Conformity and Interoperability Assessment on a regional basis

Collaboration among Regional and Sub-regional organization for establishing common Conformity and Interoperability (C&I) programmes and Mutual Recognition Agreements (MRAs) for

Caribbean Countries

ITU report

Study Conducted by ITU Regional Office and ITU Head Quarters.
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Executive summary

In the Caribbean, there is precedence for collaboration and cooperation to achieve common goals, and to benefit from the economies of scale and scope that can be achieved through joint effort. Accordingly, there is merit in the proposed establishment of the common regime for Conformity and Interoperability (C&I), and Mutual Recognition Agreements (MRAs), as individual Caribbean countries might not have the financial resources or technical expertise to set up and successfully sustain a comprehensive C&I and MRA regime.

This project, which has been financed by the International Telecommunications Union (ITU) seeks to examine the state of C&I in the Caribbean, with a view to establishing a baseline for further discussion and action towards the creation of a common C&I and MRA regime. The ITU circulated a questionnaire to 22 Caribbean countries through which to secure critical insights on the state of C&I in their respective countries. The Consultants were required to collate and analyse the survey responses, and to make recommendations on how a common C&I and MRA regime could be realised.

Of the 22 countries included in the survey, a total of 16 responses from 14 countries were received: Aruba; Bahamas; Barbados; Curacao; Dominica; Dominican Republic; Grenada; Guyana; Haiti; Saint Kitts & Nevis; Saint Lucia; Saint Vincent & Grenadines; Suriname; and Trinidad and Tobago. Key findings included:

- Most countries have a regulatory framework that establishes the technical requirements for the importation and deployment of ICT products and services in their jurisdictions.
- Some countries indicated that their laws permit the delegation of authority to foreign entities, for example through MRAs; for others it is not allowed.
- With respect to telecommunications/ICT, virtually all countries do not have a local accreditation body, a testing laboratory, or a certification body. Frequently they rely on marks of conformity issued by other countries or agencies as the basis for allowing the importation of certain equipment.

To move towards a common C&I and MRA regime, with the countries that agree to participate – which might not be all of the 22 countries initially surveyed – will require considerable realignment on their part: of purpose; of policy and legislation; of regulation; and of standards. To begin the work needed, it recommended that a two-phase approach be adopted. In the short term, a series of consultations to secure the needed commitment ought to be implemented. A training and capacity building programme targeting a wide cross section stakeholders and actors, ranging from policymakers to legal, regulatory and standards technocrats, would also be necessary at that time. In the second phase, the focus would be on conceptualising the common regime, and thereafter proposing the legal framework that would support it.

The establishment of a common C&I regime in the region should be coordinated by a regional organisation (such as the Caribbean Telecommunications Union, or other suitable organisation) that would lead a Task Force, in which all stakeholders (Ministry, regulator, standardization bodies, certification bodes, etc.) can participate. The Terms of Reference for such a Task Force are contained in the ITU Guidelines for development, implementation and management of Mutual Recognition Agreements (MRA)[1] and in section 6.3 of this report.

Alternatively, Caribbean countries may decide also to follow other two possible approaches: Building in-country labs (reference: Feasibility Study for a Conformance Testing Centre[2]) or deciding about building Regional Testing Laboratories (Reference: Guidelines for Developing Countries on establishing conformity assessment test labs in different regions[3]). However, all of these options require careful consideration in order to determine the best approach that should be taken, both on a country and on a regional basis.

[1] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/GuidelinesMRAs_E.pdf

[2] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/FeasibilityStudy_ConformanceTestingCentre_FINAL.pdf

[3] http://www.itu.int/en/ITU-D/Technology/Pages/CIGuidelines.aspx

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1 Introduction

1.1 Background

The Caribbean region being part of a wider global, connected information ecosystem means that the authorities must ensure that telecommunications/ICT equipment and services being imported and used within its borders conform to acceptable international standards in regards to health and safety, quality of service, interoperability, and sustainability of products and services. The rapid technological development and the convergence of telecommunication networks and services are placing pressure on service providers, regulatory authorities and equipment vendors to ensure that the citizens of the Caribbean region have access to modern products and services. However it is also paramount that whatever products and services being used in the Caribbean region, conform to international accepted standards and do not place the networks and users at risk.

This Conformity and Interoperability (C&I) assessment report for the Caribbean region has been commissioned to begin to address the perceived lack of international standards for conformity and interoperability of telecommunications and ICT products in the region. This underdeveloped C&I framework is one of the major contributors to the perceived poor quality of service delivery to consumers in the Caribbean, the relative poor performance on ICT development indicators, and continuing health and safety issues related to equipment and terminal devices.

The International Telecommunications Union (ITU) has recognized the concerns of developing countries, as there is a dearth of expertise and financial resources for those countries to establish their own C&I regimes. The ITU, through the World Telecommunication Development Conference (WTDC-10) approved Resolution 47. This resolution instructed the BDT Director, in collaboration with ITU-T, to provide assistance to developing countries in building their capacity so as to be able to perform conformance testing of equipment and systems, relevant to their needs, and in accordance with the relevant recommendations.

This project is aimed at identifying the necessary elements in the Caribbean to promote collaboration among regional and sub-regional organisations for establishing a common C&I Regime and Mutual Recognition Agreements (MRAs). A key output of the exercise is to present possible scenarios to meet the needs and interests of Member States and regional organizations.

1.2 Project terms of reference

The main objective of this project is to conduct a Conformity and Interoperability (C&I) Assessment of the Caribbean Region. This assessment aims to identify all the necessary elements to establish a common C&I Programme and MRAs regime across the Caribbean

region, and to promote collaboration among countries, as well as regional and sub-regional organisations.

In order to prepare the recommendations for establishing common C&I programme and MRAs, the assessment exercise ought to provide insight on the following areas

- the general aspects of the Caribbean region, including matters such as demographics, economy, state of telecommunications;
- the regulatory framework and local institutions that currently address the technical requirements and authorisations for the use of telecommunications and ICT equipment, including matters related to electrical and safety standards, plus importation controls;
- the existence of local accreditation institutions, their scope of operation and fields of specialty;
- the existence of local accredited laboratories, their scope of operation and fields of specialty;
- the existence of local certification bodies, their scope of operation, fields of specialty, and trusted certification marks.

To the extent possible, the recommendations made will be consistent with the ITU guidelines and recommendations for C&I and MRA regimes.

1.3 Project approach/methodology

The C&I assessment study was conducted by developing a questionnaire, which was prepared by the ITU and sent to the following 22 ITU Member countries in the region:

- Anguilla
- Antigua and Barbuda
- Aruba
- Bahamas
- Barbados
- Bermuda
- Belize
- Cayman Islands
- Curacao
- Dominica
- Dominican Republic
- Grenada
- Guyana
- Haiti
- Jamaica
- Montserrat
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Suriname
- Trinidad & Tobago
- Turks & Caicos Islands

The questionnaire was designed to capture important data in order to understand the legislative and regulatory frameworks, along with the operating environment for telecommunications/ICT equipment conformity, with the view to propose a common C&I and MRA regime, as well as the establishment of regional test centres, as deemed appropriate.

The questionnaire comprised two sections. Section one focused on understanding the regulatory framework and infrastructure, including the provisions that have been established for accreditation and certification. Section two sought to capture general aspects of a country, including demographic and economic data, in order to provide the necessary background for the review process and the final recommendations.

The questionnaire was sent to the ministers and permanent secretaries with responsibility for telecommunications/ICT, and the telecommunications/ICT regulatory agencies in each of the ITU Member States in the Caribbean region. The responses received were distilled and summarised to identify commonalities, and to gain an understanding of the current state of development of telecommunications/ICT equipment and standards in the individual countries.

1.3.1 Methodology

Consistent with the project terms of reference, the methodology adopted for this project comprised five main activities as outlined below:

Desk research	Reviewing literature on C&I and MRAs, with a view to identifying best practices, and collecting relevant country data to provide a context for the assessment.
Survey management	Following up with the individual countries to which the survey was circulated to secure responses.
Consultation	Engaging the ITU, and University of the West Indies, and survey participants as needed.
Analysis	Collating and analysing the results of survey to determine the current state of the countries on relevant aspects of C&I and MRA, and devising the proposals for establishing common C&I regimes in the Caribbean.
Reporting	Preparing a draft report and final report, which would include the outcomes of the survey, and the proposals for establishing common C&I regimes in the Caribbean.

1.4 Report structure

Following this introduction, this report includes the following:

- an overview of the Caribbean region to provide a regional context for the C&I and MRA discussion (Chapter 2)
- a summary of key industry terms and definitions (Chapter 3)

- the results of the survey, sent to 22 countries, to ascertain the state of C&I and MRA in their territories (Chapter 4)
- a discussion of the survey results, and a short discourse on of best practice (Chapter 5),
- we present our recommendations on what would be required to establish a common C&I regime and MRA framework in the Caribbean (Chapter 6), and finally
- wrap up the report with some concluding remarks (Chapter 7).

2 Regional context

Although generally regarded as a homogenous group, the region known as the Caribbean comprises a diverse number of islands and territories that surround the Caribbean Sea. The countries that are part of this study are as follows:

- Anguilla
- Antigua and Barbuda
- Aruba
- Bahamas
- Barbados
- Bermuda
- Belize
- Cayman Islands
- Curacao
- Dominica
- Dominican Republic
- Grenada
- Guyana
- Haiti
- Jamaica
- Montserrat
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Suriname
- Trinidad & Tobago
- Turks & Caicos Islands

To provide some context to the assessment that follows, this chapter highlights the geography of the region in section 2.1. In section 2.2, an overview is given of the economy of the region and includes key demographic information, and the chapter concludes with a brief examination of the state of telecommunications in the region in section 2.3.

2.1 Geography

The countries that are considered part of the Caribbean, for the most part, lie on the Caribbean Oceanic Plate, and border the Caribbean Sea. It consists of over 700 islands, islets, reefs, and cays, along with some countries of Central and northern South America whose shores are washed by the Caribbean Sea. With the exception of Bermuda, Figure 2.1 provides an illustration of the Caribbean and all of the countries included in the study

Figure 2.1: Map of the Caribbean (Source: University of Texas[4])

The Caribbean covers an area of over 2,750,000 square kilometres (sq. km), and the archipelago of islands spans in excess of 3,000 km, from the Bahamas in the north, to Trinidad and Tobago in the south. As reflected in Table 2.1, which highlights, among other things, the location of the countries included in the study, the countries vary drastically in size. Guyana is the largest, at 214,969 sq. km, whilst Anguilla is smallest at 91 sq. km.

Table 2.1: Select geographic indicators for the Caribbean countries included in the study

Country	Geographic Coordinates	Area (sq. km)	Lowest point	Highest point
Anguilla	18 15 N, 63 10 W	91	Caribbean Sea, 0 m	Crocus Hill, 65 m
Antigua & Barbuda	17 03 N, 61 48 W	442.6	Caribbean Sea, 0 m	Boggy Peak ,402 m
Aruba	12 30 N, 69 58 W	180	Caribbean Sea, 0 m	Ceru Jamanota, 188 m
Bahamas	24 15 N, 76 00 W	13,880	Atlantic Ocean, 0 m	Mount Alvernia (Cat Is), 63 m
Barbados	13 10 N, 59 32 W	430	Atlantic Ocean, 0 m	Mount Hillaby, 336 m
Belize	17 15 N, 88 45 W	22,966	Caribbean Sea, 0 m	Doyle's Delight, 1,160 m
Bermuda	32 20 N, 64 45 W	54	Atlantic Ocean, 0 m	Town Hill, 76 m
Cayman Islands	19 30 N, 80 30 W	264	Caribbean Sea, 0 m	The Bluff on Cayman Brac, 43 m
Curacao	12 10 N, 69 00 W	444	Caribbean Sea, 0 m	Mt. Christoffel, 372m
Dominica	15 25 N, 61 20 W	751	Caribbean Sea, 0 m	Morne Diablotins, 1,447 m
Dominican Republic	19 00 N, 70 40 W	48,670	Lago Enriquillo, -46 m	Pico Duarte, 3,175 m
Grenada	12 07 N, 61 40 W	344	Caribbean Sea, 0 m	Mount Saint Catherine, 840 m
Guyana	5 00 N, 59 00 W	214,969	Atlantic Ocean, 0 m	Mount Roraima, 2,835 m

[4] Retrieved from http://www.reisenett.no/map_collection/americas/CAmericaCaribbean.jpg

Haiti	19 00 N, 72 25 W	27,750	Caribbean Sea, 0 m	Chaine de la Selle, 2,680 m
Jamaica	18 15 N, 77 30 W	10,991	Caribbean Sea, 0 m	Blue Mountain Peak, 2,256 m
Montserrat	16 45 N, 62 12 W	102	Caribbean Sea, 0 m	Lava dome in English's Crater, 930 m
St. Kitts & Nevis	17 20 N, 62 45 W	261	Caribbean Sea, 0 m	Mount Liamuiga, 1,156 m
St. Lucia	13 53 N, 60 58 W	616	Caribbean Sea, 0 m	Mount Gimie, 950 m
St. Vincent & the Grenadines	13 15 N, 61 12 W	389	Caribbean Sea, 0 m	La Soufriere, 1,234 m
Suriname	4 00 N, 56 00 W	163,820	Unnamed, 2 m	Juliana Top, 1,230 m
Trinidad & Tobago	11 00 N, 61 00 W	5,128	Caribbean Sea, 0 m	El Cerro del Aripo, 940 m
Turks & Caicos Islands	21 45 N, 71 35 W	948	Caribbean Sea, 0 m	Flamingo Hill, 48 m

2.2 Economy and demographics

The population size and economics of the countries of the Caribbean vary widely across the individual countries. The countries included in the study, as shown in Table 2.2, have a total population of over 28.6 million, but ranges from a little as 5,000 in Montserrat, to over 10.4 and 10.6 million in Haiti and the Dominican Republic, respectively. Similarly, the Gross Domestic Product (GDP) for the region exceeds USD 159.8 billion, but ranges from USD 175 million in Anguilla, to USD 62.79 billion in the Dominican Republic. Further, whilst the average per capita GDP across the countries is USD 20,039, it is as low as USD 1,369.57 in Haiti, to USD 86,000 in Bermuda.

Table 2.2: Select demographic and economic indicators for the countries included in the study (Sources: CIA World Factbook[5], IMF[6], World Bank[7])

Country	Population ('000)	GDP (USD billion)	Per Capita GDP PPP (USD)	GNI per capita (USD)	Income class.
Anguilla	16	0.175	12,200.00	-	-
Antigua & Barbuda	88	1.244	19,146.39	12,910.00	HI
Aruba	111	2.516	25,300.00	-	HI
Bahamas	360	8.819	32,905.14	-	HI
Barbados	279	4.316	25,193.32	-	HI
Belize	355	1.653	8,914.51	4,660.00	UMI
Bermuda	70	5.600	86,000.00	-	HI
Cayman Islands	55	2.250	43,800.00	-	HI
Curacao	147	5.600	15,000.00	-	HI
Dominica	71	0.515	14,743.47	6,760.00	UMI

[5] The World Factbook. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/

[6] IMF, World Economic Outlook Database April 2014. Retrieved from http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx

[7] The World Bank, Country and Lending Groups. Retrieved from http://data.worldbank.org/about/country-and-lending-groups#LAC

Dominican Republic	10,602	62.790	10,325.52	5,620.00	UMI
Grenada	106	0.839	14,045.51	7,460.00	UMI
Guyana	796	3.142	8,735.12	3,750.00	LMI
Haiti	10,461	8.980	1,369.57	810.00	LI
Jamaica	2,798	14.262	9,255.51	5,220.00	UMI
Montserrat	5	-	8,500.00	-	-
St. Kitts & Nevis	60	0.795	15,958.77	13,460.00	HI
St. Lucia	170	1.337	12,886.90	7,090.00	UMI
St. Vincent & the Grenadines	110	0.750	12,671.78	6580.00	UMI
Suriname	553	5.322	13,709.95	9,260.00	UMI
Trinidad & Tobago	1,351	28.992	21,096.15	15,760.00	HI
Turks & Caicos Islands	49	-	29,100.00	--	HI

Generally, the Caribbean countries are considered to be developing countries, but according to the World Bank, most countries in the region would be categorised as Upper-Middle Income or High-Income Countries Table 2.2. The income classification reference used by the World Bank is based on estimates of per capita Gross National Income (GNI) for the previous year. As of 1 July 2014, the following classifications were in effect[8]:

- Low-Income (LI) Countries: per capita GNI ≥ USD 1,045
- Middle-Income (MI) Countries: USD 1,045 < per capita GNI < USD 12, 746
  - Low-Middle Income (LMI) Countries: USD 1,045 < per capita GNI < USD 4,125
  - Upper-Middle Income (UMI) Countries: USD 4,125 < per capita GNI < USD 12, 746
- High-Income (HI) Countries: per capita GNI ≥ USD 12, 746

2.2.1 Challenges of SIDS

Although based on the World Bank's income classification system, countries in the region are generally considered Middle-to-High Income Countries; most of them have been, and continue, to struggle economically. However, due to their classification, they are no longer as eligible for extensive international donor funding and aid.

With the exception, of Bermuda, all of the countries included in this assignment are classified as Small Island Developing States (SIDS). As SIDS, those countries are subject to a broad range of vulnerabilities, which challenge their continued sustainable development, including

- relatively small but growing populations

[8] World Bank (2014), Updated Income Classifications. Retrieved from http://data.worldbank.org/news/2015-country-classifications

- susceptibility to natural disasters, e.g. hurricanes and earthquakes
- excessive dependence on international trade and on markets in the developed world
- poor infrastructure
- relatively high poverty and social inequities
- fragile environments, and greater susceptibility to the effects of climate change,

These challenges are at variance with the perception of the region based on income classification. However, they directly affect the extent to which the countries are resourced, possess the capability, and are amenable to address perceived issues, which while important, might not necessarily be seen as a priority.

2.3 Telecommunications and ICT

Historically, telecommunications in the Caribbean was expensive. The service was also poor and limited primarily to urban areas. Further, it was provided by firms with exclusive monopolies; in some countries, the firm was government owned, in others, a private entity. Nevertheless, telecommunications service was seen as a luxury, which affected countries competitiveness and ability to attract international investment.

In the mid-to-late 1990s, countries across the region began telecommunications reform initiatives, which for many resulted in the promulgation of new telecommunications legislation that ended the existing monopolies, and provided frameworks for competition and regulation. Table 2.3 summarises the state of the telecommunications sectors in the countries included in the study.

Table 2.3: Key elements of the legal and regulatory framework of telecommunications sectors in select countries (regulators websites)

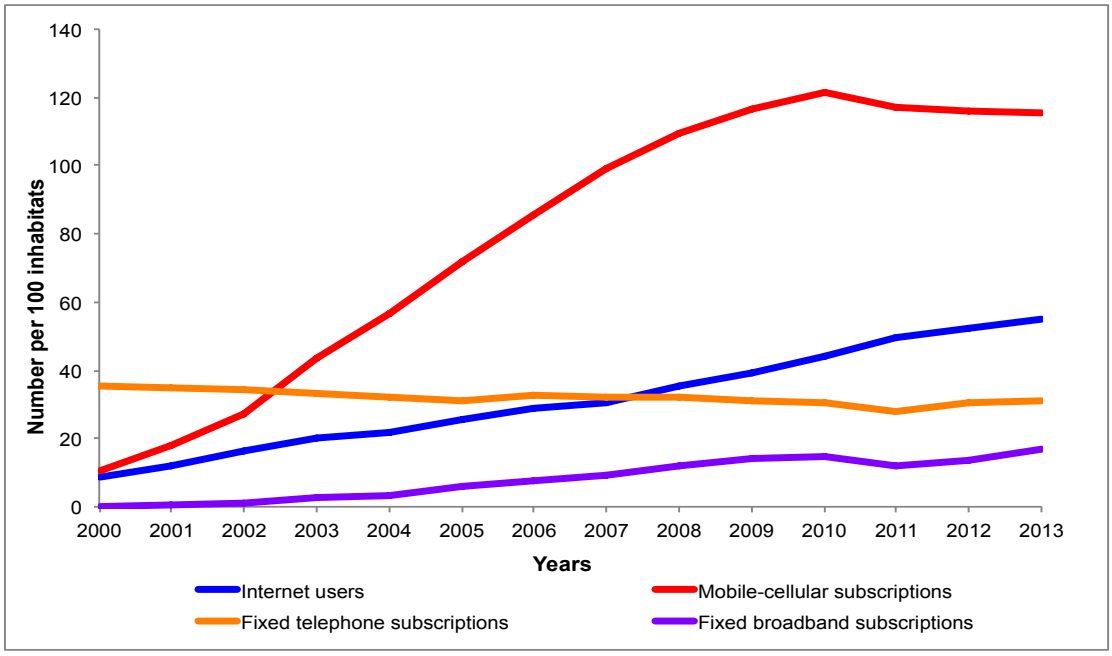
Country	State of liberalisation	Monopoly segments	Telecommunications Regulatory Agency	Overarching legislation
Anguilla			Public Utilities Commission	Telecommunications Act 2003, as amended
Antigua & Barbuda	Partial		Telecommunications Division, Government of Antigua & Barbuda	Telecommunications Act, 1951 as amended (CAP 423)
Aruba			Netherlands Radiocommunications Agency	Communications Act of 1934, as amended
Barbados	Full	Nil	Telecommunications Unit, Government of Barbados	Telecommunications Act, 2001 as amended (Cap 282B)
Bahamas	Full	Nil	Utilities Regulation & Competition Authority	Communications Act, 2009 as amended
Bermuda			Regulatory Authority	Electronic Communications Act 2011
Belize	Partial	Mobile/ cellular	Public Utilities Commission	Telecommunications Act, 2002

Cayman Islands	Full	Nil	Information and Communications Technology Authority	Information & Communications Technology Authority Law (2011 Revision)
Curacao	Full		Bureau Telecommunicatie & Post	
Dominica	Full	Nil	National Telecommunications Regulatory Commission	Telecommunications Act 2000, as amended
Dominican Republic	Full	Nil	Instituto Dominicano de las Telecomunicaciones	
Grenada	Full	Nil	National Telecommunications Regulatory Commission	Telecommunications Act 2000
Guyana	Partial	Mobile/ cellular	Public Utilities Commission	Public Utilities Commission, 1999 as amended
Haiti	Full	Nil	Conseil National des Telecommunications	Décret du 27 Septembre 1969
Haiti			Conseil National des Telecommunications	Telecommunications Act
Jamaica	Full	Nil	Office of the Utilities Regulation	Telecommunications Act 2000 as amended
Montserrat			Montserrat Info-Communications Authority	Telecommunications Act 1949, as amended
St. Kitts & Nevis	Full	Nil	National Telecommunications Regulatory Commission	Telecommunications Act 2000, as amended
St. Lucia	Full	Nil	National Telecommunications Regulatory Commission	Telecommunications Act 2000, as amended
St. Vincent & the Grenadines	Full	Nil	National Telecommunications Regulatory Commission	Telecommunications Act 2001
Suriname			Telecommunicatie Autoriteit Suriname	Wet Telecommunicatievoorzieningen (Telecommunications Act) 2004
Trinidad & Tobago	Full	Nil	Telecommunications Association of Trinidad & Tobago	Telecommunications Act 2001, as amended (Chap 47.31)
Turks & Caicos Islands	Full	Nil	Turks & Caicos Islands Telecommunications Commission	Telecommunications Ordinance, Chap 14.02

The introduction of low-cost mobile/cellular service across the region in the early 2000s, transformed the telecommunications landscape, and has been the service that has experienced the greatest growth, as reflected in Figure 2.2. The traditional fixed-line telephony service has experienced a steady decline over the past 13 years. On the other

hand, there has been consistent growth in the take up and use of Internet broadband service over the same period.

Figure 2.2: Telecommunications penetration trends across the Caribbean from 2000—2013 (Source: ITU)



As at the end of 2013, fixed-line telephony subscriptions ranged from 0.40 subscriptions per 100 of the population in Haiti, to well over 110 subscriptions per 100 of the population in Bermuda. With regard to mobile/cellular service, only six out of 22 countries have teledensities of less than 100 %. The highest penetration of approximately 168 subscriptions per 100 of the population was reported in the Cayman Islands, whilst the lowest, 53 subscriptions per 100 of the population, was reported in Belize.

Table 2.4: Telecommunications penetration in select Caribbean countries as at 2013 (Source: ITU)

Country	Penetration (per 100 inhabitants)			
	Fixed-line subscriptions	Mobile/cellular subscriptions	Wired broadband subscriptions	Internet users
Anguilla	41.96	181.82	30.07	64.80
Antigua & Barbuda	36.82	127.09	4.48	63.40
Aruba	34.01	134.87	18.66	78.90
Bahamas	36.04	76.05	4.11	72.00
Barbados	52.25	108.10	23.82	75.00
Belize	7.23	52.94	3.13	31.70
Bermuda	110.19	144.32	61.37	95.30
Cayman Islands	62.83	167.77	34.80	74.10
Curacao	-	-	-	-
Dominica	23.81	129.96	14.81	59.00

Dominican Rep.	11.26	88.43	4.66	45.90
Grenada	26.99	125.59	17.00	35.00
Guyana	19.61	69.41	4.61	33.00
Haiti	0.40	69.40	-	10.60
Jamaica	8.90	100.42	4.76	37.80
Montserrat	58.93	88.39	23.57	54.60
St. Kitts and Nevis	35.43	142.09	24.54	80.00
St. Lucia	18.38	116.31	13.72	35.20
St. Vincent and the Grenadines	17.43	114.63	13.35	52.00
Suriname	15.75	127.32	6.88	37.40
Trinidad & Tobago	21.72	144.94	14.56	63.80
Turks & Caicos Is.	12.09	127.09	-	-

Although take up of fixed (wired) broadband Internet has been steadily increasing across the region, in comparison to other services, its numbers are quite low. The lowest take-up of fixed broadband Internet service was reported in Belize, and Suriname, at approximately 3 subscriptions per 100 of the population. On the other hand, the highest take-up was reported in Bermuda, at around 61 subscriptions per 100 of the population.

The use of the Internet is relatively high across the region, and gives some indication of the extent to which persons are at ease with the technology, and might be in a position to harness it. The greatest Internet use, as at 2013, was recorded in Bermuda, with 95 persons per 100 of the population, followed by Saint Kitts and Nevis and Barbados, with 80 and 75 persons per 100 of the population, respectively. On the other hand, the lowest Internet use was recorded in Haiti, with approximately 11 persons per 100 of the population, and followed by Belize, with around 32 persons per 100 of the population, and Guyana, with 33 persons per 100 of the population.

2.4 Regional organisations involved in standards development

Below are three regional organisations involved in standards development: the Caribbean Telecommunications Union, the CARICOM Regional Organisation for Standards and Quality; and the Eastern Caribbean Telecommunications Authority.

2.4.1 Caribbean Telecommunications Union

The Caribbean Telecommunications Union (CTU) is an intergovernmental organization which was established by the Heads of the Caribbean Community in 1989. The CTU is dedicated to facilitating the development of the telecommunications sector of its Member States, and manages several regional projects in areas such as spectrum management, Internet Governance, etc. The CTU is headquartered in Trinidad and Tobago and its functions include:

(a) Facilitating the coordination of the planning, programming and development of intra-regional and international communications networks to meet the immediate and future telecommunications needs of the region.
(b) Assisting in the development of the national components of regional and international telecommunications networks.
(c) Promoting the general awareness of the telecommunications needs of the Caribbean region and its potential for promoting the socio-economic development of the region.
(d) Fostering coordination within the Caribbean region of technical standards and routing plans for intraregional and international traffic.
(e) Encouraging the transfer of technology in the field of telecommunications among Members.
(f) Establishing linkages with the information bases of other telecommunications organisations and, in particular, the Centre for Telecommunications Development at the International Telecommunications Union (ITU) in Geneva.

2.4.2 CARICOM Regional Organisation for Standards and Quality

The CARICOM Regional Organisation for Standards and Quality (CROSQ) was established under Article 67 of the Revised Treaty of Chaguaramas in 2001. Headquartered in Barbados, CROSQ serves 15 CARICOM member states with the objective of promoting

> *…the development and harmonisation of standards, metrology, technical regulations and the mutual recognition of conformity assessment procedures covering goods and services produced or provided in the Community with the aim of facilitating trade and supporting the establishment of the CSME.*[9]

Each of the 15 member states of CROSQ is represented by its national standards bodies, as shown in Table 2.5.

Table 2.5: Country representatives on CROSQ (Source: CROSQ)

Country	National Standards Body
Antigua & Barbuda	Antigua & Barbuda Bureau of Standards
Bahamas	Bahamas Bureau of Standards
Barbados	Barbados National Standards Institution
Belize	Belize Bureau of Standards
Dominica	Dominica Bureau of Standards
Grenada	Grenada Bureau of Standards
Guyana	Guyana National Bureau of Standards
Haiti	Bureau Haitien de Normalisation
Jamaica	Bureau of Standards Jamaica
Montserrat	Trade External Affairs and Trade Directorate
St. Kitts and Nevis	St. Kitts & Nevis Bureau of Standards

[9] CROSQ. The Organisation: Mandate. Retrieved from https://www.crosq.org/index.php/home/the-organisation

St. Lucia	Saint Lucia Bureau of Standards
St. Vincent and the Grenadines	St. Vincent & the Grenadines Bureau of Standards
Suriname	Suriname Standards Bureau
Trinidad & Tobago	Trinidad & Tobago Bureau of Standards

Consistent with its objective, as outlined above, CROSQ's work aims to develop quality infrastructure through a focus on the following six areas:

- metrology
- standardization
- conformity assessment
- inspection and certification
- testing
- accreditation

Hence, as a regional organisation, and in respect of the focus on C&I, CROSQ likely role, to a considerable extent, would be to facilitate harmonisation of the standards, methods, practices, etc., that are adopted and applied across the region. As at the writing of this report, it would appear that the organisation has not had C&I as an immediate area of focus. However, noting that CROSQ serves 15 Caribbean countries, it could be a key partner in C&I development initiatives in the region.

2.4.3 Eastern Caribbean Telecommunications Authority

Eastern Caribbean Telecommunications Authority (ECTEL) was established on May 4, 2000 by Treaty signed by five (5) Eastern Caribbean governments namely Dominica, Grenada, St Kitts and Nevis, Saint Lucia and St. Vincent and the Grenadines. ECTEL is headquartered in Saint Lucia and serves the five (5) Member States advising the governments and the local regulatory authorities, the National Telecommunications Regulatory Commissions (NTRC) on telecommunications matters. One of ECTEL's functions is to,

> *…recommend the technical standards and procedures for the approval of equipment, including radio equipment for use in the operation of telecommunications in each Contracting State*[10]*;*

ECTEL is also mandated to coordinate telecommunications based activities of its Member States with international organisations or bodies,

> *…co-ordinate activities with relevant international organisations, States or other bodies or persons for the promotion and implementation of this Treaty;*

Amongst the ECTEL Member States, there exists a legal framework which empowers national and sub-regional agencies (NTRC and ECTEL) to establish a conformity assessment

[10] ECTEL Treaty, Functions and Powers of ECTEL. Except taken from http://www.ectel.int/index.php/background/about-ectel/treaty

scheme. The NTRC in each ECTEL Member State is mandated with the power to issue type approval certificates for telecommunications equipment and radio communications devices. Under the Telecommunications (Terminal Equipment and Public Network) Regulations states[11]

> *…No person shall install, sell for use or use any item of equipment …., unless the Commission grants a certificate of type approval in respect of that type of equipment.*

The ECTEL Member States have a provision in their legislation for mutual recognition of type approval certificates issued by each other.

> *…The Commission may recognize type approvals granted by other Contracting States, and will consult and liaise with ECTEL, in respect of such matters where necessary*

The Telecommunications (Terminal Equipment and Public Network) Regulations also allow the NTRC to recognize certificates issued by other recognized international agencies, such as ETSI, FCC, etc.

Therefore amongst the ECTEL Member States, there exists a Conformity Assessment Scheme that facilitates a process of type approval certification before telecommunications products can enter the markets of the ECTEL Member States.

2.5 Summary

Based on the geographic, economic, demographic and telecommunications/ICT data presented in the previous sections, it ought to be evident that the Caribbean and the countries that comprise it, are diverse. Though commonalities do exist, each country is unique: their benefits, limitations, and challenges are not exactly identical. As a result, and in circumstances when a common approach is recommended, countries frequently require some latitude to accommodate those differences.

Regarding regional organisations that are involved in standards development, there may be scope to collaborate with those agencies, as they may have resources and expertise that could benefit the effort towards the proposed common regime.

[11] The Telecommunications (Terminal Equipment and Public Network) Regulations of Dominica

3 Key industry terms and definitions

The area of C&I has numerous technical terms with very specific meanings, which were used in the questions comprising the survey. For ease of reference, key industry terms and their definitions are outlined below.

These terms and definitions were collated from material and reports published by the ITU, including:

- "*Concepts and guidance*" on the ITU website[12], and
- Establishing conformity and interoperability regimes: Basic guidelines (2014)[13]

Accreditation	Accreditation is the process by which a testing laboratory may be found compliant with international standards, by demonstrating its competence to carry out specific conformity assessment tasks.
Accreditation Body	The body that perform accreditation through authority generally derived from government.
Certification	Certification of telecommunications/ICT products and services is the confirmation that the identified products and services meet the stated requisite conditions. Certification is especially necessary for products or services that employ new technologies, to ensure conformance to recognized and accepted standards related to safety, health or environmental impact.
Conformity assessment	Conformity assessment comprises a series of processes that may be may be conducted by 1st, 2nd or 3rd parties to demonstrate that a product, a service, a management system or body meets specified requirements.
Declaration	First party attestation.
Mutual Recognition Arrangement/Agreement	Mutual Recognition Arrangement/ Agreement (MRA) is a voluntary arrangement/ agreement between parties for recognition of conformity assessment results for telecommunication/ICT equipment. A party is a body

[12] Source: http://www.itu.int/en/ITU-T/C-I/conformity/Pages/default.aspx

[13] Source: http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/CI_BasicGuidelines_February2014_E.pdf

	(private or public) that chooses to join an MRA.
Party	*First party:* The first party is the supplier of a product (or service). *Second party:* The second party is the purchaser of a product (or service). *Third party:* A third part is a person or body that is independent of the first and second parties.
Supplier Declaration of Conformity	Supplier Declaration of Conformity (SDoC) is a conformity assessment scheme used for low risk and mature products. Upon meeting a set of conditions, a supplier can self-declare that the equipment conforms to the appropriate requirements.
Laboratory (or testing laboratory)	A laboratory is a Conformity Assessment Body) duly authorised, equipped and competent to test for conformance of a product or system to a specified set of requirements.
Type Approval	Type Approval is a special kind of certification. Type Approval means the equipment is certified to meet certain requirement for its type, whatever that may be. Compliance to type approval requirements is often denoted by markings on the equipment or its packaging.

4 Survey results

In late July 2014, the ITU Caribbean Office dispatched a survey to 22 countries across the Caribbean to capture critical country-specific information needed to understand the frameworks and context for telecommunications/ICT equipment conformity in the Caribbean. The questionnaire was sent to Ministers with responsibility for telecommunications, Permanent Secretaries in telecommunications ministries, and the local telecommunications regulatory organisations in each country.

The initial questionnaire dispatched had two sections. Section One focused on understanding the regulatory framework and infrastructure, along with the provisions that have been established for accreditation and certification in each Caribbean country. Section Two, sought to collect general sector data, including demographic and economic information for each country, on order to gain an appropriate context for the review process and for a common C&I regime that will be proposed.

The questionnaire was subsequently simplified, with the removal of Section Two, and was dispatched to the countries during the week of 28 July 2014. Hence the focus of the survey was on understanding the existing systems and structures in the countries under scrutiny.

The Consultants regularly communicated with the countries covered by this study to secure responses. As at the writing of this report, 16 submissions had been received from 14 countries:

1.	Aruba	Department of Telecommunications Services
2.	Bahamas	Utilities Regulation and Competition Authority (URCA)
3.	Barbados	Division of Energy and Telecommunications
4.	Curacao	Bureau Telecommunicatie en Post
5.	Dominica (1)	National Telecommunications Regulatory Commission (NTRC)
6.	Dominica (2)	Department of Telecommunications
7.	Dominican Republic	El Instituto Dominicano de las Telecomunicaciones INDOTEL
8.	Grenada	National Telecommunications Regulatory Commission (NTRC)
9.	Guyana	Guyana Bureau of Standards
10.	Haiti	Conseil National des Télécommunications (CONATEL)
11.	St. Kitts & Nevis	National Telecommunications Regulatory Commission (NTRC)
12.	St. Lucia (1)	Saint Lucia Bureau of Standards
13.	St. Lucia (2)	National Telecommunications Regulatory Commission (NTRC)
14.	St. Vincent & Grenadines	National Telecommunications Regulatory Commission (NTRC)
15.	Suriname	Telecommunications Authority of Suriname (TAS)
16.	Trinidad & Tobago	Telecommunications Authority of Trinidad and Tobago (TATT)

In this chapter, country responses to the survey are summarised. Questions have been grouped and responses tabled to facilitate ease of comparison. Whenever possible the full response provided has been included in the tables, and unless brevity was needed. Where questions were unanswered, a dash (-) has been used.

4.1 Regulatory framework and institutions

Understanding the existing regulatory framework is critical to determining whether or not, or the extent to which, a common C&I and MRA regime can be implemented in the Caribbean. In addition to securing an early understanding of whether countries have a regulatory framework that sets technical requirements for products and services, the initial survey questions aim to determine:

- the areas covered by that framework, if established
- the Conformity Assessment Schemes that have been implemented and the extent to which they conform with international standards, and
- whether delegation of authority on Conformity Assessment, such as through MRAs, is permitted.

Questions:

- *Is there any regulatory framework and regulation, which establishes technical requirements for products and services to be legally imported and deployed in the marketplace?*
- *If yes, what products/services/areas does it cover? (indicate all that apply)*

From the responses received, most countries have a regulatory framework, or at the very least guidelines, that set out the technical requirements for the importation and use of telecommunications/ICT equipment in country. In some countries, such as Aruba, Dominica, Suriname and Trinidad and Tobago, the frameworks do not cover electrical/electronic apparatus or environmental requirements.

Table 4.1: Responses received to questions on regulatory framework for technical requirements

Country	Regulatory framework	ICT/telecoms products & services	Electrical/ electronic apparatus	Environmental requirements	Other
Aruba	No	-	-	-	-
Bahamas	Yes	Yes	Yes	Yes	-
Barbados	Yes	Yes	Yes	Yes	-
Curacao	Yes	Yes	Unsure	Unsure	-
Dominica (1)	Yes	Yes, for telecom products and Service	Yes, for transmitters, receivers and network terminal	-	-

			equipment		
Dominica (2)	Yes	Yes	Yes	Yes	-
Dom Republic	Yes. Law No. 153-98	Yes	-	-	-
Grenada	Yes	No	Yes	Yes	Yes
Guyana	Yes, under Trade Act & Standards Act 1984	Yes	Yes	-	Yes
Haiti	Yes	-	-	-	-
St. Kitts & Nevis	Yes	Yes	Yes	-	-
St. Lucia (1)	Yes	Yes	Yes	Yes	Yes
St. Lucia (2)	Yes	Yes	Yes	Yes	-
St. Vincent & Grenadines	Yes	Yes	Yes	Yes	-
Suriname	Yes	Yes	-	-	-
Trinidad & Tobago	Yes	Yes	No	No	Yes, broadcasting equipment

***Question**:*

- *Indicate the Conformity Assessment Schemes adopted for market entry (check all that apply)*

With the exception of Aruba, all other countries have implemented Conformity Assessment Schemes that facilitate entry of equipment into the local market. The most widely accepted are certification, third party declarations, and using certifications issued by other agencies, such as the IEC, FCC and ETSI, as proxies locally.

Table 4.2: Responses received to questions on Conformity Assessment Schemes that have been adopted for market entry

Country	Certification	Self-declaration	Third party declaration	Labelling	Proxy certifications	Other
Aruba	-	-	-	-	-	-
Bahamas	Yes	-	-	Yes	Yes	-
Barbados	-	-	-	Yes	-	-
Curacao	Yes	Yes	Yes		Yes	EU
Dominica (1)	Yes	-	-	-	-	-
Dominica (2)	-	-	Yes	Yes	-	-
Dom Republic	Yes	-	-	-	-	FCC once it is analyzed by INDOTEL
Grenada	Yes	-	Yes	Yes	-	Inspection at Point of Entry
Guyana	Yes	Yes	Yes	Yes	Yes	-

Haiti	Yes	-	-	-	Yes	
St. Kitts & Nevis	-	-	-	-	-	-
St. Lucia (1)	Yes	-	Yes	Yes	Yes	Pattern/ type approval & verification
St. Lucia (2)	Yes	Yes	Yes	Yes	Yes	
St. Vincent & Grenadines	-	-	-	-	Yes	-
Suriname	Yes	-	-	Yes	Yes	-
Trinidad & Tobago	Yes	-	Yes	-	Yes	-

Questions:

- *Are these Conformity Assessment Schemes based on the ISO/CASCO set of Guidelines and standards?*
- *If there is legislation and regulation dealing with ICT and telecom products and services and related areas such as electrical safety and environmental issues, how is it applied? Is it compulsory or voluntary?*
- *Where such legislation and regulation exists does it permit delegation of authorities to foreign entities under arrangements such as Mutual Recognition Agreements (MRAs) on Conformity Assessment e.g. for certification?*

The Conformity Assessment Schemes that have been established in most countries appear to be, at the very least, guided by the ISO/CASCO set of guidelines and standards. With regard to electrical safety and environmental issues, some countries, such as the Bahamas, Grenada, Guyana, Saint Kitts and Nevis, Saint Lucia, Grenada, Saint Vincent and the Grenadines, and Suriname, have indicated that laws exist that address this matter, which must be applied.

Similarly, most countries appear to allow delegation of authorities to foreign entities, such as under MRAs. However, for those countries in which it might be permitted, it is unclear the actual extent of that delegation, for example, whether it might be limited to sub-groupings, such as the ECTEL Member States, or the CARICOM countries.

Table 4.3: Responses received to questions on the scope of existing Conformity Assessment Schemes and the extent to which MRAs are allowed

Country	ISO/CASCO Compliance	Electrical & environmental safety controls	Delegation of authority for MRAs etc.
Aruba	-	-	-
Bahamas	No	Yes, under 2009 Communications Act	No, not allowed
Barbados	Yes, through the Barbados National Standards Institution	Compulsory	-
Curacao	No	Yes, regarding ICT and telecom products and services; unsure re electrical safety and environmental issues	No
Dominica (1)	Certification is based on ETSI/EN (European) and FCC (U.S.A.) which should be compliant to ISO.	Voluntary, electrical, environmental safety not within regulator's jurisdiction	Allowed solely among the ECTEL member states for telecoms
Dominica (2)	No	Compulsory	Yes
Dom Republic	-	Compulsory	Certifications are taken into consideration on the analysis of the equipment
Grenada	Yes	Yes, Compulsory for labelling of electrical appliances offered for sale	Yes
Guyana	Yes, they are based on ISO/CASCO standards	Electrical safety is covered in the Electricity Sector (Technical Standards) Regulations	Not permitted under current laws
Haiti	No	Not applicable	Not applicable
St. Kitts & Nevis	-	Yes, compulsory according to laws	Yes
St. Lucia (1)	Yes	Yes, compulsory	No, not allowed
St. Lucia (2)	Not directly; local Type Approval is influenced by certification already obtained from other accredited agencies	Yes, compulsory for terminal equipment. NTRC does not test for electrical nor environmental safety	No, not allowed
St. Vincent & the Grenadines	Yes	Yes, compulsory	No, not allowed
Suriname	Yes, they are based on ISO/IEC guidelines	Yes, compulsory	Yes
Trinidad & Tobago	It depends	Yes, generally voluntary, except for health and safety, which is compulsory	Regulator not precluded from delegating authority

4.1.1 National standards framework and metrology

The questions in this section all pertain to the general national standards framework. In most countries, national standards development is the preview of the local standards office, which may in turn have jurisdiction over the standards adopted for telecommunications and ICT equipment and services in their respective home countries.

Questions:

- *Is there a national standards system and national standards development organisation (SDOs)?*
- *Where such SDOs exist are they committed to adoption of international standards wherever possible rather than developing national standards, which may deviate from the international ones?*
- *Is there Metrology legislation and any National Institute of Metrology responsible to maintain the national measurement standards in the country; to establish and maintain their metrological traceability to the units of the International System of Units (SI)?*
- *If Metrology legislation exists in your country does it permit delegation of authorities to foreign entities under arrangements such as MRAs e.g. for calibration of equipment?*

With the exception of Aruba, Dominica and Saint Kitts and Nevis, all other countries have indicated that they have both a national standards system and a national standards development organisation, which is committed to adopting international standards as appropriate. Around half of the countries have legislation on metrology and an agency responsible for metrology.

However, few countries reported that they had the structures to maintain the national measurement standards, and the existing laws did not permit delegation of authority to foreign entities for calibration of equipment.

Table 4.4: Responses received to questions on the national standards framework and that for metrology in Caribbean countries

Country	National standards & SDO	Commitment to adopting int'l standards	Existence of nat'l measurement standards	Metrology law, re delegation of authority
Aruba	None	None	None	-
Bahamas	Yes – national standards system; No - SDO	Yes, as appropriate	No metrology laws, no agency	Not applicable
Barbados	Yes – national standards system; No - SDO	Yes	Yes – metrology laws; yes – agency	Yes, permitted
Curacao	None for telecoms	In line with int'l/ European stds	(Unsure – should be directed to	(Unsure – should be directed to

		including ISO	responsible agency)	responsible agency)
Dominica (1)	None	-	Not applicable	Not applicable
Dominica (2)	Yes – national standards system; Yes - SDO	Yes	Yes – metrology laws; yes – agency	Yes
Dom Republic	-	Yes, when it is possible int'l stds can be adopted	Yes – metrology laws; no – agency	-
Grenada	Yes – national standards system; No - SDO	Yes	Yes – metrology laws; yes – agency	Yes, permitted
Guyana	Yes – national standards system; No - SDO	Yes	Yes – metrology laws; yes – agency	Not permitted
Haiti	National stds system – has been launched; Yes – SDO	Not applicable	No metrology laws; yes – metrology lab exists	Not applicable
St. Kitts & Nevis	None	Not applicable	No metrology laws, no agency	Not applicable
St. Lucia (1)	Yes – national standards system; No - SDO	Yes	Yes – metrology laws; yes –agency	Bureau of Stds permitted to do so
St. Lucia (2)	-	-	Yes – metrology laws; yes –agency	Metrology laws does not preclude MRAs
St. Vincent & the Grenadines	Yes – national standards system; No - SDO	Yes	Yes – metrology laws; yes –agency	Yes, permitted
Suriname	Yes – national standards system; No - SDO	Yes, they adopt int'l standards	No – metrology laws, no - agency	Not applicable
Trinidad & Tobago	Yes – national standards system; No - SDO	Yes	[awaiting info]	[awaiting info]

Question:

- *Is there any Institution responsible for the development of conformity assessment programs? If, YES, which areas of conformity assessment does it cover?*

Although most countries indicated that there is an institution responsible for the development of conformity assessment programmes, only two countries explicitly stated their national standards organisation. For the countries that identified an organisation, most undertook products, process and services conformance assessments, but in the majority of cases those assessments appeared to be voluntary.

Table 4.5: Responses received to questions on the conformance assessment development

Country	Conformity assessment development body	Products conformance	Processes conformance	Services conformance	Personnel conformance
Aruba	None	-	-	-	-
Bahamas	None	N/A	N/A	N/A	N/A
Barbados	Yes	Yes, mandatory & voluntary	Yes, voluntary	Yes, voluntary	Yes, voluntary
Curacao	Not for telecoms	N/A	N/A	N/A	N/A
Dominica (1)	Yes, Dominica Bureau of Standards	N/A	N/A	N/A	N/A
Dominica (2)	Yes	Yes	Yes	Yes	Yes
Dom Republic	INDOTEL, for assessment programs for telecoms equipment.	Mandatory	-	Mandatory	-
Grenada	Yes	Yes, mandatory & voluntary	Yes, mandatory & voluntary	Yes, voluntary	Yes, voluntary
Guyana	Yes, Guyana Bureau of Standards	Yes, voluntary	Yes, voluntary	Yes, voluntary	-
Haiti	None	-	-	-	-
St. Kitts & Nevis	None	-	-	-	-
St. Lucia (1)	Yes	Yes, mandatory & voluntary	Yes, voluntary	Yes, voluntary	-
St. Lucia (2)	Yes; ECTEL for the NTRC	No	No	No	-
St. Vincent & the Grenadines	Yes	Yes	Yes	Yes	No
Suriname	Yes	Yes	No	Yes, mandatory	No
Trinidad & Tobago	[awaiting info]	[awaiting info]	[awaiting info]	[awaiting info]	[awaiting info]

Questions:

- *What are these Institutions involved in the development of conformance assessment programs?*
- *What are the possible resources from National/Regional/International Funds to assist private and public sector to invest in infrastructure, e.g., Labs and human resources? (list all)*

There were few responses to these two questions, especially to identify local Institutions involved in the development of conformance assessment programmes. With regard to national, regional and international resources that could be explored to invest in infrastructure and capacity, more responses were received, which for the most part, pointed to regional and international donor agencies for support.

Table 4.6: Responses received to questions on institutions involved in conformance assessment development and resource availability

Country	Conformity assessment development institutions	Resource availability to invest in infrastructure
Aruba	-	-
Bahamas	-	-
Barbados	BNSI, CROSQ, TVET	-
Curacao	(Unsure – should be directed to responsible agency)	• (no specific resources stated)
Dominica (1)	-	• The Caribbean Development Bank • The International Development Bank
Dominica (2)	-	• CROSQ/PTB, SIM
Dom Republic	-	-
Grenada	-	No information gathered
Guyana	Institutions include govt agencies and private organizations seeking accreditation to conformity assessment standards such as ISO/IEC 17020, ISO/IEC 17025,ISO/IEC 17025	• Training in capacity building; • Improvement of technical competence; • Finance to build labs and other facilities
Haiti	-	Not applicable
St. Kitts & Nevis	Not applicable	Not applicable
St. Lucia (1)	• SLBS Certification Dept conducts certification – a conformity assessment activity • SLB Compliance Dept conducts conformity assessment on several commodities including electrical appliances and labels	EU funds, UN funding
St. Lucia (2)	-	Financing from Universal Service Fund might be possible
St. Vincent & the Grenadines	-	-
Suriname	-	-
Trinidad & Tobago	-	[awaiting info]

4.1.2 Importation control

Frequently, establishing controls at ports of entry are a crucial when aiming to oversee and regulate goods and services that enter a country. However, should there be unauthorised or

counterfeit products in the local market, it is also important that there are measures through which those occurrences can be addressed.

Questions:

- *Is there legislation and regulation which establishes importation requirements for products and services such as ICTs including telecom products, electrical safety and environmental aspects?*
- *How is importation control of the products entering the country/region enforced e.g. at point of entry, spot checks and post market surveillance?*
- *Is there a post market surveillance, audit and enforcement regime established for products entering the country/region, and deployed in the country/region, and a schedule of punishments for infractions?*
- *What actions, if any, are undertaken to identify counterfeit products and what actions are taken to remove such products from the marketplace and to deal with parties responsible for bringing them into, or deploying them in the country/region?*

With the exception of Aruba, all countries indicated that they have some importation controls in place, which would be exercised for ICT and telecommunications products and services, and may include electrical safety and environmental aspects. The controls established appear to vary by country. In some countries, they are consistently applied and include inspections at point of entry, spot checks, and post market surveillance, whilst others, they appear to be applied in an ad hoc manner, possibly triggered by a complaint.

With regard to in-market audits and checks, those appeared to be less rigidly applied across the responding countries. Similarly, the process for the removal of counterfeit products was not clear in all of the countries.

Table 4.7: Responses received to questions on importation controls for IT and telecommunications equipment

Country	Importation laws & regulations	What controls are in place?	Post-market audits & checks	How counterfeit products are removed
Aruba	-	Through customs agents at point of entries	No (only upon receipt of complaints).	Products are confiscated or by department order returned abroad. Punishments are seldom.
Barbados	Yes	Point of entry	Done by Dept of Commerce and Consumer Affairs	Done by Dept of Commerce and Consumer Affairs
Bahamas	Yes, there are regulations	Ad hoc post market surveillance, normally triggered by	No formalised regime; done on ad hoc basis	No specific agency has this responsibility

		public complaint		
Curacao	For telecoms goods & services, Telecoms Act applies	Customs - at point of entry; BTP - spot checks and post market surveillance	Yes, for telecoms equipment	Customs and law enforcement deals with counterfeit products; they are confiscated
Dominica (1)	Yes; Telecoms Act 2000; Terminal Equipment & Public Network Regulations 2002; Quality of Service Regulations 2008	Customs and Excise Division of the Government of Dominica is responsible for these functions and duties.	Regime is not fully organised; mainly due to of the lack of man power. Primarily reactionary, and seldom done randomly.	Not applicable: No action has been undertaken yet in that regard
Dominica (2)	Yes	Inspection at point of entry, spot checks and post market surveillance	Yes	-
Dom Republic	Yes	Point of entry	Yes	-
Grenada	Yes – Labelling regulations for products offered for sale	Inspection at point of entry, spot checks, post market surveillance	Post market surveillance conducted. Punishment exist (e.g. Customs Act, Standards Act, Metrology Act)	Product alerts; market inspection and physical removal
Guyana	Yes	Inspection at point of entry, spot checks, post market surveillance	Legal Metrology and Standard Compliance Dept & Revenue Authority can conduct checks; penalties exist	No legal provisions for non-food & drug counterfeit products
Haiti	Partly	Inspection at point of entry, post market surveillance	For some telecoms devices, especially when interference is discovered	-
St. Kitts & Nevis	Yes, under Telecoms (Terminal Equipment & Public Network) Regulations 2002	Inspection at point of entry, spot checks, post market surveillance	Yes, under the Telecoms Act and the Terminal Equipment Regulations	Not applicable
St. Lucia (1)	Yes	Inspection at point of entry, spot checks, post market surveillance	Yes	Market surveillance, Inspection, testing, int'l & regional alerts; product recall,

				confiscation
St. Lucia (2)	Yes	Equipment detained at point of entry pending approval	Yes, monitoring exercises are conducted	-
St. Vincent & the Grenadines	Yes	Inspection at point of entry	Not applicable	Action to remove products taken via customer complaints, or int'l info
Suriname	Yes	There is no importation control	No	For now, no action is taken
Trinidad & Tobago	Yes	Inspection at point of entry, spot checks, post market surveillance	Audits are done but no legal enforcement provisions exist	No action taken post Customs

4.2 Accreditation

As indicated in Chapter 3, accreditation speaks to "*process by which a testing laboratory may be found compliant with international standards*". The accreditation body is the entity, usually vested by the government, which performs the accreditation.

Questions:

- *Is there any Accreditation Body (ISO/IEC 17011) (not only in ICT)?*
- *In which field/s does it accredit organisations and with what scopes?*

Responses were scant to the questions on the existence of local ISO/IEC 17011-compliant accreditation bodies. However most countries indicated that there was no local accreditation body, thereby obviating the need to identify the fields and scope of the accreditation.

Table 4.8: Responses to questions on the existence of local accreditation bodies and their subject area jurisdiction

Country	Accreditation body	Field of accreditation	Scope of accreditation
Aruba	No	-	-
Bahamas	No	-	-
Barbados	No, acts as the designated National Accreditation Focal Point	-	-
Curacao	No, not for telecoms sector	-	-
Dominica (1)	Dominica Bureau of Standards	Not applicable for telecoms	Not applicable
Dominica (2)	No	-	-

Dom Republic	-	-	-
Grenada	No	-	-
Guyana	No	-	-
Haiti	No	-	-
St. Kitts & Nevis	No	-	-
St. Lucia (1)	No	-	-
St. Lucia (2)	-	-	-
St. Vincent & the Grenadines	No	-	-
Suriname	No	-	-
Trinidad & Tobago	Bureau of Standards of T&T	[awaiting info]	[awaiting info]

4.3 Laboratories

One of the envisaged outputs of the proposed common C&I and MRA regime, is the establishment of a regional testing centre. Should test laboratories already exist, they potentially could accelerate the process of realising a regional facility.

Questions:

- *What are the Laboratories identified in the country/region and what service levels do they provide (e.g. 1st, 2nd and 3rd party testing)?*
- *Are they (Labs) Accredited (ISO 17025) or is there any kind of peer evaluation of the lab?*
- *What are the fields and scopes of such Labs?*
- *How is the laboratory funded? (by Government, Organisations and Individuals). Indicate all that apply*

Less than half of the countries indicated they had accredited testing laboratories, and in those that do, the emphasis appears to be on third party testing. Further, and again in the countries that stated that they had testing laboratories, the scope of those institutions was broad, in some instances covered medical, food and drug testing, engineering material, electrical appliances and metrology. Finally, many of those laboratories depend on government financing, revenue generated by the organisation itself, and donor funding.

Table 4.9: Responses to questions on the existence of local testing laboratories, their fields and scope and how they are financed

Country	National labs and service levels	Laboratory accreditation	Laboratory field and scope	Funding for labs
Aruba	None exist	-	-	-
Bahamas	None exist	Not applicable	Not applicable	Not applicable
Barbados	None appear to exist locally	-	-	-
Curacao	None for telecoms/ICT	-	-	-
Dominica (1)	Regionally, the	FCC is accredited	FCC is able to	FCC is

	FCC, solely: 1st to 3rd party testing.	respectively	provide comprehensive Radio, (EMC) and Environmental Testing and Reports for the relevant devices	Government Funded; they generate most, if not all, of their revenue spent.
Dominica (2)	Verification services	Labs not accredited	-	Government and Donor funded
Dom Republic	-	-	-	-
Grenada	3rd Party Testing	No accredited laboratories	Not applicable	Govt & organisation
Guyana	Labs exist, but focus on food, drug, medical testing	No accredited laboratories	Clinical testing, infectious disease testing, food and drug test	Govt & donor funded
Haiti	2nd & 3rd party testing labs exist	No lab is currently accredited	Building & Civil Engineering, Physical Chemistry, Agro-food, Calibration, Heath Public.	Govt funded for public labs; privately funded for non-govt labs
St. Kitts & Nevis	None exist	Not applicable	Not applicable	Not applicable
St. Lucia (1)	SLBS labs – 3rd party testing; other labs 2nd & 3rd party testing	Yes, 1 accredited testing lab; Peer review of metrology lab	Environmental, chemical, eng. materials, electrical appliances, metrology	Govt, Organisation, Individuals (customer fees)
St. Lucia (2)	No testing labs in country	No testing labs in country	No testing labs in country	No testing labs in country
St. Vincent & the Grenadines	None exist	Not applicable	Not applicable	Not applicable
Suriname	-	-	-	-
Trinidad & Tobago	[awaiting info]	[awaiting info]	[awaiting info]	[awaiting info]

4.4 Certification bodies and markings

The establishment of a comprehensive C&I regime in a country requires considerable financial resources and technical expertise. The acceptance of certifications (and certification marks) from other testing agencies and jurisdictions can be a valuable mechanism through which to achieve some degree of C&I.

Questions:

- *What Certification Bodies (ISO/IEC 17065) are in the country, where are they located?*
- *What are the fields and scopes of the Certification Bodies? (e.g. ICTs and Telecom)*
- *What Marks of conformity are on products in your country/region that are trusted – i.e. trusted Marks e.g. EU, FCC, IEC, etc.*

Five countries indicated the presence of a local certification bodies. In Grenada and Saint Kitts and Nevis, their National Telecommunications Regulatory Commission was identified as the certifying body for terminal equipment, whilst in others, the national standards organisation were cited. With regard to marks of conformity used for telecoms and ICT equipment, marks trusted by the countries included those issued by the Federal Communications Commission (FCC), the European Union (EU), Underwriters Laboratories (UL), International Electrotechnical Commission (IEC), and Conformité Européenne (CE).

Table 4.10: Responses to questions on local ISO/IEC-compliant certification bodies, their scope and the accepted marks of conformity

Country	Local certification bodies	Field and scope of certification bodies	Trusted marks of conformity
Aruba	None	-	FCC, CE
Bahamas	None	Not applicable	FCC
Barbados	BNSI acts as a national certification body	-	-
Curacao	None for telecoms/ICT	-	EU and FCC. (IEC is also generally trusted)
Dominica (1)	Dominica Bureau of Standards; NTRC	Dominica Bureau of Standards - General; N.A. to ICTs and Telecoms; NTRC - Telecoms/ICT equipment and Quality of Service Standards for Telecoms Services	Legislation does not address Marks of conformity, but has advised that the FCC or CE/EN standards be adapted for our jurisdiction - voluntarily
Dominica (2)	None	Not applicable	None
Dom Republic	-	-	-
Grenada	Local Bureau of Stds for product, service & personnel certification; NTRC for terminal equipment type approval	Type Approvals on terminal equipment by the NTRC	UL, IEC, CSA, FCC, EU
Guyana	None	Not applicable	UL, CE, CSA, NOM, CCC, ANCE for electrical products; FCC and CSA certification on telecoms equipment
Haiti	Not applicable	-	FCC , EU for telecoms products
St. Kitts & Nevis	NTRC	NTRC acting in accordance with the Telecoms Act	EU, FCC, IEC
St. Lucia (1)	Certification Dept., Saint Lucia Bureau of Standards	Product, process, service certification	Saint Lucia Standard Mark; Pattern approval (e.g. NTEP, EU, Measurement Canada, NMI Australia) marks; SLBS verification and

			testing marks; Electrical safety certification marks; FCC ID number
St. Lucia (2)	-	-	-
St. Vincent & the Grenadines	Not applicable	Not applicable	EU, FCC, IEC, UL, CE
Suriname	Telecoms Authority of Suriname	ICT & telecoms	FCC, CE, IEC
Trinidad & Tobago	[awaiting info]	[awaiting info]	[awaiting info]

5 Discussion of results

In this chapter we discuss the results of the survey, and highlight best practice that could be considered.

5.1 Summary of survey results

The survey results summarised in Chapter 4 sought to provide some insight into the systems and approaches employed in the Caribbean region with respect to the standards and control measures that are in place for telecommunications/ICT equipment, services, processes and personnel. In this section, key takeaways from the exercise are highlighted.

5.1.1 Regulatory framework and institutions

- Most countries have a regulatory framework that establishes the technical requirements for the importation and deployment of ICT products and services in their jurisdictions.
- The countries have also adopted a broad range of Conformity Assessment Schemes, some of which are ISO/CASCO compliant, to evaluate products and services at market entry.
- Countries have differing positions on matters related to delegation of authority and Mutual Recognition Arrangements (MRAs). However, even within countries and depending on the agency, there may be different views on this subject.
- Most countries have a national standards system and indicated that they are prepared to adopt international standards wherever possible rather than developing national standards.
- Most countries have metrology laws and a national institute of metrology.
- Few countries have an agency responsible for conformity assessment programmes. In the countries that indicated in the affirmative, the institution was either the telecommunications regulator, or the national standards organisation.
- Virtually all countries have established importation controls, which typically are at the ports of entry, and enforced by the local Customs office. Generally and post entry, spot checks and market surveillance are also performed. However, should unauthorised or counterfeit products be found, no action is taken some countries, whilst in others the offending products are seized.

5.1.2 Accreditation, laboratories and certification

- Most countries do not have a local ISO/IEC 17011-compliant accreditation body, nor did they have accredited (ISO 17025) testing laboratories. For the countries that indicated they did have laboratories, the engaged primarily in third party testing, and were not necessarily equipped to test telecommunications and ICT products.

- With regard to certification, some countries indicated that their local telecommunications regulator had that responsibility, especially for ICT-related equipment. Those organisations recognised and trusted Marks of Conformity issued by agencies such as EU, FCC, IEC, UL and CE.

5.2 General observations and considerations

First, although the results of the survey indicate that countries across the region have some structures in place to address matters related to C&I and MRA, those frameworks vary widely across the region. Further, in some instances they have not been fully formalised, nor do they appear to be consistently implemented.

Second, in some instances, the telecommunications/ICT regulator has been addressing C&I matters for telecommunications/ICT-related equipment. However, it is not clear the extent to which regulators are actually empowered to do so, when the role and responsibilities of the local standards office is also considered.

Finally, to varying degrees, institutions such as the Caribbean Telecommunication Union (CTU) are already coordinating and harmonizing approaches to telecommunications development across the region. Hence the extent to which the initiative to establish a common C&I regime might be at variance with, or duplication of, existing efforts, ought to be rigorously explored.

The Caribbean Telecommunications Union was established in 1989 by Heads of Caribbean Governments to: rationalise the telecommunications policy framework for the region; coordinate and harmonise approaches to telecommunications development; and promote awareness of telecommunication technologies in the region[14].

5.3 Best practice considerations

The development of C&I regimes and MRAs is not new. Several countries worldwide have developed and implemented the needed frameworks from which the Caribbean can learn. However, the proposed regional approach that is being considered, while not unprecedented, is not common. Hence, though there is benefit to the approaches that might be deemed best practice, it is unlikely that they can be adopted without customisation to the region's unique situation and needs.

[14] http://www.ctu.int/attachments/001_CTU%20Brochure.pdf

5.3.1 The overarching framework

A paramount factor to developing a sustainable and enforceable structure for an orderly telecommunication/ICT service and equipment marketplace is the legal framework. The legal framework usually is expressed in national telecommunications/ICT laws, and reflects the underlying policies of the sovereign state. Further, as might be necessary, it will establish and vest an agency with appropriate regulatory powers to oversee the propose framework, in order to achieve specified objectives and goals.

Though the legislation would address a broad range of regulatory and technical issues, in respect of C&I, some of the areas that ought to be covered are listed below.

Telecommunication apparatus and administration	• Application to apparatus subject to regulation • Government powers and exercise of powers • Certification and marking • Appeals and evidence • Regulations including fees and mandatory requirements
Investigation and enforcement	• Administrative and monetary penalties • Offences • Inspection and market surveillance • Forfeiture • Civil liability[15].

5.3.2 Standards and guidelines

Although there might be latitude in the arrangements established in practice for C&I and MRAs, generally, there is consistent reference to and reliance on the international standard, ISO/IEC 17011[16], *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies*. This standard, which was prepared by the ISO Committee on conformity assessment (CASCO), sets out the general requirements for accreditation bodies assessing, and for accrediting, conformity assessment bodies.

In addition to ISO standards, another invaluable resource is the suite of guidelines for C&I and MRA published by the ITU:

- Establishing conformity and interoperability regimes: Basic guidelines
- Guidelines for Establishing Conformance and Interoperability Regimes for Developing Countries (released in 2014)
- Overview of Guidelines for Developing Countries for Establishing Test Labs in Different Regions

[15] ITU (2014), Establishing conformity and interoperability regimes: Basic guidelines, p 5.

[16] ISO – International Organization for Standardization; IEC – International Electrotechnical Commission

- Guidelines for the development, implementation and management of a Mutual Recognition Arrangement/Agreement (MRA) on conformity assessment of telecommunications equipment.

5.3.3 Reference standards for conformity assessment

The authority in charge for defining national or regional standards (e.g. Ministry, regulators or standardization bodies) must continuously indicate and update the reference standards that contain the technical requirements and test procedures with which products must demonstrate their conformity (such as ITU-T Recommendations).

The Reference Standards can be based on the following sources[17]:

- International technical standards;
- Related regulations existing in other countries or regions;
- Regulations issued by the Regulatory Authority for similar products (in the event of a new products); or
- Manufacturer`s specification.

5.3.4 Establishing In-Country Testing Laboratories

The study identified the inexistence of testing laboratories for telecommunication/ICTs in Caribbean. Considering that the implementation of a Mutual Recognition Agreement (MRA) may take time, an alternative approach would be to start establishing In-Country (national) C&I Test Labs. Among other benefits, this plan allows to create local human capacity and expertise in the area of instrumentation, lab management, quality, calibration, maintenance, and testing equipment purchasing process. This may lead the country to become a reference in a particular C&I Domain (e.g. mobile terminals) in the region.

Reference: Feasibility Study for a Conformance Testing Centre[18]

5.3.5 Establishing a regional test centre

In developing countries, where the needed resources to establish and successfully maintain a regional test centre might be limited, the ITU recommends the following criteria be used to assess the suitability of a particular country for such an initiative:

[17] An example of a Reference Standard list can be found at: http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/SADCAssessmentStudy_Final.pdf (page 35)

[18] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/FeasibilityStudy_ConformanceTestingCentre_FINAL.pdf

- *Government commitment* – to either commit the funds or secure the financing to set up the laboratories, procure needed equipment, and recruit the required expertise to operate the facility
- *Technical and financial capacity* – that is with respect to the technical expertise available, and again having access the requisite financial resources
- *Demography and market size* – to ensure that to an appreciable extent, there is an adequate local market that will use the services of the centre to support its viability
- Political, economic and legal stability – a stable political, economic and legal climate would provide some degree of certainty to prospective investors in the centre[19].

Reference: Guidelines for developing countries on establishing conformity assessment test labs in different regions[20].

5.3.6 Approach to harmonisation across countries: MRA

In its guidelines for establishing C&I and MRA regimes, the ITU readily acknowledges that whilst the establishment of a common or harmonised regime across some countries might be mutually beneficial, especially where similar technical and administrative procedures exist, it still remains difficult to successfully implement[21]. It therefore recommends in the first instance that a forum be established to fully discuss the topics and to identify and agree upon, as appropriate, a collaborative and functional roadmap through which to achieve clearly specified outcomes[22].

References:

-Guidelines for the development, implementation and management of Mutual Recognition Agreements (MRAs)[23]; and

-Establishing Conformity and Interoperability Regimes: Basic Guidelines[24].

[19] ITU (2014) Guidelines for Establishing Conformance and Interoperability Regimes for Developing Countries. Retrieved from http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/TOR_Guidelines%202014_CI%20Regimes.pdf

[20] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/Test_lab_guidelines_EV8.pdf

[21] ITU (2014), Establishing conformity and interoperability regimes: Basic guidelines, p 11.

[22] *Ibid*.

[23] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/GuidelinesMRAs_E.pdf

[24] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/CI_BasicGuidelines_February2014_E.pdf

6 Recommendations

Following from our earlier discussion of the survey results (Chapters 4 and 5), in this chapter, recommendations are made on key considerations and on an approach that can be employed to realise a common C&I and MRA regime in Caribbean.

6.1 General Observations

A) Alignment of purpose

As currently understood, the frameworks established in individual countries demonstrate, to a considerable extent, the emphasis that has been placed on C&I in particular, and the objectives therein. In the majority of instances, though it might be widely acknowledged that C&I are important, the systems appeared to be limited, and possibly under-resourced.

In considering, and eventually transitioning to a regional approach, it is critical that the objectives, goals, required commitment, etc., are clearly established from the outset. That exercise might require a series of consultations across the region to: foster consensus; secure the requisite buy-in from countries, and equally important, to better understand the constraints and challenges of individual countries.

Once the scope and requirements of the proposed regional approach has been understood, it is advisable that the individual participating countries expressly affirm the importance of the initiative and commit to undertaking the necessary internal restructuring. This activity may require the involvement of senior policymakers, such as Ministers of government, who can commit their countries to undertaking the agreed changes in order to achieve the desired and agreed objectives.

B) Regulatory alignment

As reflected in the survey results, two agencies may be involved in establishing and managing technical standards, and the C&I/MRA processes: the telecommunications regulator; and the national standards bureau. In some instances, the bureau has sole responsibility, whilst others, it is the regulator. Alternatively, both organisations appear to have some responsibility, but there might not be clear assignment of responsibilities.

Though the telecommunications regulator might possess the technical expertise to oversee a telecommunications/ICT-related C&I and MRA framework, frequently, the national standards bureau is the organisation empowered to establish and adopt standards for the country. Hence in establishing a regional C&I and MRA regime, it may be necessary to give careful consideration on how to clearly delineate the responsibilities of those two

organisations, along with which one might have a leading role, and correspondingly, what its responsibilities might comprise.

C) Alignment of standards

At its core, the establishment of a common C&I or MRA regime, requires the development, adoption and implementation – as appropriate – of common standards, rules, procedures and processes in the participating countries. The standards adopted might be internationally recognised, but it is also possible in some circumstances that amended standards may be required to accommodate the unique and different needs of the participating countries. Nevertheless, and for successful realisation of those common systems, the individual countries will also need to be prepared to adjust parts of their current frameworks and support structures to achieve the agreed objectives.

In relation to technical standards, it is emphasised that countries across the region do not all follow the same technical standards. For example, in terms of radio spectrum planning, the Caribbean falls within ITU Region 2, which covers the Americas. However, countries that are colonies or dependencies of a European country tend to adhere to the standards or use the frequency band plans for ITU Region 1, which covers most of Europe. Further, due to the close geographic proximity of some countries, particularly those in the Lesser Antilles, inter-country interference occurs, which has resulted in adjustments being made to frequency band plans and allocations, along with requiring continual spectrum coordination between countries in order to manage those challenges.

D) Legislative alignment

Critical to establishing a common C&I and MRA regime would be the preparation and promulgation of a suitable legal framework in each country that would not only allow for harmonisation of technical requirements, but the adoption of a common approach and systems, as agreed. In many countries, the legislative drafting and enactment process, especially for new Acts, can be protracted. Depending on the provisions in the parent legislation and the legal system that exists in each of the participating countries, it may be possible to prepare Regulations instead, thus expediting the rollout of the new framework.

To prepare the needed legislation, consideration should be given to securing external technical assistance to develop model legislation that can be adopted by the countries. However, it is emphasised that having the model legislation does not guarantee that the countries will initiate the promulgation process with alacrity. Further, individual countries may decide to undertake extensive editing of the draft law, potentially resulting in wide variations in the final provisions enacted, and how they can be construed.

The survey revealed that Conformity Assessment Schemes have been implemented in most Caribbean countries, with certificates, third party declarations, and recognition of certificates from international organisations (such as ETSI and FCC) being the most widely

accepted. Similarly, based on the survey results, it appears that many Caribbean countries allow delegation of authority to foreign entities through instruments such as a MRA.

Following the initial sensitisation and capacity building, and in the medium term, it is recommended that Caribbean countries undertake the necessary legislative review in order to facilitate the preparation of a harmonised C&I programme and/or allow for the establishment of MRAs between Caribbean states. This exercise would require inputs from telecommunications/ICT, standards and legislative specialists to critically examine what currently obtains across the participating countries in the first instance, and to determine the extent to which a harmonised regime can be created. At the end of the entire exercise, it is recommended that a piece of model legislation – a template of the proposed Act – be prepared for adoption by the countries.

With regard to MRAs, and as an initial step, the commonalities of existing conformity assessment schemes could be further examined and based on the results, a set of core principles for the establishment of a MRA framework could be developed. This exercise would most likely be multi-tiered, and would need to be guided by a regional group or organisation, such as the Caribbean Telecommunications Union, that would be responsible for coordinating and managing the entire process.

The process would commence with the national regulators and standard development agencies, to set out the technical requirements of the harmonised framework. Thereafter the process would be escalated the Ministers of Telecommunications/ICT for policy formulation and adoption, which should subsequently trigger the required legal drafting to transform policy into law.

6.2 Possible Solutions and Way Forward

Based on the result of the Assessment Study for the Caribbean three possible ways forward are anticipated for the countries in the Caribbean region

6.2.1 Establishing in-country testing laboratories

Outlined in 5.3.4, the plan of establishing in-country testing laboratories includes the criteria to determine the locations and the testing scopes (C&I domains) of these in-country testing laboratories. Considering the cost for implementing and maintaining laboratories for different C&I domains, as identified in the ITU guidelines, countries are recommended to prioritise their choices among the most important C&I domains for them in the short-term.

For most Caribbean countries and before adopting this option, due consideration may need to be given to the following including but not limited to the high financial costs to establish and maintain a testing facility which may receive only a small number of devices for testing and certification. Hence the establishment of in-country laboratories may be coordinated with other countries in the region in order not to duplicate efforts and resources in view of establishing possible future MRAs, as specified in 6.2.3.

Reference: Feasibility Study for a Conformance Testing Centre.[25]

6.2.2 Establishing a regional test centre

Though the establishment of a regional test centre ought to be a longer-term consideration, following realisation of the alignment and harmonisation highlighted in section 6.1, a regional test centre would be a key milestone in the entire C&I and MRA framework. However, as guided by the recommended criteria to determine where to locate the proposed regional facility outlined in section 5.3.5, the following three countries might be shortlisted, in the first instance, for closer examination: the Dominican Republic; Jamaica; and Trinidad and Tobago.

This plan of establishing a regional test centre includes the criteria to determine the numbers, the locations and the testing scopes of the regional test centre. The recommended criteria also include:

- Countries belonging to a geographic region;
- Countries sharing technical and/or economic interests;
- Countries which have established Accreditation Bodies which are signatories to ILAC MRA;
- Countries which have metrology institutes to provide calibration services;
- Synergism between the stakeholders – equipment vendors/standards development organizations/network operators/test centres;
- Funding support from both public and private sectors.

Most Caribbean countries are politically, economically and legally stable, but the smaller territories would tend to be limited with respect to the demography and market size criterion, and may not possess the requisite technical and financial capacity. Although to varying degrees the recommended countries might not have the financial resources to fully fund a test centre, with the support of the participating countries, a case could be made to donor agencies for a regional initiative.

Reference: Guidelines for developing countries on establishing conformity assessment test labs in different regions[26]

6.2.3 Establishing MRAs in the region

Based on the survey results, the legal basis to delegate regulatory authority, for example through MRAs, is fragmented in region. While some countries have indicated that they can enter into MRAs, others have either not answered those questions, or have explicitly stated

[25] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/FeasibilityStudy_ConformanceTestingCentre_FINAL.pdf

[26] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/Test_lab_guidelines_EV8.pdf

that they are not allowed. As a result, there might not be a significant benefit to attempting to implement a common MRA regime at this time, unless or until there is a more thorough understanding of the legal and regulatory frameworks in the countries.

Further, and again as learned from the survey, none of the countries have their own certification body that test and certify equipment. It therefore suggest that any MRA regime established would inherently be one-sided, as (again) the countries are not yet in a position where they are issuing certificates or marks of conformity of their own that other territories could accept.

References:
-Guidelines for the development, implementation and management of Mutual Recognition Agreements (MRAs)[27]; and
-Establishing Conformity and Interoperability Regimes: Basic Guidelines[28].

It has to be noted that the three ways forward can be implemented in parallel, with a view to prepare countries to take part in possible future MRAs. It is recommended that the three options (6.2.1 Establishing in-country testing laboratories; 6.2.2 Establishing a regional test centre; 6.2.3 Establishing MRAs in the region), be discussed by a C&I task force, which it has been proposed be chaired by the CTU Secretariat. The proposed Terms of Reference for this task force are listed in section 6.3.

6.3 Terms of Reference of the Task Force

Supporting further activities, the development of a plan to implement bilateral MRAs between Caribbean countries is recommended. This plan will be based on the Inter-American MRA[29], which was developed by the Inter-American Telecommunication Committee (CITEL) of the Organization of American States (OAS). The Inter-American MRA was endorsed by COM-CITEL, the executive committee of CITEL in 1999. In 2000, the general assembly of the OAS met in Windsor, Canada and endorsed the Inter-American MRA. By OAS convention, all 34 member states of the OAS endorsed the Inter-American MRA. 14 member states of the 22 Caribbean countries included in this assessment study are members of the OAS. A number of member states of the OAS, but not necessarily the countries under review in this study, had implemented bilateral MRAs with successful results.

This plan may include:

1. Caribbean countries to form a Task Force to coordinate the development of bilateral MRAs between Caribbean countries based on the Inter-American MRA. Though still

[27] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/GuidelinesMRAs_E.pdf

[28] http://www.itu.int/en/ITU-D/Technology/Documents/ConformanceInteroperability/CI_BasicGuidelines_February2014_E.pdf

[29] http://www.ic.gc.ca/eic/site/mra-arm.nsf/vwapj/citel_mra.pdf/$file/citel_mra.pdf

subject to further discussion and agreement, it has been proposed that this Task Force be chaired by CTU personnel and supported by the CTU secretariat. One of the tasks of the Task Force is to ensure the consistent and efficient implementation of the bilateral MRAs. ITU/BDT will provide technical assistance to the Task Force

2. Participation in the Inter-American MRA is voluntary. When Caribbean countries decide to participate they will have to follow the principles and procedures of the Inter-American MRA.

3. Caribbean countries are encouraged to implement bilateral MRA with other OAS member states to take advantage of the in-country conformity assessment bodies already established in these member states.

6.4 Capacity Building

In order to secure the necessary support and commitment from the countries, one of the first activities should be a comprehensive consultation programme across the region, through which to sensitise but also to collect more detailed intelligence on the current state of C&I and MRA in each country. The proposed workshop in December 2014, is an excellent first step, but others may be necessary to ensure that policymakers, along with legal, regulatory and standards specialists from each county have an opportunity to contribute to the discussions, and possibly share important insights based on their countries' needs and position.

In the short-term, capacity building and training should be organised for the region to assist it in establishing C&I regulatory frameworks. There should also be workshops for test reports analysis, development of technical requirements for a C&I and MRA regime among participating countries. Workshops with practical exposure can also be held for relevant technical personnel.

The proposed training and capacity building should target, *inter alia*, technocrats in national regulatory and standards agencies, the ministries of telecommunications/ICT, and the legislative drafting departments of governments. It may be necessary to approach agencies, such as ITU and the World Bank, for technical assistance to prepare and deliver the needed training.

In order to establish a Training Programme to build capacity for Caribbean Member States it is recommended to identify institutions in Caribbean or neighbouring countries that may be in a position to provide qualified training courses on C&I in the framework of a Collaboration Agreement signed with ITU as undertaken in other Regions. The CTU Secretariat may facilitate this by liaising with appropriate institutions that would sign a Collaboration Agreement with the ITU.

7 Conclusion

The Caribbean region comprises a diverse set of countries, in terms of geographic size, population, and economy, to name a few. However, as reflected by the results of the survey presented in Chapter 4, none of the countries have a comprehensive and coherent system addressing matters related to C&I and MRA.

Three options, one or more of which may be pursued, have been presented for consideration to advance C&I and MRAs in the Caribbean:

- Establishing in-country (national) testing laboratories
- Establishing a regional test centre
- Establishing MRAs across the region

Individually, most countries are experiencing a number of challenges, such as limited finance, small population size, limited technical expertise, along with the vulnerabilities of SIDS, which could hinder national efforts in C&I. Additionally recognising that C&I/MRA development is still in their nascent stages across the region, it is likely that some of the recommendations, such as employing a regional approach – to benefit from economies of scale and scope – might be more appropriate at this time.

Further, it recommended that a task force be established to guide the C&I and MRA development process in the region. The CTU has been one of the agencies proposed, but others could be considered that may have the capacity and resources for such a long-term initiative.

Nevertheless, the successful development of C&I and MRA in the Caribbean, regardless of whether a regional and/or national approach is adopted, would be dependent on a number of factors, including the following:

- The establishment of clearly defined objectives and goals to which the participating countries all accede
- The participation and commitment of policymakers to ensure that there is the requisite political will in order to effect the needed changes in the timelines agreed
- A willingness of all of the participating countries to adjust their policy, legal and regulatory frameworks in order to achieve the agreed goals and objectives
- The establishment of a task force or steering committee to oversee the entire initiative
- Access to training and capacity building both in individual countries and regionally, so that the required expertise can be developed.
- Access to the necessary technical and financial assistance from international organisations and donor agencies.

Appendix A: Questionnaire (Revised)

CONFORMITY AND INTEROPERABILITY ASSESSMENT ON A REGIONAL BASIS:

Collaboration among Regional and Sub-Regional Organizations for Establishing a Common Conformance and Interoperability Regime and Mutual Recognition Agreements

This questionnaire has been created to capture critical country-specific information needed to understand the frameworks and context for telecommunications/ICT equipment conformity in the Caribbean, with a view to proposing a Common Conformance and Interoperability (C&I) Regime and Mutual Recognition Agreements (MRAs) and/or the establishment of regional test centres, as appropriate.

Instruction: Please answer all questions.

SECTION ONE

1. **Regulatory Framework and Institutions (Per Country)**

❖ Is there any regulatory framework and regulation which establishes technical requirements for products and services to be legally imported and deployed in the marketplace?

If yes, what products/services/areas does it cover? (indicate all that apply)

	Service/product/areas covered	YES	NO
1	ICT/telecom products and services (i.e. network and terminal equipment)		
2	Electrical/electronic apparatus		
3	Environmental requirements		
4	Other		

❖ If yes, indicate the Conformity Assessment Schemes adopted for market entry (check all that apply)

- Certification
- self-declaration
- third party declaration (through conformity assessment body)

- labelling
- Use of proxies such as IEC, FCC, ETSI, etc.
- others (specify)_____

❖ Are these Conformity Assessment Schemes based on the ISO/CASCO set of Guidelines and standards?

❖ If there is legislation and regulation dealing with ICT and telecom products and services and related areas such as electrical safety and environmental issues, how is it applied? Is it compulsory or voluntary?

❖ Where such legislation and regulation exists does it permit delegation of authorities to foreign entities under arrangements such as Mutual Recognition Agreements (MRAs) on Conformity Assessment e.g. for certification?

❖ Is there a national standards system and national standards development organisation (SDOs)? (indicate YES/NO in the following table)

	YES	NO
National standards system		
SDO		

❖ Where such SDOs exist are they committed to adoption of international standards wherever possible rather than developing national standards which may deviate from the international ones?

❖ Is there Metrology legislation and any National Institute of Metrology responsible to maintain the national measurement standards in the country; to establish and maintain their metrological traceability to the units of the International System of Units (SI)?

	YES	NO
Metrology legislation exists?		
National Metrology institute for national measurement and their traceability to international units		

- If Metrology legislation exists in your country does it permit delegation of authorities to foreign entities under arrangements such as MRAs e.g. for calibration of equipment?

- Is there any Institution responsible for the Development of conformity assessment programs?

- If, YES, which areas of conformity assessment does it cover? (indicate all areas that apply)

	Areas covered by conformance assessment programs	YES	NO	M*	V^
1	Products				
2	Processes				
3	Services				
4	Personnel				

** indicate whether conformance assessment in this area is mandatory (M)*

^ indicate whether conformance assessment in this area is voluntary (V)

What are these Institutions involved in the development of conformance assessment programs?

- What are the possible resources from National/Regional/International Funds to assist private and public sector to invest in infrastructure, e.g., Labs and human resources? (list all)

- Is there legislation and regulation which establishes importation requirements for products and services such as ICTs including telecom products, electrical safety and environmental aspects

- How is importation control of the products entering the country/region enforced e.g. at point of entry, spot checks and post market surveillance?

- ❖ Is there a post market surveillance, audit and enforcement regime established for products entering the country/region, and deployed in the country/region, and a schedule of punishments for infractions?

- ❖ What actions, if any, are undertaken to identify counterfeit products and what actions are taken to remove such products from the marketplace and to deal with parties responsible for bringing them into, or deploying them in the country/region?
  - *counterfeit products are identified by (list all means):*
  - *the actions taken to remove counterfeit products include (list/state all):*
  - *action taken against parties that bring into and deploy counterfeit products include (list all action):*

2. Accreditation

- ❖ Is there any Accreditation Body (ISO/IEC 17011) (not only in ICT)?

- ❖ In which field/s does it accredit organisations and with what scopes?

	Accreditation body	**Field (e.g. telecom)**	**Scope (e.g. products/services/personnel etc)**
1			
2			
3			
4			

3. Laboratories

- ❖ What are the Laboratories identified in the country/region and what service levels do they provide (e.g. 1st, 2nd and 3rd party testing)?

- ❖ Are they (Labs) Accredited (ISO 17025) or is there any kind of peer evaluation of the lab?

- ❖ What are the fields and scopes of such Labs?

- How is the laboratory funded? (by Government, Organisations and Individuals). Indicate all that apply

4. Certification Bodies And Marking

- What Certification Bodies (ISO/IEC 17065) are in the country, where are they located?

- What are the fields and scopes of the Certification Bodies? (e.g. ICTs and Telecom)

- What Marks of conformity are on products in your country/region that are trusted – i.e. trusted Marks e.g. EU, FCC, IEC etc.