- To increase exchange of information on metrology and its socio-economic impact through training, seminars, workshops, print and electronic media, and information and communication technologies (ICTs).
- To create an awareness of the implications of metrology among OAS member states' policymakers, enterprises and academia.

### **Relationship of the Objectives with the Strategic Plan for the Americas**

Trade liberalization and market access require that products, processes and services be in accordance with international standards and procedures for physical and chemical measurements. Expert exchanges and cross technical assistance promote the development of the scientific and technological capacities of the Member States. Sustainable development in healthcare, agriculture, communities, natural resources and the emergence of medium and small industries are demanding accurate physical and chemical measurements to monitor use of resources, protection of the environment and quality of products and services. Harmonization of measuring procedures on an international scale makes it possible to build confidence in the technological capacities of the countries in support of the FTAA.

### **Relationship of the proposal with the corresponding Inter-American Program**

The mandate "Supporting the training of top-level researchers through the creation and strengthening of regional doctoral programs, and providing scholarships to facilitates exchanges of students and researchers", is related to the effort of the Project of providing to national laboratories personnel and researchers with high level training programs which includes comparison exercises, experts exchanges, study visits, etc, in order to reinforce cooperation, strengthening, and networking of centers of excellence for the scientific and technological development of the region.

The use of the internet by SIM, through the SIMNET program and the improvement of web sites is being implemented to reflect this. The creation of web sites and databases, with information related to SIM activities and results of its performed activities, can be used shortly in a very effective way by more national institutions, governments, and researchers, as well as incorporated into related information networks.

The protection of the environment and healthcare diagnostics depend on the measurement capability of the National Laboratories, and goes beyond the frontiers of the individual countries.

The project supports the dissemination of technical knowledge needed for monitoring the environment, through seminars, courses, exchange of expertise, and comparison exercises.

## **2. Project Justification**

### **Background**

Trade, health, protection of the environment, and the protection of consumers are key issues to the development and well being of countries, issues that need constant support of reliable, and fit for their purpose, measurements. In their turn, reliable measurements within a country depend upon a national metrology system organized in such a way that it can provide national measurement standards and means for transferring their values to common measuring instruments in accordance to accepted international procedures. Furthermore, international equivalence of measured values is essential to the desired reliability. Fit for their purpose measurements are those that have an associate uncertainty compatible with that required for the application intended. Therefore, each country chooses the level of metrology to be achieved according to its own needs. It is worth mentioning that the Summit of Presidents of the Americas (Miami, 1994) expressed their strong intention to achieve the Free Trade Area for the Americas (FTAA) and stressed the importance of metrology and of measurement equivalence to the elimination of technical barriers to trade. This intention was reaffirmed in the Summit of Presidents held in Monterrey, Mexico, January 2004.

In order to assure measurement equivalence worldwide the General Conference of Weights and Measurements, under the Meter Convention, has established a Mutual Recognition Arrangement (MRA) that is based on measurement comparisons. In their turn, countries have been organizing themselves into regional cooperation groups, usually under the framework of economic blocks, so that comparisons, training, exchange of expertise etc. can take place and bring about the desired equivalence. This has also been the case of the Inter-American Metrology System (SIM), which brings together the national metrology institutions of 34 OAS member countries.

SIM has, over the past ten years, established the grounds for such cooperation:

- the re-structuring into five sub-regions (NORAMET, CAMET, CARIMET, ANDIMET and SURAMET), corresponding to the five economic blocks in the Americas;
- the creation of the Technical and the Professional Development Committees;
- the organization by the Technical Committee of much needed comparisons, whose results have been submitted to the above mentioned MRA;
- the organization of pilot study comparisons as a means of training and assessment of measurement capabilities;
- the organization by the Professional Development Committee of training courses and seminars;
- the and an Annual General Assembly;
- the holding of Council meetings to coordinate the metrology activities among the countries of the Americas.

The present project aims at strengthening SIM even further and consolidating past achievements so that it can serve the purpose defined by the Summit concerning FTAA and achieve measurement equivalence through activities such as comparisons for those most demanded quantities (mass, volume, pressure, force, amount of substance, electrical power etc.); training, for those countries that are in the process of establishing or reviewing their national metrology system; and exchange of expertise.

### **Relationship to national development priorities**

Reliable measurements are essential for the exchange of goods, maintenance of healthcare and protection of consumers and the environment, all of which are required for the socio-economic development of nations. For instance, the protection of the environment relies on compliance to pre-established limits of pollutants in air, water and soil and, consequently, on accurate chemical measurements. Consumers need to have confidence that the pre-packaged goods they purchase contain the exact number of units, weight or volume declared on the label. Metrology is the science of measurement and it is to be understood also as the national framework set up, based on reference standards kept at a National Metrology Laboratory, and on a series of agreed technical and legal structures and procedures. In addition, Metrology provides the basis for good manufacturing practices, industrial production, reliability, and quality of products and services in a country.

### **Relationship to regional development priorities**

Taking into account what was previously said and bearing in mind FTAA, which requires a technical backbone to facilitate trade and commerce, maintain a clean environment and water quality, improve healthcare and monitor food safety and quality, it is important that each country in the Hemisphere has a national metrology system. This system should provide metrology services at the level needed in the country and recognized among its peers according to the rules established by the Mutual Recognition Arrangement (MRA), signed by many nations under the Meter Convention Treaty. Recognized measurements are the basis for mutually accepted certification of products, processes and services. The Inter-American Metrology System (SIM) provide the technical infrastructure network needed within the Americas, especially by the less developed countries, to promote the equivalence of measurement and, consequently, to contribute to competitiveness and quality in the small and medium enterprises of the Hemisphere. It is also worth mentioning that the SIM is recognized as the Regional Metrology Organization that represents the Americas before the International Committee of Weights and Measures (CIPM), thus being the only organization, which can submit all the data on an individual American country measurement capability to the above-mentioned MRA.

### **Involved institutions**

Governmental and non-governmental institutions of the 34 member countries of OAS are involved in the operation of SIM.

A list of the institutions in each country is detailed in annex1. (See also item 5).

### **3. Executing Institutions**

#### **Executing and coordinating Institution:**

Name of the national institution: National Institute of Standards and Technology (NIST)

Name and title of responsible official: Dr. B. Stephen Carpenter, Director for International and Academic Affairs

Address: B 220 Chemistry Building, Gaithersburg

State/Province: Maryland, MD

Country: The United States

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#### **Executing Institutions:**

Name of institution: Centro Nacional de Metrología de México (CENAM)

Name and title of responsible official: Dr. Héctor Nava Jaimes, Director General

Address: K.M. 4.5 Carretera a los Cués, El Marqués, C.P. 76900

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Name of institution: Laboratorio Tecnológico de Uruguay (LATU)

Name and title of responsible official: Ing. Quim. Luis Mussio, Head of Metrology Sector.

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All of these Projects institutions (NIST, CENAM and LATU) have been participating continuously in SIM activities since its reactivation 1995

NIST is worldwide recognized center of excellence but unique in many field providing support to scientists and technicians from national laboratories from the Western Hemisphere.

NIST is also considered a pioneer in measurement techniques, development of processes, techniques and world standards of reference.

These institutes have outstanding level of infrastructure, highly qualified human resources, prestigious training programs for foreign personnel of national laboratories, and are very experienced providing technical cooperation projects to other countries.

### **Methodology to accomplish the objective**

The Project will achieve its activities on the following fronts:

1. Supporting infrastructure in developing countries in specific sectors and basic legal, physical, and chemical metrology laboratories: continuous capacity building due to personnel turnover and the establishment of new services, providing expertise in priority sectors for specific measurement capabilities, providing means for establishing traceability to international standards, and pursuing recognition in certification of certain products exports. The goals are to support and improve established physical and chemical measurement capabilities and help establish new measurement capabilities in countries where they do not currently exist, and the country has demands.
2. Supporting the continuous harmonization process needed to assure the homogeneity of physical and chemical measurements, thus maintaining international mutual recognition in several sectors and obtain recognition in other sectors. The goals are to improve and support the preservation of the quality of water, air, soil, healthcare and the environment through reliable measurements and to facilitate trade and commerce.
3. Proving a forum to inform policymakers, academia, and industry on the socio-economic impacts of metrology. The goal is to enlist their support in the realization of the national metrology system and use of the system in the execution of national policies.

### **4. Expected Results:**

#### **Outputs**

1. Developed Human Resources and Improved measurement, capabilities Enhanced Mutual Acceptance of Measurement & Calibration Certificates, improved technical aspects of legal metrology activities in relation to Free Trade Agreements

2. Improved awareness of the socio-economic impact of metrology within the sub-regions of the Americas, provided tools for the sustainable development of metrology infrastructure and capacity building throughout the Americas, created international recognition/acceptance of the metrological activities in the Americas, created an awareness of the metrology related activities of extra-regional organizations, established mechanisms for the effective dissemination of metrology information using information and communication technologies (ICTs).

**5. Duration and Cost Estimate:**

The present project has duration of 4 years, having begun in 2005.

Year	Fellowship	Travel (1)	Documents	Equipment (2)	Contracts (4)	Other (3)	Total
2005	210 000	30 000	10 000	30 000	20 000		300 000
2006	210 000	30 000	10 000	30 000	20 000		300 000
2007	210 000	30 000	10 000	30 000	20 000		300 000
2008	210 000	30 000	10 000	30 000	20 000		300 000
Total	840 000	120 000	40 000	120 000	80 000		1 200 000
%	70.00%	10.00 %	3.33 %	10.00 %	6.67 %		100.00%

(1) Travel - Cost covers airfare only, per diem expenses are the responsibility of the home institution.

(2) Equipment - Include transportable measurement devices that aid in the measurement comparisons such as thermometers, gauges meters and reference materials.

(3) Other - Include the packaging, the shipment cost of measurement devices, computer software and sometime custom fees.

Yearly National counterparts

Country (1)	Total National Counterpart
Founding in US\$ (2)	Country (1) Total National Counterpart
Founding in US\$ (2)	
AG 5.000	HA 5.000
AR 75.000	HO 10.000
BA 5.000	JA 15.000
BO 15.000	KN 5.000
BS 5.000	ME 100.000
BR 200.000	NI 5.000
BZ 5.000	PE 15.000
CA 200.000	PN 15.000
CH 15.000	PY 15.000
CO 15.000	RD 5.000
CR 15.000	SL 5.000
DO 5.000	SU 5.000
EC 15.000	SV 5.000
ES 10.000	TT 15.000
GR 5.000	UR 15.000
GU 10.000	US 1.000.000

GY 5.000 VE 10.000  
TOTAL 1.850.000

(1) See names of national institutions in Annex No. 1 attached to this proposal.  
(2) These institutions will provide their technicians, experts, equipment, and laboratory infrastructures for the achievement of the Project's activities.

Budget summary

Year  
OAS/AICD  
Executing country (countries)  
Total  
2005 300 000 1 850 000 2 150 000  
2006 300 000 1 850 000 2 150 000  
2007 300 000 1 850 000 2 150 000  
2008 300 000 1 850 000 2 150 000  
Total 1 200 000 7 400 000 8 600 000

1. Part 1: Technical Aspect - Measurement and Comparison, Training and Seminars  
Training, Workshops, Comparisons, and Seminars  
1.1 Chemical Metrology  
1.2 Physical Metrology  
1.3 Communications (Video Conferencing and others)  
1.4 Legal Metrology

**Expected Outputs:**

- Developed Human Resources and Improved Measurement Capabilities;
- Enhanced Mutual Acceptance of Measurement & Calibration Certificates; and
- Improved technical aspects of legal metrology activities in relation to Free Trade Agreements

2. Part 2: Awareness - Training and Workshops, Seminars  
2.1 Annual Regional Awareness Seminar (GA): GMOs, Chemical Metrology, Quality Systems...  
2.2 Sub-Regional Workshops and Seminars (CAMET; ANDIMET; CARIMET; SURAMET)  
2.3 Communications: Website, INFOSIM, Outreach-Publicity & Promotion



**Expected Outputs:**

- Improved awareness of the socio-economic impact of metrology within the sub-regions of the Americas;
- Provided tools for the sustainable development of metrology infrastructure and capacity building throughout the Americas;
- Created international recognition/acceptance of the metrological activities in the Americas; and
- Created an awareness of the metrology related activities of extra-regional organizations