



## UNITED STATES' EXPERIENCE

### **TITLE: Strengthening National Metrology Institutes in the Hemisphere, an essential element in the development of National Quality Infrastructure**



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**Country:** United States

**Institution:** National Institute of Standards and Technology (NIST)/U.S. Department of Commerce

**Other institutions involved:**

Argentina - Instituto Nacional de Tecnología Industrial  
Antigua and Barbuda Bureau of Standards  
Bahamas Ministry of Economic Development  
Barbados National Standards Institution  
Belize Bureau of Standards  
Bolivia Instituto Boliviano de Metrología  
Brazil Instituto Nacional de Metrologia, Normalizacao e Qualidade Industrial  
Canada National Research Council  
Chile Instituto Nacional de Normalizacion  
Colombia Superintendencia de Industria y Comercio  
Costa Rica Laboratorio Costarricense de Metrología  
Dominica Bureau of Standards  
Dominican Republic Direccion General de Normas y Sistemas de Calidad  
Ecuador Instituto Ecuatoriano de Normalizacion  
El Salvador Consejo Nacional de Ciencia y Tecnología  
Grenada Bureau of Standards  
Guatemala Comisión Guatemalteca de Normas  
Guyana Bureau of Standards  
Haiti Ministry of Commerce and Industry  
Honduras Consejo Hondureño de Ciencia y Tecnología  
Jamaica Bureau of Standards  
Mexico - Centro Nacional de Metrología  
Nicaragua Laboratorio Nacional de Metrología  
El Centro Nacional de Metrología de Panamá  
Paraguay Instituto Nacional de Tecnología y Normalizacion  
Peru Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual  
Saint Lucia Bureau of Standards  
St. Kitts and Nevis Planning Unit, Ministry of Development  
St. Vincent and the Grenadines; Government of Saint Vincent

Suriname Metrology Unit  
Trinidad and Tobago Bureau of Standards  
USA - National Institute of Standards and Technology  
Venezuela Servicio Autonomo de Normalizacion Calidad y Metrologia (currently inactive)  
Laboratorio Tecnologico del Uruguay

**Webpage:** [www.sim-metrologia.org.br/](http://www.sim-metrologia.org.br/)

### Context

Trade, health, energy, and protection of the environment and of consumers are key issues to the development and well-being of countries, issues that need constant support of reliable measurements. Understanding basic measurement techniques is critical, but ever changing threats to the environment, and human health and safety demand measurement capabilities previously unheard of. Since the recognition of the importance of a measurement and standards infrastructure at the 1994 Summit of the Americas, which was reaffirmed at the Summit of Presidents held in Monterrey, Mexico, January 2004, with support from the Organization of American State (OAS), the institutions responsible for measurements and measurement standards throughout the hemisphere have been working together to strengthen the existing infrastructure through the Inter-American System of Metrology (SIM). Since 1994, SIM has grown to include all 34 Member States of the OAS. For the United States, the National Institute of Standards and Technology (NIST) is actively engaged in the SIM and serves as the coordinator of an OAS supported project designed to facilitate harmonization of measurements across the region; improve the level of measurement capabilities in each participating country; identify areas for training and capacity building in measurements and standards; and raise awareness on the importance of a measurement and standards infrastructure to support innovation and competitiveness.

### Objectives

#### GOAL:

- To Facilitate harmonization of measurements and development of the Inter-American System of Metrology (SIM), the internationally recognized Regional Metrology Organization for the Americas.

#### OBJECTIVES:

- Capacity building and training
- Improve measurement capabilities
- Increase exchange of information
- Raise awareness of the importance of metrology
- Facilitate harmonization of measurement capabilities

### Relevance

A metrology and standards infrastructure is essential for:

- facilitating trade and commerce
- advancing manufacturing and services
- improving public safety and security
- facilitating innovation and competitiveness
- improving quality of life

### Implementation

With support from the Organization of American States (OAS), the US Mission to the OAS, and the participating institutions in the Hemisphere, the region is working to strengthen the National Metrology

Institutes and Designated Institutes in the Hemisphere through workshops, group training, individual training assignments, and measurement comparisons to support of the development of National Quality Infrastructures in the hemisphere and a strong regional measurement infrastructure.

#### Distribution of tasks

US/NIST – Coordinator of the OAS/FEMICIDI Project

Uruguay/LATU – Technical Committee Chair for SIM

- Metrology Working Group (MWG) on Electricity and Magnetism – Brazil/INMETRO
- MWG on Photometry and Radiometry – US/NIST
- MWG on Thermometry – Uruguay/LATU
- MWG on Length – US/NIST
- MWG on Time and Frequency – US/NIST
- MWG on Ionizing Radiation – US/NIST
- MWG on Mass and Related Quantities – Chile/CESMEC
- MWG on Chemistry – US/NIST
- MWG on Ultrasound and Vibration – Mexico/CENAM
- MWG on Flow and Volume – Mexico/CENAM
- MWG on Legal Metrology – Argentina/INTI
- MWG on Quality – Panama/CENAMEP
- MWG on Statistics and Uncertainty – US/NIST

Mexico/CENAM – Professional Development Committee Chair for SIM

Peru/INDECOPI – President of SIM

US/NIST – Chair of the SIM Quality System Task Force

#### Achievements and results

- Over 500 trainees in physical, chemical and legal metrology
- Over 25 training events and workshops
- Over 10 Awareness activities
- Biannual publication on INFOSIM – a scientific journal of successes in the region
- Increased political and public awareness
  - Significant local investment
  - New or improved metrology laws
- Increased recognition of measurement capabilities:
  - New services offered
  - International Recognition

#### Unexpected achievements

- A regional organization able to leverage the strengths of its partners in bilateral, regional and international activities
- Increased partnerships between participating institutions beyond the parameters of the OAS supported project
- New bilateral and regional cooperative projects such as the highly successful partnership between NIST and INMETRO on biofuels and a developing activity in measurement for climate science and renewable energy
- Increased training provided by participating institutions to counterpart organizations and increased recognition of the talent developed in the hemisphere which has resulted in invitations to train outside the region
- Increased use of partner organizations for measurement services

**Capacity to replicate and potential for exchange of this experience**

The success of this project is a direct result of the commitment of each of the participating institutions and their Governments in recognizing the need for improved measurement capabilities in their countries AND for a strong regional metrology organization to represent the hemisphere in the international measurement community

**Modalities to replicate the exchange**

Workshops and Seminars on best practices and lessons learned

**Human, operational and institutional capacities**

The strength of the organization is a direct result of the commitment of individuals and their institutions and their governments. Because of the commitments of the institutions, we have been very fortunate to have stability in the individuals involved. Most of our most active participants have been engaged for 10 or more years, and their institutions value and encourage their participation.

**Good practices and concrete lessons**

Strong Institutional Commitment is required  
Support from the local Government is essential  
The ability to utilize the network for assistance in technical areas as well as sharing information on raising awareness with government officials

**Experiences and subjects to learn from other RIAC members**

It would be helpful to learn from other efforts how to best communicate successful results locally, nationally and regionally

**Key persons involved in the design, implementation, and evaluation**

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