



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



Quality Infrastructure Council for the Americas

# Quality Infrastructure of the Americas

## STRATEGIC ROADMAP



COPANT



InterAmerican  
Accreditation  
Cooperation

# Quality Infrastructure of the Americas

## STRATEGIC ROADMAP

The Strategic Roadmap aims at providing a high-level overview of the key topics that need to be addressed in order to leverage the collaborations between the regional standards, metrology and accreditation organizations and their constituent members. This will support inclusive and sustainable industrial development, and specifically (intra- and inter-regional) trade.

The 5 steps proposed provide a systematic and efficient approach to Quality Infrastructure (QI) development in line with national and regional needs. The steps proposed can be applied and can add value to countries that are at different stages on their QI journey.

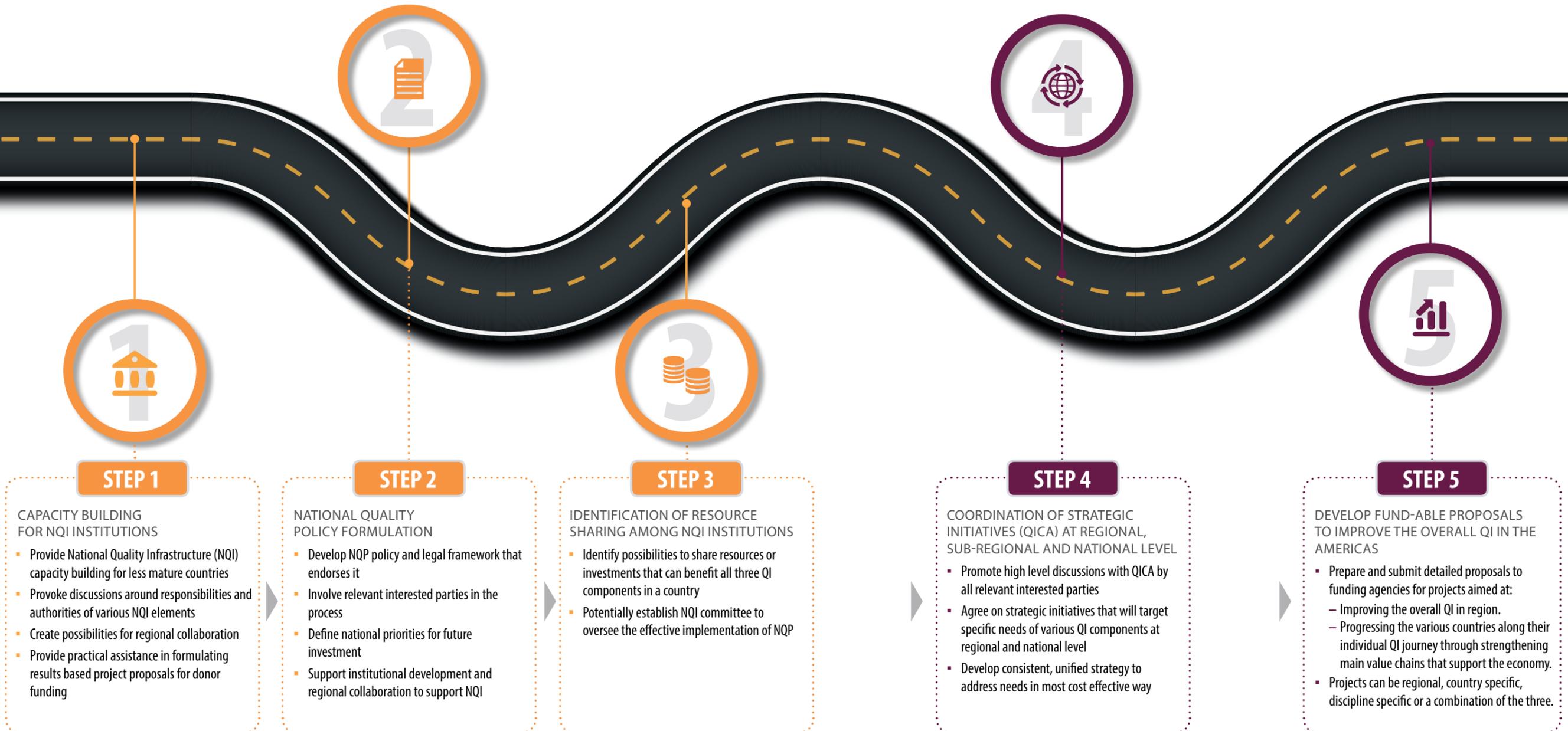
This roadmap should be considered as an evolving planning tool that is to be reviewed and updated periodically to reflect changing priorities, environment, contexts and the emergence of new challenges and opportunities.

ACCESS TO A QUALITY INFRASTRUCTURE IN THE AMERICAS THAT FURTHERS AND SUPPORTS PROGRESS TOWARDS THE 2030 SUSTAINABLE DEVELOPMENT GOALS



### National

### Regional



# Quality Infrastructure of the Americas

STRATEGIC ROADMAP



October 2017

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# FOREWORD

Setting up an effective and efficient Quality Infrastructure (QI) System is one of the most constructive steps that a developing nation can implement on the path towards establishing a thriving economy, building on growth, prosperity, health and well-being. A well designed QI system would be one that supports the achievement of SDG 9, “To build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”, and central in achieving a majority of the other SDGs.

Developing country exports and imports face an increasing number of restrictions in the form of increased standards or technical regulations that must be adhered to for products to cross borders. A quality infrastructure system is generally understood to be the totality of the institutional framework (public and private) needed to provide acceptable evidence that products and services meet defined requirements. It is centred around the three traditional components of standards, metrology and accreditation, that in turn support conformity assessment and market surveillance activities.

For a region as diverse as the Americas, which consists of countries with huge heterogeneity in their overall level of development and at different stages in their QI journey, there are various international, national and regional initiatives that are ongoing. It is important, therefore, to provide a high-level overview of key topics that must be addressed in order to leverage existing collaborations, in order to support inclusive and sustainable industrial development, specifically (intra- and inter-regional) trade.

QI development was declared a priority issue for competitiveness, innovation, trade and consumer safety in the Americas (Action Plan 2012-2016, Panama 2011). This initiative to develop a high-level strategic roadmap for QI development and improvement in the Americas was conceived during the UNIDO General conference in 2013, with the leadership of three main regional entities, namely COPANT (Standards), SIM (Metrology) and IAAC (Accreditation). Subsequently, in 2014, the three entities created the Quality Infrastructure Council of the Americas (QICA) established to provide and promote effective deployment of QI in the Americas as well as collaboration between national and regional initiatives.

The roadmap is an evolving tool that aims to support the visions of the three members of QICA in terms of standardization, metrology and accreditation, and to ensure that all countries in the Americas have access to a QI system that, 1) expands and supports progress towards the 2030 Sustainable Development Goals, 2) is appropriate for the country needs, 3) is recognized internationally and 4) is part of the existing international, national and regional QI initiatives, as appropriate. It proposes 5 steps to improve the overall development of QI in the Americas as well as supporting the countries along their individual QI journey. The steps provide a systematic and efficient approach to QI development in line with national and regional needs.

This publication and the combined efforts that led to its development, clearly indicate the increasing desire of the region for a systematic collaboration and approach to QI development and improvement.



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# ACRONYMS

AB	Accreditation Body
CARICOM	Caribbean Community
CB	Certification Body
COPANT	Pan American Standards Commission
CROSQ	CARICOM Regional Organisation for Standards and Quality
DCMAS	Developing Countries Network on Metrology, Accreditation and Standardization
IAAC	Inter American Accreditation Cooperation
IAF	International Accreditation Forum
IDB	Interamerican Development Bank
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
NIST	(US) National Institute of Standards and Technology
MLA	Multi-lateral Recognition Arrangement
MOU	Memorandum of Understanding
NGO	Non-Governmental Organization
NMI	National Metrological Institute
NQI	National Quality Infrastructure
NQP	National Quality Policy
NSB	National Standards Body
OAS	Organization of American States
PTB	Physikalisch-Technische Bundesanstalt (German National Metrology Institute)
QI	Quality Infrastructure
QICA	Quality Infrastructure Council of the Americas
SDGs	(UN) Sustainable Development Goals for 2030
SIM	Interamerican Metrology System
SME	Small or medium enterprise
SPS	Sanitary / Phyto-sanitary Measures
TBT	Technical Barriers to Trade
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
WTO	World Trade Organization

# TABLE OF CONTENTS

<b>ACKNOWLEDGEMENTS</b>	<b>6</b>
<b>FOREWORD</b>	<b>7</b>
<b>ACRONYMS</b>	<b>8</b>
<b>TABLE OF CONTENTS</b>	<b>9</b>
<b>EXECUTIVE SUMMARY</b>	<b>10</b>
<b>INTRODUCTION</b>	<b>12</b>
<b>QUALITY INFRASTRUCTURE COMPONENTS</b>	<b>14</b>
<b>QUALITY INFRASTRUCTURE IN THE AMERICAS</b>	<b>15</b>
<b>ABOUT QICA</b>	<b>16</b>
<b>THE “ROAD MAP”</b>	<b>18</b>
<b>QI IN THE AMERICAS AT A GLANCE</b>	<b>28</b>
<b>ANNEXES</b>	<b>31</b>
Annex 1: Standardization	32
Annex 2: Metrology	34
Annex 3: Accreditation	36
Annex 4: Conformity Assessment Service providers	37
Annex 5: COPANT Strategic Plan 2016 – 2020	38
Annex 6: SIM Strategic Plan 2012 (Reaffirmed in Nov 2016)	40
Annex 7: IAAC Strategic Plan 2016 – 2020	46
Annex 8: Summary of National Quality Infrastructure Maturity Indicators in the Americas	56

# EXECUTIVE SUMMARY

This Strategic Roadmap has been developed in collaboration between UNIDO and QICA (the Quality Infrastructure Council of the Americas), and is aimed at providing a high-level overview of the key topics that need to be addressed in order to leverage the collaborations that already exist between the regional standards, metrology and accreditation organizations and their constituent members operating in the region.

The document begins with an explanation of the role of a sound quality infrastructure in promoting not only economic growth, but also in furthering progress towards the UN's 2030 Sustainable Development Goals. Each of the component parts of a quality infrastructure system is then examined in more detail, as well as the collaboration established in 2014 at the regional level, through the formation of QICA.

The specific objectives for this Road Map are:

*“To ensure that all countries in the Americas have access to a Quality Infrastructure (Standards, Metrology, Accreditation and Conformity Assessment) that furthers and supports*

*progress towards the 2030 Sustainable Development Goals, and in particular:*

- a. is appropriate for the country needs in terms of Trade, Innovation, Consumersafety and Sustainable Development,*
- b. is recognized internationally, and*
- c. takes advantage of, participates in, and contributes to existing International, Regional and Sub-regional Quality Infrastructure initiatives as appropriate.”*

It has to be recognized that there is a vast heterogeneity in the overall level of development in the countries that make up the region. QICA, as a regional organization, has an important role to play in promoting the effective deployment of a Quality Infrastructure in the Americas as a whole, but It is essential that similar collaborations are established and maintained at the National level. Otherwise, the different national entities involved can find themselves competing for scarce resources, and/or involved in situations that could generate conflicts of interest.

The key steps<sup>1</sup> that are proposed can be summarized as follows:

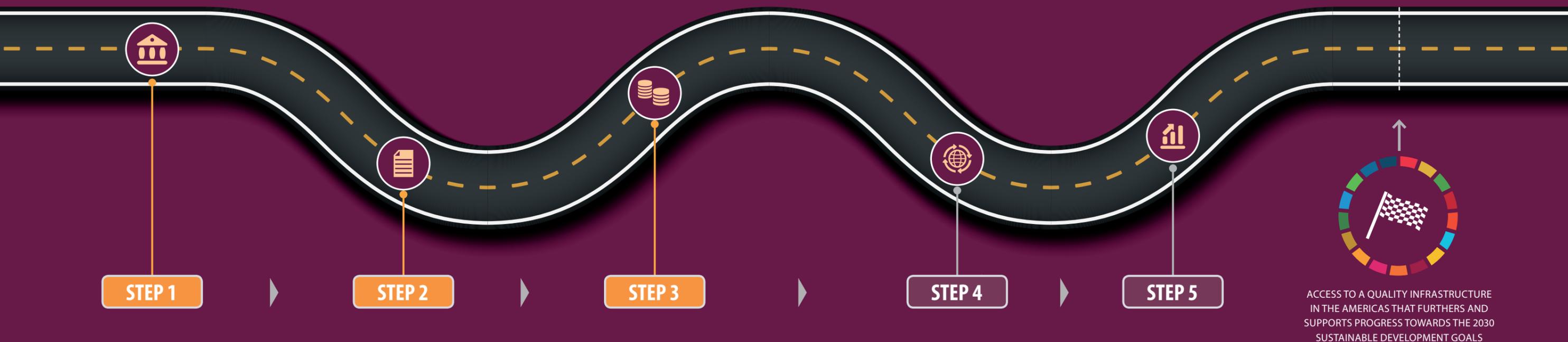
**STEP 1** is aimed at providing capacity-building for the less mature countries in the Americas to provoke discussions around the responsibilities and authorities for the various elements of the National Quality Infrastructure, including the possibilities for regional collaboration, and to provide practical assistance in formulating results-based project proposals in order to target donor funding.

**STEP 2** is to assist countries with no National Quality Policy to develop such a policy and a legal framework that endorses it, with the involvement of all relevant interested parties, to define the national priorities for future investments, institutional development and regional collaboration to support the National Quality Infrastructure.

**STEP 3** is to identify possibilities to share resources and/or investments that can benefit all three QI components in any specific country (for example, the provision of effective access to web-based meeting facilities and other essential IT infrastructure).

**STEP 4** is to promote high-level discussions with all the relevant interested parties (including, but not limited to COPANT, SIM, IAAC, CROSO, UNIDO, OAS, UNDP, PTB, NIST, IDB, and the World Bank) to agree on strategic initiatives that will target specific needs of the various QI components (at the regional, sub-regional and national level), and to develop a consistent, unified strategy to address those needs in the most cost-effective way.

**STEP 5** is for the relevant actors within the Americas to prepare and submit detailed proposals to funding agencies for projects aimed at improving the overall quality infrastructure in the region and progressing the various countries along their individual “quality infrastructure journeys” by promoting actions within the QI for the main value chains that support their economies. These projects might be region, sub-region or country-specific; discipline-specific (for example standards, metrology or accreditation), sector-specific (for example food; healthcare; agriculture etc), or a combination of these.



1) These are not necessarily sequential; some will be conducted in parallel.

# INTRODUCTION

**Q**uality Infrastructure is a term that is generally understood to be the totality of the institutional framework (public and private) needed to provide acceptable evidence that products and services meet defined requirements. These requirements are typically specified by government authorities (for example in the form of technical regulations), or implemented on a voluntary basis to meet the demands of the market place. The core components that have traditionally been considered to comprise the Quality Infrastructure are standardization, scientific, industrial and legal metrology, and accreditation. Conformity assessment services (inspection, testing, and product, system and personnel certification) are essential to support this core infrastructure, but these services are normally provided on a commercial basis by public or private (typically for-profit) organizations, and there is ongoing debate about whether or not they form part of the “core” infrastructure. Recent discussions around the formal definition of “Quality Infrastructure” among DCMAS members<sup>2</sup> do include Conformity Assessment, and indicate that Market Surveillance is also likely to be included as an important component. This roadmap concentrates primarily on the three core components (Standardization, Metrology and Accreditation) which are the object of the Quality Infrastructure Council of the Americas, whilst at the same time not ignoring the role to be played by conformity assessment and market surveillance activities.

In recent years, it has also become clear that a well-implemented Quality Infrastructure contributes to governmental policy objectives in areas other than trade of products and services, including industrial development, efficient use of natural and human resources, food safety, health, the environment, climate change, and other topics that are included in the UN’s 17 Sustainable Development Goals (SDGs) for 2030.

From UNIDO’s perspective Goal Number 9 – “To build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation” is central to the viability and achievement of the 17 Sustainable Development

Goals, and in this context international standardization, metrology and accreditation have always played an important role. In more recent years, however, these Quality Infrastructure components have evolved to address more extensively other key elements of the sustainable development agenda, including not only economic considerations, but also the environmental and social dimensions in the so-called “Triple Bottom Line” approach. This has been done by incorporating sustainability-related issues into traditional core standards (for example by including life-cycle considerations into product standards) and by developing standards and conformity assessment methodologies that relate to specific sustainability issues, such as energy and environmental emissions.

The foundational parts of a Quality Infrastructure are the standards, metrology and accreditation organizations/institutions. The Quality Infrastructure can only function properly when these and other related parties act effectively and efficiently in a coordinated way, and the impact of these organizations/institutions will grow when they work in synergy. If any one of the component parts is absent or ineffective, the entire system will be compromised, thereby negatively impacting business, trade and sustainability-related objectives. Because of the importance of the standards, metrology and accreditation functions, it is imperative that governments play an active and continuous role in their establishment and long-term viability as a system.

This document provides a strategic roadmap for the development and improvement of the Quality Infrastructure in the Americas. It takes into consideration the vast differences in context and economic maturity of the nations involved, as well as the various regional and sub-regional initiatives that have already been or are being implemented. It is hoped that this will provide strategic direction for future investments and funding that will enable the region to prioritize its development projects and channel resources to the areas that will produce the most benefit according to the local needs.

## SUSTAINABLE DEVELOPMENT GOALS



<sup>2</sup>) DCMAS meeting; Vienna, June 30th 2017.

# QUALITY INFRASTRUCTURE COMPONENTS

A reliable Quality Infrastructure System (QIS) depends on the effective interactions between a number of initiatives, institutions, organizations, activities and people. It typically includes a national quality policy and institutions to implement it, a regulatory framework, quality service providers, enterprises, customers and consumers.

The Quality Infrastructure offers a complete package to provide confidence to a nation's citizens (including customers and consumers, enterprises and other organizations that provide products and services) and to international trading partners that the products and services provided will meet their needs and expectations. The quality infrastructure can also be used to provide confidence in the key indicators, goals and targets associated with sustainable development initiatives. It covers essential aspects such as policy, institutions, service providers, and the value-adding use of international standards and conformity assessment procedures. A reliable Quality Infrastructure System (QIS) depends on the effective interactions between a number of initiatives, institutions, organizations, activities and people. It typically includes a national quality policy and institutions to implement it, a regulatory framework, quality service providers, enterprises, customers and consumers (who include citizens as "consumers" of government services).

Figure 1 shows a schematic representation of the interrelationship between various components of a Quality Infrastructure<sup>3</sup>.

collaboration between the various actors involved at the international, regional and national levels. The same is true for other initiatives that are linked to the 2030 Sustainable Development Goals, where credible standards, testing, calibration and conformity assessment methodologies play an important role. A more complete description of the main components of a typical Quality Infrastructure are presented in the Annexes, as follows: Annex 1 – *Standardization*; Annex 2 – *Metrology*; and Annex 3 – *Accreditation*.



# QUALITY INFRASTRUCTURE IN THE AMERICAS

The current project to develop a high-level strategic Road Map for Quality Infrastructure development and improvement in the Americas was conceived during the UNIDO General Conference in Lima, Peru, in December 2013, during a meeting with the leadership of the three main regional entities involved (COPANT, SIM and IAAC).

The Third Meeting of Ministers and High Authorities of Science and Technology of the Americas (Panama, 2011) adopted an Action Plan for 2012-2016 that identified National Quality Infrastructure (NQI) as a priority issue for competitiveness, innovation, trade and consumer safety in the Americas. It also created a Ministerial Working Group to strengthen national quality systems, promote the importance of NQI in the region and design and coordinate regional and hemispheric projects on the associated topics.

The current project to develop a high-level strategic Road Map for Quality Infrastructure development and improvement in the Americas was conceived during the UNIDO General Conference in Lima, Peru, in December 2013, during a meeting with the leadership of the three main regional entities involved (COPANT, SIM and IAAC).



Subsequently, on 29<sup>th</sup> August 2014, a Memorandum of Understanding among the three regional QI organizations was signed in Guatemala City, and the Quality Infrastructure Council of the Americas (QICA) was created. The shared goal of its members is to create a formal structure for joint projects, information sharing, and cross-functional training and development that, by acting collaboratively, exceeds the

abilities of any one organization acting alone. It is important to recognize that this collaborative philosophy also needs to be deployed at the national level, and applied to the various institutions and agencies that can provide funding, technical assistance and/or technical support in the region including, but not limited to UNIDO, OAS, UNDP, PTB, NIST, IDB, and the World Bank.

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