Technology-Enabled Learning in the Commonwealth Caribbean Countries: A Baseline Study
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Technology-Enabled Learning in Commonwealth Caribbean Countries: A Baseline Study

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Views expressed in the publication are that of the author and do not necessarily reflect the views of COL. Every effort has been made to acknowledge and attribute all sources of information used in preparation of this report. All links in the document were active at the time of research and writing of the report.

Published by:
COMMONWEALTH OF LEARNING
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Burnaby, British Columbia
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**Abstract**

This baseline study of technology-enabled learning (TEL) in the 12 Caribbean countries of the Commonwealth included the review of published reports, unpublished studies and other available documentation in print and online, as well as consultation with Commonwealth of Learning Focal Points, ministry personnel in the respective states, and others actively or recently involved in implementing, supporting or studying TEL in the Commonwealth Caribbean.

All of the 12 countries use information technology to support their communications systems, and most have an established and fairly recent information and communication technology (ICT) policy. However, only five of the countries have developed a separate ICT in Education policy to address the integration of ICT in the curriculum, although two other countries have incorporated an ICT in Education policy directly into their ICT policy, so could also be said to have an articulated ICT in Education policy.

Policies addressing the use of open educational resources (OERs) and open licensing are very few in these countries, and the available documentation suggests a general lack of awareness about open licensing.

Both to increase the use of ICTs in education and to promote the development of OERs and open licensing, countries have identified the increased need for training of teacher trainers, teachers and policy developers in these skill areas.
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### Abbreviations

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<th>Description</th>
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<td>ABIIT</td>
<td>Antigua and Barbuda International Institute of Technology</td>
</tr>
<tr>
<td>BEAMS</td>
<td>Basic Education Access and Management Support project (Guyana)</td>
</tr>
<tr>
<td>BLC</td>
<td>Bahamas Learning Channel</td>
</tr>
<tr>
<td>BRICS</td>
<td>the five-country economic group of Brazil, Russia, India, China and South Africa</td>
</tr>
<tr>
<td>CABI</td>
<td>Connect Antigua and Barbuda Initiative</td>
</tr>
<tr>
<td>CANTA</td>
<td>Caribbean Association of National Training Agencies</td>
</tr>
<tr>
<td>CAPE</td>
<td>Caribbean Advanced Proficiency Examination</td>
</tr>
<tr>
<td>C@ribNET</td>
<td>Caribbean High Capacity Broadband Network</td>
</tr>
<tr>
<td>CARICOM</td>
<td>Caribbean Community and Common Market</td>
</tr>
<tr>
<td>CARIMAC</td>
<td>Caribbean Institute of Media and Communications</td>
</tr>
<tr>
<td>CCTI</td>
<td>Commonwealth Certificate of Teacher ICT Integration</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CIVIC</td>
<td>Caribbean ICT Stakeholders Virtual Community</td>
</tr>
<tr>
<td>CKLN</td>
<td>Caribbean Knowledge and Learning Network</td>
</tr>
<tr>
<td>COL</td>
<td>Commonwealth of Learning</td>
</tr>
<tr>
<td>CSEC</td>
<td>Caribbean Secondary Education Certificate</td>
</tr>
<tr>
<td>CSME</td>
<td>Caribbean Single Market and Economy</td>
</tr>
<tr>
<td>CTU</td>
<td>Caribbean Telecommunications Union</td>
</tr>
<tr>
<td>CXC</td>
<td>Caribbean Examinations Council</td>
</tr>
<tr>
<td>ECLAC</td>
<td>Economic Commission for Latin America and the Caribbean</td>
</tr>
<tr>
<td>EDMU</td>
<td>Education Development Management Unit (OECS)</td>
</tr>
<tr>
<td>EMIS</td>
<td>Education Management Information System</td>
</tr>
<tr>
<td>GDP</td>
<td>gross domestic product</td>
</tr>
<tr>
<td>ICT</td>
<td>information and communication technology</td>
</tr>
<tr>
<td>INSPIRE</td>
<td>Investing in Students and Programmes for the Innovative Reform of Education (The Bahamas)</td>
</tr>
<tr>
<td>IT</td>
<td>information technology</td>
</tr>
<tr>
<td>ITU</td>
<td>International Telecommunications Union</td>
</tr>
<tr>
<td>MOOC</td>
<td>massive open online course</td>
</tr>
<tr>
<td>NCERD</td>
<td>National Centre for Educational Resource Development</td>
</tr>
<tr>
<td>NREN</td>
<td>National Research and Education Network</td>
</tr>
<tr>
<td>ODL</td>
<td>open and distance learning</td>
</tr>
<tr>
<td>OECS</td>
<td>Organisation of Eastern Caribbean States</td>
</tr>
<tr>
<td>OER</td>
<td>open educational resource</td>
</tr>
<tr>
<td>OREN</td>
<td>OECS Research and Education Network</td>
</tr>
<tr>
<td>SALCC</td>
<td>Sir Arthur Lewis Community College</td>
</tr>
<tr>
<td>SIDS</td>
<td>small island developing states</td>
</tr>
<tr>
<td>SVGCC</td>
<td>Saint Vincent and the Grenadines Community College</td>
</tr>
<tr>
<td>TEL</td>
<td>technology-enabled learning</td>
</tr>
<tr>
<td>TTRENT</td>
<td>Trinidad and Tobago Research and Education Network</td>
</tr>
<tr>
<td>TVET</td>
<td>technical and vocational education and training</td>
</tr>
<tr>
<td>UCJ</td>
<td>University Council of Jamaica</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Name</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Education, Scientific and Cultural Organisation</td>
</tr>
<tr>
<td>UTech</td>
<td>University of Technology, Jamaica</td>
</tr>
<tr>
<td>UWI</td>
<td>University of the West Indies</td>
</tr>
<tr>
<td>UWIDEC</td>
<td>University of the West Indies Distance Education Centre</td>
</tr>
<tr>
<td>UWIDITE</td>
<td>University of the West Indies Distance Teaching Experiment</td>
</tr>
<tr>
<td>VUSSC</td>
<td>Virtual University for Small States of the Commonwealth</td>
</tr>
</tbody>
</table>
1 INTRODUCTION

The Plan of Action for the Information Society in Latin America and the Caribbean (eLAC2015) makes it a priority to incorporate information and communication technology (ICT) in education and, particularly, to provide universal access and inclusive education in support of achieving equality, equity and overall development (UN-ELAC, 2010, p. 12):

Education, training and other forms of skills-building are basic tools for achieving equity, equality and productive and economic development. In this context, the countries of the region pledge to make maximum use of the potential of digital technologies in teaching and learning to ensure that educational systems keep abreast of new digital developments.

This study was commissioned to establish the baseline status of the incorporation of ICT in education in Commonwealth Caribbean countries in mid-2015. The Terms of Reference for the study are in Appendix 1.

This report summarises the results of desk research and telephonic and virtual communication with personnel in ministries and tertiary educational institutions and Commonwealth of Learning (COL) Focal Points. The aim was to explore and document the current status of technology-enabled learning (TEL) in the Commonwealth Caribbean, by country, across the sub-region and the entire Caribbean region.

Considerable work in TEL was documented in country reports by COL Focal Points in early 2014. Therefore, this study built on the foundation of the initiatives, plans and achievements reported in the 2014 COL Focal Point country reports, supplementing them with more recent information and analysing the implications for TEL in the Commonwealth Caribbean.

Method

Procedures
The research findings are constructed on the inspection and analysis of:

- findings from the review of published and unpublished information related to ICT and ICT in education in the 12 Member States of the Commonwealth Caribbean;
- completed surveys returned by COL Focal Points or their representatives; and
- interviews and other communication with people working in the field or knowledgeable about ICT or ICT in Education in the respective countries and known to the researcher.

Limitations
Because this baseline survey is so wide-reaching and was dependent upon survey returns and telephone contact, it is not comprehensive. Some people contacted for this purpose simply did not respond, because it required them to commit time from their already over-committed schedules. In addition, a number of referenced documents dating from the early 2000s, while theoretically available on the Internet, turned out no longer to be retrievable.
However, many COL Focal Points and people working in ICT in Education and in Ministries of Education across the Commonwealth Caribbean went out of their way to be helpful and supportive, even reading and commenting on the sections of this report sent to them for review. The extent to which this paper accurately reflects national situations is directly due to their collaboration.
2 CARIBBEAN COMMONWEALTH COUNTRIES: REGIONAL OVERVIEW

Geography of the Commonwealth Caribbean Countries

The 12 countries making up the Commonwealth Caribbean are Antigua & Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & The Grenadines, and Trinidad & Tobago.

With the exception of Guyana and Belize, which are on the mainland, all of the Commonwealth Caribbean countries are small island developing states (SIDS).

The 10 Commonwealth Caribbean islands, previously identified as the British West Indies, comprise a large subcomponent of the islands in the Caribbean Sea, forming a wide arc between Florida in the north and Venezuela in the south. They also act as a barrier separating the Caribbean Sea and the Atlantic Ocean. These small islands, which are the upper parts of a submerged chain of volcanic mountains, vary considerably in size and are scattered over thousands of square kilometres of sea. The entire region lies within the northern tropics.

The physical geographies of Belize and Guyana are different because they are mainland nations. Belize is bordered by the Caribbean to the east, by Mexico to the west and north, and by Guatemala to the west and south. Guyana, located on the South American mainland, is bordered by the Atlantic Ocean to the north, Suriname to the east, Brazil to the south and southwest, and Venezuela to the west. Guyana is involved in territorial disputes with both Suriname and Venezuela that are legacies of colonial rule.

The Caribbean climate is tropical, moderated to a certain extent by the prevailing northeast trade winds. As described by the Library of Congress (2007):

Individual climatic conditions are strongly dependent on elevation. At sea level there is little variation in temperature, regardless of the time of the day or the season of the year. Temperatures range between 24°C and 32°C. In Kingston, Jamaica, the mean temperature is 26°C, whereas Mandeville, at a little over 600 metres high in the Carpenters Mountains of Manchester Parish, has recorded temperatures as low as 10°C. Daylight hours tend to be shorter during summer and slightly longer during winter than in the higher latitudes. The conventional division, rather than the four seasons, is between the long rainy season from May through October and the dry season, corresponding to winter in the northern hemisphere.

In summarising the region’s natural resources, a country study of the Caribbean Islands (Meditz & Hanratty, 1987) notes:

The natural resources of the Commonwealth Caribbean countries are extremely limited; however, Guyana and Jamaica have extensive deposits of bauxite and large quantities of gypsum, and Guyana also mines manganese, diamonds, and gold. Trinidad and Tobago has petroleum, pitch, and natural gas. Nevertheless, most of the island countries’ most valuable
geographic features are their beautiful beaches and a pleasant climate conducive to the promotion of international tourism.

Dominica, St. Lucia, and Guyana — and, to a lesser extent, Jamaica — are promoting ecotourism, appealing to tourists who want to experience hiking or canoeing through tropical rain forests and mountainous terrain.

### Population of the Commonwealth Caribbean Countries

As summarised in Table 1, the population of each of the Commonwealth Caribbean countries is small, ranging from the largest in Jamaica (c. 2.8 million) to the smallest in St. Kitts & Nevis (c. 55,000). The total population of the entire Commonwealth Caribbean is just over 6.5 million people.

#### Table 1: Population, by gender, of the Commonwealth Caribbean countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antigua &amp; Barbuda</td>
<td>44,157</td>
<td>48,858</td>
<td>93,016</td>
</tr>
<tr>
<td>The Bahamas</td>
<td>187,654</td>
<td>196,046</td>
<td>383,700</td>
</tr>
<tr>
<td>Barbados</td>
<td>142,292</td>
<td>144,640</td>
<td>286,932</td>
</tr>
<tr>
<td>Belize</td>
<td>171,191</td>
<td>175,907</td>
<td>347,098</td>
</tr>
<tr>
<td>Dominica</td>
<td>36,778</td>
<td>35,425</td>
<td>72,203</td>
</tr>
<tr>
<td>Grenada</td>
<td>53,762</td>
<td>53,704</td>
<td>107,466</td>
</tr>
<tr>
<td>Guyana</td>
<td>393,453</td>
<td>390,079</td>
<td>783,531</td>
</tr>
<tr>
<td>Jamaica</td>
<td>1,366,089</td>
<td>1,409,458</td>
<td>2,775,547</td>
</tr>
<tr>
<td>St. Kitts &amp; Nevis</td>
<td>27,404</td>
<td>27,686</td>
<td>55,090</td>
</tr>
<tr>
<td>St. Lucia</td>
<td>89,176</td>
<td>94,073</td>
<td>183,249</td>
</tr>
<tr>
<td>St. Vincent &amp; The Grenadines</td>
<td>54,598</td>
<td>53,560</td>
<td>108,158</td>
</tr>
<tr>
<td>Trinidad &amp; Tobago</td>
<td>645,897</td>
<td>687,593</td>
<td>1,333,490</td>
</tr>
<tr>
<td><strong>Total population</strong></td>
<td></td>
<td></td>
<td><strong>6,540,610</strong></td>
</tr>
</tbody>
</table>


#### Linguistic Uniqueness of the Commonwealth Caribbean Countries

One of the unique characteristics of the Commonwealth Caribbean countries is that they all have English as a national language but are surrounded by countries where Spanish, Portuguese, Dutch and French are the main languages.

The total of the non-English-speaking population in the Caribbean Basin surrounding the Commonwealth Caribbean countries is more than 490 million people (Table 2). The population of the Commonwealth Caribbean countries, totalling a little more than 6.5 million people, constitutes only 1.3% of the total population in the Latin American and Caribbean region. This linguistic reality should mean that schools in the Commonwealth Caribbean countries emphasise the necessity of learning a second language to function productively in
the region. In fact, however, there is little encouragement for pursuing second language studies except in high school (Spanish and French in academic tracks) and tertiary-level Hospitality and Tourism programmes.

Table 2: Languages spoken in countries surrounding or adjacent to the Commonwealth Caribbean countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Population, 2015 (millions)</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Spanish</td>
</tr>
<tr>
<td>Brazil</td>
<td>206.4</td>
<td>*</td>
</tr>
<tr>
<td>Colombia</td>
<td>48.3</td>
<td>*</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>5.0</td>
<td>*</td>
</tr>
<tr>
<td>Cuba</td>
<td>11.3</td>
<td>*</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>10.4</td>
<td>*</td>
</tr>
<tr>
<td>El Salvador</td>
<td>6.4</td>
<td>*</td>
</tr>
<tr>
<td>Guatemala</td>
<td>16.1</td>
<td>*</td>
</tr>
<tr>
<td>Haiti</td>
<td>10.4</td>
<td>*</td>
</tr>
<tr>
<td>Honduras</td>
<td>8.5</td>
<td>*</td>
</tr>
<tr>
<td>Mexico</td>
<td>125.4</td>
<td>*</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>6.2</td>
<td>*</td>
</tr>
<tr>
<td>Panama</td>
<td>4.0</td>
<td>*</td>
</tr>
<tr>
<td>Suriname</td>
<td>.55</td>
<td>*</td>
</tr>
<tr>
<td>Venezuela</td>
<td>31.5</td>
<td>*</td>
</tr>
<tr>
<td><strong>Total population</strong></td>
<td><strong>490.45</strong></td>
<td></td>
</tr>
</tbody>
</table>


2014 Human Development Index (HDI) Ranking

The United Nations Development Programme (UNDP) ranks countries annually according to a variety of development indices, including life expectancy, mean and expected years of schooling, and gross national income.

According to the UNDP’s 2014 Human Development Index ranking (based on 2013 data), all of the Commonwealth Caribbean countries are ranked as having High Human Development, except for Guyana, which is ranked as having Medium Human Development (Table 3). However, when the UNDP adjusts its country ranking for inequality, Guyana moves up to High Human Development. Therefore, it is reasonable to categorise all Commonwealth Caribbean countries as having High Human Development.
Organisational Initiatives in the Commonwealth Caribbean Countries

West Indies Federation
Because of the relatively small size of the Caribbean countries, they have seen the benefit of joining together to gain a greater voice internationally. The first modestly successful initiative was the West Indies Federation. Established in 1958 (prior to respective countries’ independence), the West Indies Federation comprised the 10 territories of Antigua & Barbuda, Barbados, Dominica, Grenada, Jamaica, Montserrat, the then St Kitts-Nevis-Anguilla, St. Lucia, St. Vincent, and Trinidad & Tobago. The federation was established with the aim of creating a political union among its members.

However, the federation faced several problems, not least of which were the governance and administrative problems imposed by the British, disagreements over taxation, and an unwillingness to surrender power to a central administration. Following Jamaica’s withdrawal, the West Indies Federation collapsed in 1962.

Caribbean Community and Common Market (CARICOM): Its Role in the Region
The Caribbean Community and Common Market (CARICOM) is made up of 20 Member States and Associate States, including the 12 Commonwealth Caribbean states. It is a regional body established to leverage Members’ significance on the world stage and improve economic opportunities for their citizens. Its formation was the result of a 15-year effort to fulfil the hope of regional integration, which was born with the establishment of the British West Indies Federation in 1958.

The role of CARICOM in the region has been evolving and increasing in importance in the past decade. Its stated objectives (CARICOM, 2013) include:

---

Table 3: Human Development Index (HDI) ranking by the United Nations Development Programme (UNDP), 2014, n = 187

<table>
<thead>
<tr>
<th>Country rank</th>
<th>Country</th>
<th>HDI rank adjusted for inequality</th>
<th>Rank change over 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>The Bahamas</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td>59</td>
<td>Barbados</td>
<td>59</td>
<td>0</td>
</tr>
<tr>
<td>61</td>
<td>Antigua &amp; Barbuda</td>
<td>61</td>
<td>-1</td>
</tr>
<tr>
<td>64</td>
<td>Trinidad &amp; Tobago</td>
<td>52</td>
<td>0</td>
</tr>
<tr>
<td>73</td>
<td>St. Kitts &amp; Nevis</td>
<td>73</td>
<td>0</td>
</tr>
<tr>
<td>79</td>
<td>Grenada</td>
<td>79</td>
<td>-1</td>
</tr>
<tr>
<td>84</td>
<td>Belize</td>
<td>84</td>
<td>0</td>
</tr>
<tr>
<td>91</td>
<td>St. Vincent &amp; The Grenadines</td>
<td>91</td>
<td>0</td>
</tr>
<tr>
<td>93</td>
<td>Dominica</td>
<td>93</td>
<td>-1</td>
</tr>
<tr>
<td>96</td>
<td>Jamaica</td>
<td>68</td>
<td>-3</td>
</tr>
<tr>
<td>97</td>
<td>St. Lucia</td>
<td>97</td>
<td>-4</td>
</tr>
<tr>
<td>121</td>
<td>Guyana</td>
<td>79</td>
<td>0</td>
</tr>
</tbody>
</table>


\(^b\) Belize’s country ranking on education alone is 54. This is the only country where the education indicators significantly affected a country’s HDI ranking.
• Improved standards of living and work
• Full employment of labour and other factors of production
• Accelerated, co-ordinated and sustained economic development and convergence
• Expansion of trade and economic relations with third States
• Enhanced levels of international competitiveness
• Organisation for increased production and productivity
• The achievement of a greater measure of economic leverage and effectiveness of Member States in dealing with third States, groups of States and entities of any description
• Enhanced co-ordination of Member States’ foreign and [foreign] economic policies; and enhanced functional co-operation, including -
  o more efficient operation of common services and activities for the benefit of its peoples;
  o accelerated promotion of greater understanding among its peoples and the advancement of their social, cultural and technological development;
  o intensified activities in areas such as health, education, transportation, telecommunications.

The treaty governing CARICOM and its objectives have led to the establishment of a number of institutions covering a wide range of activities. Those institutions that are of significance in the current study are:

• Caribbean Single Market and Economy (CSME)
• Caribbean Examinations Council (CXC)
• Caribbean Knowledge and Learning Network (CKLN)
• Caribbean High Capacity Broadband Network (C@ribNET)
• Caribbean Telecommunications Union (CTU)
• University of the West Indies (UWI)

**Caribbean Single Market and Economy (CSME)** – As part of the CSME, measurable educational standards permit the free movement of people in the region. The CSME creates a single large market and economic space among the 15 CARICOM Member States, as opposed to there being 15 separate and distinct markets and economies, each governed by its own rules and divided from each other by formidable barriers.

The CSME allows for free movement of CARICOM goods, services, people and capital throughout the Caribbean Community, with the removal of the fiscal, legal, physical, technical and administrative barriers that have historically prevented this movement from taking place. The CSME is a structure that ought to further harmonise economic, monetary and fiscal policies and measures across all CARICOM Member States.¹

The anticipated outcome of the CSME is the creation of greater economic and political strength from the grouping of 15 countries acting in concert rather than separately. Therefore,

¹ Although the CSME has been in development for several years, it is not finalised in all countries across CARICOM as yet. However, its importance to the education and certification of workers looks toward all countries being part of the CSME.
the CSME will create more opportunities for employment, investment, production and trade for the residents of all the countries in CARICOM.

The CSME standardises academic and technical certification, and enables a worker in a country other than his or her own to repatriate monies earned in another CARICOM jurisdiction without penalty.

**Caribbean Examinations Council (CXC)** – The CXC was established in 1972 to provide regionally relevant examinations of a standard comparable to British Ordinary Level (O Level) examinations. It is headquartered in Barbados. Eleven of the 12 Commonwealth Caribbean countries are CXC members and use its examinations as the standard to document student achievement in their respective school systems.

According to the CARICOM Secretariat website (2013):

> The examinations provided by CXC replace the UK-based General Certificate of Education (GCE) examinations previously taken by students at the secondary level. These examinations based on common regional curricula, have been an important force for fostering awareness and understanding among students, of the importance of the Caribbean in the increasing global arena. In a real sense, CXC as an institution has acted as a catalyst in developing a common “Caribbean school system.”

CXC tests students in both academic and technical/vocational subjects at the end of four years of secondary school. Included in the CXC test subjects is Information Technology (IT). CXC has also developed a set of examinations comparable to the British Advanced Level (A Level) examinations. In 1998, CXC offered the first Caribbean Advanced Proficiency Examination (CAPE) in a range of subjects, including IT. The CAPE scheme is intended to satisfy requirements for entry into regional and extra-regional universities and other professional courses.

CXC also contributes to the professional development of teachers in the region through training workshops and annual examination marking exercises.

The CXC website has, in the past five years, become increasingly interactive, with sections dedicated to students, teachers and parents. Each section contains important information targeted to the specific audience, and has a well-maintained Comments feature where questions can be posted. The website hosts the Registrar’s blog and also has links to the CXC blog and the CXC YouTube and Facebook pages. The site facilitates students’ access to Notesmaster in all CXC subjects, which has been developed specifically to support student learning.

**Caribbean Knowledge and Learning Network (CKLN)** – CKLN is an inter-governmental agency of CARICOM and an important regional player in technology-enabled learning (TEL) in the Commonwealth Caribbean. CKLN was originally established to bridge the digital

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2 The Bahamas is not a member of the CXC.

divide between the Caribbean and the rest of the world. Since its inception and establishment in 2003/04, it has supported and operated in a diversity of open and distance learning (ODL), TEL and eLearning contexts, both nationally and regionally.

CKLN was mandated by the CARICOM Heads of Government to build a broadband fibre optic network called C@ribNET, a research and education network connecting all CARICOM Member States, and, through C@ribNET, to make further high-speed electronic connections with the rest of the world.

CKLN’s strategic objective (CKLN, 2011) is “to enhance global competitiveness of the Caribbean by upgrading and diversifying the skills and knowledge of human resources in the region through greater regional collaboration and connectivity.” It is do this by:

- supporting functional cooperation in the areas on education, health, culture, environment and security amongst CARICOM Member States;
- providing a regional information management/knowledge management platform in support of collaboration and sharing of resources among CARICOM institutions;
- providing the appropriate e-infrastructure to support innovation and research
- reducing the cost of connectivity and access; and
- supporting the development of the CSME.

Working predominantly with tertiary institutions in CARICOM countries, CKLN partners with international donors to: a) conduct needs assessments in colleges to facilitate the introduction of eLearning; b) develop strategic plans for ODL; c) build the capacity of tertiary institutions in planning for and using TEL systems for courses and programmes (both technical and academic staff members); d) provide institutional strengthening to colleges implementing TEL; e) plan regional collaboration in TEL and course management; f) train academic staff in the use of TEL and the integration of ICT in college courses; g) plan and roll out Learning Management Information Systems (LMIS); h) manage the implementation on online courses; i) organise study tours to colleges where eLearning and ODL are operating effectively; and j) finance the infrastructure needed to implement TEL and eLearning.

Since 2012, CKLN’s energies have been focused on establishing C@ribNET and nurturing the operation of National Research and Education Networks (NRENs) to use the C@ribNET infrastructure.

C@ribNET – In an interview in July 2012, Ken Sylvester, the CEO of CKLN, reported, “We have created a high capacity broadband network, C@ribNET, connecting the OECS [Organisation of Eastern Caribbean States] countries, Jamaica, Barbados, Trinidad and Tobago and Dominican Republic to each other and then ... to the rest of the world” (CKLN, 2013).

In the CKLN newsletter in July 2014, at the end of Phase 1 of the C@ribNET connection process, CKLN reported that eight University of the West Indies (UWI) Open Campus sites, all three of the UWI main campuses in Mona, Cave Hill and St. Augustine, 11 community colleges, the University of Technology, Jamaica, the University of Belize, and the University
of Trinidad and Tobago were linked to C@ribNET. In all, 25 institutions in Commonwealth Caribbean countries were linked to C@ribNET.

However, it appears that the NREN development and use of C@ribNET have been limited to date: the infrastructural connections do not assure the use of the networks. Jackie Cousins, who managed the Jamaica Research and Education Network (REN) for more than two years, has pointed out that there is a lack of capable personnel and money allocated to operate the RENs effectively (personal communication, June 2015).

Finding a sustainable way to maintain C@ribNET is a primary challenge to its operation. In Latin America, South America and Europe, the RENs focus almost exclusively on research and educational services in tertiary institutions. However, such an exclusive focus cannot work in the small target audience of the Caribbean. Consequently, in order to make the NRENs and C@ribNET financially viable, C@ribNET has been offering its services outside of academia and the tertiary educational institutions.

In April 2015, CKLN reported that “through C@ribNET, communities of interest are being organised to implement priority applications such as a regional digital library, a shared student information system for tertiary institutions ... and other applications supporting ... climate change, disaster management, crime and security, tele-health, [and] culture.” CKLN also reported that several CARICOM sister agencies were planning to use C@ribNET.

Caribbean Telecommunications Union (CTU) – The CTU’s website describes the organisation as “a Caribbean intergovernmental organisation dedicated to facilitating the development of the regional information and communications (ICT) sector.” As part of its operations, the CTU operates a Centre of Excellence, which is described as follows (CTU, 2015):

The Caribbean Centre of Excellence (CCoE) is a virtual web-based facility which is dedicated to providing training, technical assistance, expert advice and information on all aspects of the development of information and communications technologies (ICTs) in the Caribbean. Through the CCoE, Caribbean stakeholders will be able to access:

- Relevant executive training for policy makers, technocrats, practitioners and regulators on all aspects of technology and management of the ICT sector.
- Technical assistance for anticipating and solving ICT problems.
- A repository of telecommunications information for the region.
- Caribbean consultants and experts who can address issues of ICT development in small island states and understand newly liberalized markets of the Caribbean.
- Research and analyses on topics of importance to the region...

All of these activities are relevant to the effective operation of ICT, IT and TEL in the Caribbean region.

University of the West Indies – The University of the West Indies (UWI) is listed as one of the organisations in the region that are “entities with which the Community enjoys important

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functional relationships which contribute to the achievement of the objectives of the Community” (CARICOM, 2013).

Established in Jamaica in 1949, and originally focusing on medicine, the UWI operated under its parent institution, the University of London, until 1962, when it was granted independent degree-granting status as the regional university for all the West Indies. In 2015, the UWI continues to operate on the Mona Campus in Jamaica, but also from campuses in St. Augustine, Trinidad, Cave Hill, Barbados and the Open Campus, which is based at Cave Hill but has operating campuses in all non-campus territories.

The UWI has five faculties offering a wide range of accredited undergraduate, Master’s and Doctoral programmes in the Humanities and Education, Law, Medical Sciences, the Sciences and Technology. Nominally part of the Faculty of Humanities, the Caribbean Media and Communications Centre (CARIMAC) is housed on the Mona Campus.

UWI’s history with TEL is long-standing, dating back to the 1950s when it opened an Extramural Unit on the Mona Campus. The Extramural Unit broadcast radio programmes from the campus. The UWI Distance Teaching Experiment (UWIDITE), which was the first distance education experiment broadcasting classes across the Caribbean, also had its home on the Mona Campus, as did the UWI Distance Education Centre (UWIDEC), the permanent successor to UWIDITE. However, the Open Campus, which was eventually established as the fourth UWI campus in 2008, was situated at Cave Hill, in recognition of the fact that the majority of the distance education sites were in the Eastern Caribbean countries.

In 2015, UWI Mona has expanded to two other campuses in the west of Jamaica, and UWI operates campuses in Trinidad and Barbados as well as the Open Campus (UWI, 2012).

Organisation of Eastern Caribbean States (OECS)
In addition to CARICOM, the Caribbean sub-region has another country grouping: the Organisation of Eastern Caribbean States. Six Commonwealth Caribbean countries are members: Antigua & Barbuda, Dominica, Grenada, St. Kitts & Nevis, St. Lucia and St. Vincent & The Grenadines. The OECS was originally established in 1981 and was upgraded into the OECS Economic Union in 2010.

These countries are some of the smallest in the Caribbean and are the least populated of the Commonwealth Caribbean countries. The 2010 Revised Treaty of Basseterre established the OECS economic union to achieve numbers that would be able to act in concert, “making possible the creation of a single financial and economic space within which ... [the Member States] continue to adopt a common approach to trade, health, education and environment, as well as to the development of such critical sectors as agriculture, tourism and energy” (OECS, 2015).

The OECS defends the sovereignty of its members, promotes cooperation and economic integration among its members, facilitates cooperation with the international community, leverages the collective position of Member States at CARICOM and international levels, and

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5 Three other territories, Anguilla, the British Virgin Islands and Montserrat, are also members of the OECS.
harmonises joint overseas representations and foreign policy. To achieve its mission and objectives, the OECS has established the East Caribbean Central Bank (responsible for the East Caribbean dollar, the common currency of the OECS), as well as a common Civil Aviation Authority and Supreme Court.

Within the OECS Secretariat, the Education Development Management Unit (EDMU) sets general standards for the operation of Ministries of Education in the six Member States. The EDMU also facilitated the collective development of the *OECS Education Sector Strategy 2012–2021*. That educational strategy identifies two relevant cross-cutting themes for the TEL baseline research study:

- establishing effective knowledge management systems; and
- integrating technology in the classroom and in education.

The intention and direction of the strategy is “to guide the educational directions and priorities of Member States of the OECS. ... [It] is not an action plan, but ... provides the framework for the development of an OECS Action Plan for education ... and [it] will be used by Member States to align their national Strategies and Plans. It is strategic, results-oriented and concentrates on learner outcomes.” Of special significance to this current baseline study in TEL is the strategic objective of the *OECS Education Sector Strategy 2012–2021*: “Improve the quality of teaching and learning.” The other significant objective and outcome (with emphasis by the author):

<table>
<thead>
<tr>
<th><strong>Strategic Objective</strong></th>
<th><strong>Outcome</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve achievement for all learners and ensure all learners acquire core competencies in the key priority areas of literacy, numeracy and technology.</td>
<td>Achievement levels are significantly improved; all learners acquire required levels of literacy, numeracy and technological skills, and are equipped to use relevant competencies at school, at college, at home and for future work.</td>
</tr>
</tbody>
</table>

**OECS ICT policy and ICT in Education policies** – In 2015, the OECS commissioned the development of a draft paper, *Advancing Telecommunications Policy and Regulations in the OECS*. It contains recommendations based on trends and developments in the regional telecommunications sector.

Based on an overview of a rapidly changing IT environment, this draft regional telecommunications policy states: “Fibre-optic cable lines are the new roads to a global digital highway; broadband infrastructure and mobile networks are the new power lines for cities and rural communities, and computers, mobile devices, wearables and other such gadgets are the pipes that bring digital data to the thirsty masses” (OECS, 2015).

In light of that description of the importance of IT in the societies of the OECS, the draft telecommunications policy goes on to say (OECS, 2015):

The following have been identified as essential obligations for telecom providers operating within the OECS:
• In relation to mobile, data and fixed line roaming all territories in which the operator provides services should be treated as one market
• Entry-level broadband should be defined at a minimum network speed of 5 Mbps with a maximum pricing of 5% of the national average wage in each OECS territory (lesser speeds can be offered but not marketed as broadband)
• Implementation of, and support for, fixed and mobile number portability
• Deployment of LTE or equivalent 4G mobile broadband
• Published quarterly reports on state and quality of customer service, based on defined standards and metrics common to all markets of operation.

The draft policy also provides directions on strengthening infrastructure, transparency and accountability, fair use of undersea cable infrastructure, and the need for social development infrastructure.

**OECS endorsement of OERs** – Aligned with the adoption of the draft telecommunications policy, the OECS is taking leadership in encouraging OER in higher education institutions in the sub-region. At their 23rd annual meeting, the OECS Ministers of Education endorsed COL’s open textbooks initiative. This initiative came out of regional policy workshops organised jointly by COL and UNESCO in 2012 and 2013. The recommendations emanating from the workshops are supported by Morais’ (2013) study, *Usage and Uptake of OER in the Caribbean Higher Education Institutions: Building a Policy Framework*, which recommended creating “a policy context conducive to the full adoption of OERs in particular, and Open Education in general, by TEIs” and using the C@ribNET infrastructure, so that the Ministries of Education and higher education institutions are able to promote regional OER repositories.  

**OECS and CARICOM collaboration in TEL** – An example of the collaboration between the OECS Education Development and Management Unit (EDMU) and CARICOM’s Caribbean Examinations Council (CXC) is the series of webinars organised in May and June 2015 for teachers on the use of the *Notesmaster* learning materials. An advertisement on the CXC and OECS websites (2015) reads:

*Notesmaster* is collaborating with the OECS Education Development Management Unit to stage a series of e-Learning Webinars for schools. This is the next step towards the creation of a regional hub for online Caribbean education. *Notesmaster* is a freely accessible e-learning platform, organised around CXC’s syllabuses. Teachers can find and organise existing resources....

**ICT in Commonwealth Caribbean Countries**

It is important in the discussion of TEL to have an appreciation of the availability of the Internet, both via computer and mobile device, and the available Internet download and upload speeds to facilitate the use of ICTs in TEL contexts. The important resources providing data on Internet availability and speeds are available from the International Telecommunications Union (ITU) website and the Internet Society (see Tables 4, 5 and 6).

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6 Note that Morais’ recommendations were not limited to the OECS countries, but were for the entire Caribbean.
Table 4 provides both the Caribbean and world rankings of each Commonwealth Caribbean country for Internet user penetration (i.e., the combined percentage of people in the country who have access to the Internet: households, businesses and government).

Table 4: Internet user penetration by country in the Commonwealth Caribbean, 2014,\(^a\)  
\(n = 180\)

<table>
<thead>
<tr>
<th>Country</th>
<th>World ranking</th>
<th>% Internet penetration</th>
<th>Caribbean ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antigua &amp; Barbuda</td>
<td>54</td>
<td>63.4</td>
<td>4</td>
</tr>
<tr>
<td>The Bahamas</td>
<td>38</td>
<td>72.0</td>
<td>3</td>
</tr>
<tr>
<td>Barbados</td>
<td>31</td>
<td>75.0</td>
<td>2</td>
</tr>
<tr>
<td>Belize</td>
<td>111</td>
<td>31.7</td>
<td>12</td>
</tr>
<tr>
<td>Dominica</td>
<td>62</td>
<td>59.0</td>
<td>6</td>
</tr>
<tr>
<td>Grenada</td>
<td>109</td>
<td>35.0</td>
<td>10</td>
</tr>
<tr>
<td>Guyana</td>
<td>110</td>
<td>33.0</td>
<td>11</td>
</tr>
<tr>
<td>Jamaica</td>
<td>102</td>
<td>37.8</td>
<td>8</td>
</tr>
<tr>
<td>St. Kitts &amp; Nevis</td>
<td>25</td>
<td>80.0</td>
<td>1</td>
</tr>
<tr>
<td>St. Lucia</td>
<td>108</td>
<td>35.2</td>
<td>9</td>
</tr>
<tr>
<td>St. Vincent &amp; The Grenadines</td>
<td>72</td>
<td>52.0</td>
<td>7</td>
</tr>
<tr>
<td>Trinidad &amp; Tobago</td>
<td>53</td>
<td>63.8</td>
<td>5</td>
</tr>
</tbody>
</table>


St. Kitts & Nevis, with 80% Internet penetration, is highest in the Common Caribbean and ranks 25th in the world rankings. Barbados with 75% penetration and a world ranking of 31st, and The Bahamas with 72% penetration and a world ranking of 38th, are second and third in the Commonwealth Caribbean countries. Belize with a penetration of 31.7% and world ranking of 111th, and Guyana with a user penetration of 33.0% and a world ranking of 110th, have the lowest Internet user penetration in the Commonwealth Caribbean. Ironically, Trinidad & Tobago, the wealthiest of the countries, ranks only fifth in Internet user penetration in the region.

Guyana’s and Belize’s user Internet penetration rates are due at least in part to the fact that they have the most expensive Internet rates and among the worst provision records.

Table 5 presents the data on Internet upload and download speeds in all Caribbean countries in March 2014, drawn from Internet speed tests conducted by Ookla, a recognised provider of broadband testing and web-based network diagnostic applications. The table was published by ICT Pulse, a blog managed by a computing expert with experience in several regions of the world, Ms. Michele Marius. She has compiled and published the 2014 Internet speeds for the Caribbean. Marius (2015) observed that “household upload and download speeds in individual Caribbean countries and in the region are considerably lower than those in the top ranked countries and global groupings…. However, in terms of global ranking by speed, some countries are performing relatively well.”

Table 5: World rank of selected Caribbean countries upload and download speeds, March 20, 2014 (source Ookla, 2015)\(^{a}\)
An examination of Table 5 shows that St. Vincent & The Grenadines, whose Internet penetration rate ranks only 7th among Commonwealth Caribbean countries, has the fastest household upload speeds, ranking 28th worldwide. The Bahamas, which ranked third in user penetration among Commonwealth Caribbean countries, ranks third among Caribbean countries for upload speeds and 54th worldwide, and has the highest download speed in the region, ranking 46th worldwide. The Commonwealth Caribbean country with the worst uploads (ranked 172nd worldwide) and downloads speeds (ranked 184th) is Guyana. Interestingly, St. Kitts & Nevis, with the highest Internet penetration, ranks 120th for upload speed and 136th for download speed.

Table 6 documents both the Commonwealth Caribbean countries’ percentage computer use and mobile subscriptions per 100 people. The country recognised as having the highest percentage computer use is St. Kitts & Nevis at 80.0%; the country with the lowest percentage is Belize at 31.7%.

Table 6: Computer and mobile statistics per 100 people in 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>Household upload speed</th>
<th>Rank</th>
<th>Household download speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>St. Vincent &amp; the Grenadines</td>
<td>48</td>
<td>Bahamas</td>
</tr>
<tr>
<td>46</td>
<td>St. Martin</td>
<td>57</td>
<td>Curacao</td>
</tr>
<tr>
<td>54</td>
<td>Bahamas</td>
<td>68</td>
<td>St. Vincent &amp; the Grenadines</td>
</tr>
<tr>
<td>77</td>
<td>Curacao</td>
<td>69</td>
<td>Cayman Islands</td>
</tr>
<tr>
<td>90</td>
<td>Cayman Islands</td>
<td>71</td>
<td>Aruba</td>
</tr>
<tr>
<td>96</td>
<td>Turks &amp; Caicos Islands</td>
<td>73</td>
<td>Trinidad &amp; Tobago</td>
</tr>
<tr>
<td>102</td>
<td>US Virgin Islands</td>
<td>79</td>
<td>Puerto Rico</td>
</tr>
<tr>
<td>105</td>
<td>Haiti</td>
<td>81</td>
<td>Grenada</td>
</tr>
<tr>
<td>106</td>
<td>Dominica</td>
<td>82</td>
<td>Barbados</td>
</tr>
<tr>
<td>112</td>
<td>Puerto Rico</td>
<td>85</td>
<td>St. Martin</td>
</tr>
<tr>
<td>120</td>
<td>St. Kitts &amp; Nevis</td>
<td>107</td>
<td>Saint Lucia</td>
</tr>
<tr>
<td>122</td>
<td>Bonaire, Statia &amp; Saba</td>
<td>110</td>
<td>Dominica</td>
</tr>
<tr>
<td>125</td>
<td>Aruba</td>
<td>112</td>
<td>US Virgin Islands</td>
</tr>
<tr>
<td>136</td>
<td>Barbados</td>
<td>122</td>
<td>Turks &amp; Caicos Islands</td>
</tr>
<tr>
<td>137</td>
<td>Jamaica</td>
<td>131</td>
<td>Jamaica</td>
</tr>
<tr>
<td>139</td>
<td>Trinidad &amp; Tobago</td>
<td>134</td>
<td>Guadeloupe</td>
</tr>
<tr>
<td>140</td>
<td>Dominican Republic</td>
<td>136</td>
<td>St. Kitts &amp; Nevis</td>
</tr>
<tr>
<td>141</td>
<td>Saint Lucia</td>
<td>140</td>
<td>British Virgin Islands</td>
</tr>
<tr>
<td>148</td>
<td>Belize</td>
<td>145</td>
<td>Anguilla</td>
</tr>
<tr>
<td>151</td>
<td>British Virgin Islands</td>
<td>147</td>
<td>Bonaire, Statia &amp; Saba</td>
</tr>
<tr>
<td>153</td>
<td>Antigua &amp; Barbuda</td>
<td>150</td>
<td>Martinique</td>
</tr>
<tr>
<td>157</td>
<td>Anguilla</td>
<td>153</td>
<td>Dominican Republic</td>
</tr>
<tr>
<td>162</td>
<td>Grenada</td>
<td>158</td>
<td>Haiti</td>
</tr>
<tr>
<td>169</td>
<td>Suriname</td>
<td>161</td>
<td>Suriname</td>
</tr>
<tr>
<td>172</td>
<td>Guyana</td>
<td>166</td>
<td>Antigua &amp; Barbuda</td>
</tr>
<tr>
<td>177</td>
<td>Guadeloupe</td>
<td>169</td>
<td>Belize</td>
</tr>
<tr>
<td>179</td>
<td>Cuba</td>
<td>184</td>
<td>Guyana</td>
</tr>
<tr>
<td>180</td>
<td>Martinique</td>
<td>188</td>
<td>Cuba</td>
</tr>
</tbody>
</table>

Examination of mobile subscriptions per 100 people reveals that Trinidad & Tobago has the highest number of mobile subscriptions per 100 people, at 144.94; St. Kitts & Nevis with 142.49 subscriptions ranks second; and Dominica with 129.96 subscriptions ranks third. The countries with the least number of mobile subscriptions per 100 people are Belize (52.61), Guyana (69.41) and The Bahamas (76.05).

It is worth noting that Belize has the lowest score in both percentage of computer use and mobile subscriptions.

The attempt to measure Internet penetration, computer usage and mobile subscription rates against the Commonwealth Caribbean countries’ world rankings in the Global Information Technology Readiness Index statistics for 2015 revealed that only four Commonwealth Caribbean countries are listed in the 143 countries that are ranked. The four countries are Barbados (ranked at 39th), Trinidad & Tobago (ranked at 70th), Jamaica (ranked at 82nd), and Guyana (ranked at 93rd) (World Economic Forum, 2015).

**Caribbean ICT Stakeholders Virtual Community (CIVIC)**

CIVIC is a virtual network of ICT professionals and users that grew out of a consultation funded by the World Bank and the International Development Research Centre (IDRC) in 2002. With the support of the IDRC and the World Bank, Caribbean ICT and education experts have been participating in a network to share information, ideas, advances and technological innovations relevant to Caribbean countries. Although the international funding institutions supporting it were doubtful that CIVIC would last more than a year or so,\(^7\) this virtual discussion group is described as “permanent” (CIVIC, 2011):

> It is a venue for sharing information, holding discussions, networking and linking ideas, actors, projects or initiatives on ICTs and development in the Caribbean. It also aims to contribute in

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\(^7\)IDRC supported its moderation for the first year.
the building of a common vision/perspective on ICTs, and to promote a Caribbean strategy and/or regional Caribbean-wide actions.

CIVIC offers those connected with or interested in ICT and its role in Caribbean society the opportunity to pose queries, initiate discussions and share ICT-related information with other members of the community. The group began as part of IDRC’s D Groups (on whose platform it is hosted) and has continued for almost a decade under the volunteer moderation of an ICT professional from the Dominican Republic. Although it is wider in its scope than TEL and ICT in Education, and more Caribbean-inclusive in its geographical reach than the Commonwealth Caribbean, the articles posted and the discussions shared are valuable to the ICT and TEL professionals in the Commonwealth Caribbean countries.

The discussion forum is a networking tool for Caribbean ICT and TEL professionals and is translated into French and Spanish, as well as being in English.
3 COMMONWEALTH CARIBBEAN COUNTRY PROFILES

Antigua & Barbuda

Location of Antigua & Barbuda and geographical features\(^8\): Antigua & Barbuda is located in the middle of the Leeward Islands in the Eastern Caribbean, roughly 17° north of the equator. To the south are the islands of Montserrat and Guadeloupe, and to the north and west are Nevis, St. Kitts, St. Barts, and St. Martin. The island of Antigua’s highest point is Boggy Peak at 1,319 feet. Barbuda is a flat coral island. Both Antigua and Barbuda islands have many beaches with pink or white sand that receive protection by coral reefs.

Geopolitical and economic features of Antigua & Barbuda: Antigua is a member of the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States, CARICOM and the Organisation of East Caribbean States.

In 1967, with Barbuda and Redonda as dependencies, Antigua became an Associate State of the Commonwealth, and in 1981 it achieved full independent status.

Tourism and, to a lesser extent, investment banking and financial services currently dominate the economy. In June 2014, the CIA Factbook (2015) published the following assessment of Antigua & Barbuda’s economy:

Tourism continues to dominate Antigua and Barbuda’s economy, accounting for nearly 60 percent of GDP and 40 percent of investment. The dual-island nation’s agricultural production is focused on the domestic market and constrained by a limited water supply and a labour shortage stemming from the lure of higher wages in tourism and construction. Manufacturing comprises enclave-type assembly for export with major products being bedding, handicrafts, and electronic components. Prospects for economic growth in the medium term will continue to depend on tourist arrivals from the US, Canada, and Europe and potential damages from natural disasters. After taking office in 2004, the Spencer government adopted an ambitious fiscal reform program and was successful in reducing its public debt-to-GDP ratio from approximately 130 percent in 2010 to 89 percent in 2012. In 2009, Antigua’s economy was severely hit by the global economic crisis and suffered from the collapse of its largest private sector employer, a steep decline in tourism, a rise in debt, and a sharp economic contraction between 2009 and 2011. Antigua has not yet returned to its pre-crisis growth levels.

Socio-educational contexts of Antigua & Barbuda: Antigua & Barbuda, like its other OECS and CARICOM neighbours, places a high value of academic education. Increasingly, it is also seeing an increased value to the strengthening of technical and vocational education and training (TVET) and the certification of holders of Caribbean Vocational Qualifications (CVQs). Education in Antigua & Barbuda is free and compulsory for all children between ages five and 16. Even transport, school infrastructure and class materials are accounted for under a levy of basic wages. Primary education starts at age five and lasts for seven years. After primary school, students enrol in lower secondary school. Fewer than half of primary school pupils achieve a grade that allows them to enrol in higher secondary school. The curriculum is academic throughout without any vocational alternative.

Antigua & Barbuda supports a national community college, Antigua State College, and the Antigua and Barbuda International Institute of Business and Technology (ABIIT). Both are situated in St. John’s, Antigua.

Antigua State College advertises that a two-year Associate degree in Information Technology and a Bachelor of Technology in Information Technology through its Engineering Department. The 2015 college brochure describes the two courses as follows:

The Engineering Department at the ... [Antigua State College] is separated into two sections, representing the dual nature of the engineering discipline. The Engineering Design Section focuses on the theoretical/design aspect of engineering preparing students for further study at University Level. Students in this section will pursue CXC CAPE Associate degrees. The Engineering Practice Section, as its name suggests, will focus on the practical and technical character of the discipline, giving the students strong vocational training. Students in this section will be prepared for employment and entrepreneurship but the accredited BTEC qualification they will receive, will not prohibit them from further learning.

The Engineering Design section of the programme allows learners to pursue CXC Associate degrees in Technical Studies and includes a course in Information Technology. The Engineering Practice Bachelor of Technology (BTEC) Diploma, which includes a job attachment, includes Computer-Aided Drafting and Design.


Antigua & Barbuda also has an undated draft ICT policy that includes an objective to provide “training of personnel to provide the leadership and guidance in an expanding and diversified ICT industry,” and that asserts, “Social objectives in education, health, commerce, governance systems and national security will be enhanced and achieved by the use of ICT services and techniques” (Government of Antigua and Barbuda, n.d., p. 4).

ICT access and use in Antigua & Barbuda: Antigua & Barbuda has been employing ODL for 30 years through the UWI Distance Teaching Experiment (UWIDITE) and UWI Distance
Education Centre (UWIDEC). More recently, UWI’s Open Campus is offering a variety of courses using ODL: continuing and professional programmes, undergraduate and graduate programmes and short courses.

The Antigua and Barbuda International Institute of Technology (ABIIT) offers one course online, and the Antigua State College and the Ministry of Education have been engaged in using OER for training purposes. ABIIT offers two programmes that are ICT-related: Information Technology and Network Engineering. These two programmes appear to be skill based.

Although individuals from the Ministry of Agriculture have been involved in COL’s Virtual University for Small States of the Commonwealth (VUSSC) boot camps, only the educational institutions have used OER and ICT to train staff.

COL supported Antigua & Barbuda’s primary, secondary and tertiary and staff from the Antigua and Barbuda Ministry of Education to pursue the Commonwealth Certificate for Teacher ICT Integration (CCTI) programme in 2011/12. A total of 95 people completed one or more of the three courses of the online and blended CCTI by 2014. Through the combination of a local face-to-face consultant and continued tutoring provided by SchoolNet South Africa, a total of 23 teachers completed all the CCTI courses.

In July 2013, Antigua & Barbuda collaborated with CKLN to develop strategic plans for the use of ODL and eLearning and build participants’ in the development and use of OER and the adoption of policies governing TEL.

In 2014, COL trained mathematics teachers from the schools designated to pilot the use of OER under a project called Open Textbook. The project used Canvas, an open source Learning Management System, and Drupal, a Content Management System, to assist teachers in using OER for teaching and learning. The platform will serve as a repository for OERs to support students who are pursuing the Caribbean Secondary Education Certificate (CSEC) examinations.

**Major eLearning and TEL initiatives in Antigua & Barbuda:** COL and the William and Flora Hewlett Foundation have been supporting significant developments in ICT in Education policy and OER planning and implementation in Antigua & Barbuda.

In its 2014 country profile of Antigua & Barbuda, FOSIGRID reported that Antigua & Barbuda had launched the Connect Antigua & Barbuda Initiative (CABI) in 2006 to promote computer literacy, link the two-island state and bridge the digital divide. CABI comprised nine separate initiatives:

- Community Computer Access Centres
- Mobile IT Classrooms
- Technology for Early Childhood Education
- Technology for Institutions for Higher Education
- Technology for Communication, Education & Empowerment
- Technology for Education 20/20
- Multilingual Studies Programme
- Technology for the Physically, Visually and Otherwise Challenged
- Community Technology Officers

FOSIGRID (2014) stated: “CACs equipped with ... computers and high-speed Internet access are fitted in primary schools and a number of community centres.” As well, “The Technology for Communication, Education and Empowerment (TCEE) program utilises wireless technology to bring broadband Internet to more than 5,000 secondary school students in their classrooms as well as 5,000 homes…. Furthermore, the programme supplied free Wi-Fi Internet access to these homes up to December 2014.”

According to Antigua & Barbuda’s 2013 ICT in Education policy, the Ministry of Education, Sports, Youth and Gender Affairs will collaborate with the Ministry of Telecommunications, Science and Technology, which provides the necessary infrastructure for key systems to support TEL in Antigua & Barbuda. These systems will include a central Education Management Information System, a Learning Management System to be used in supporting school learning, an OER repository, and appropriate communication and social networking tools to facilitate communication between key education stakeholders in the country. Schools will be encouraged to develop annual ICT integration plans that outline how they intend to strengthen and support ICT use in the curriculum and the school.

The Ministry of Education, Sports, Youth and Gender Affairs will also develop a repository for OERs that will be available across the system, and develop systems for their development and use.

**Prospects and challenges for TEL in Antigua & Barbuda:** The twin island state of Antigua & Barbuda seems to be well advanced in its policy development, planning and implementation of TEL and OERs — seemingly much more so than many other of the Commonwealth Caribbean countries. The 2013 ICT in Education policy is ambitious, but carefully articulated and very detailed. The ministries responsible for implementing it have a detailed roadmap of responsibilities to follow.

Gauging the advanced state of Antigua & Barbuda’s ICT in Education policy development and implementation framework, it seems possible that Antigua & Barbuda could take the lead in assisting other OECS countries in the development and implementation of their ICT in Education policies.

Recognising the realities of education in the Caribbean, however, it is clear that there will be challenges in identifying sustainable sources of financing to achieve the ambitious implementation of the policy, and to continue to retain, train and retrain their teachers and ministry support staff. The potential leadership roles of Antigua State College and ABIIT will be critically important.

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9 COL’s role in jump-starting these initiatives and developments is to be noted.
The Bahamas

**Location of The Bahamas and geographical features**: The Bahamas are made up of an archipelago covering a 13,940 square kilometres. New Providence Island, with the capital Nassau, lies about 310 km off the southern coast of Florida and north of Cuba. The archipelago consists of about 700 islands and islets, and more than 2,000 cays (coral reefs). Approximately 30 islands are inhabited. The Bahamas share maritime borders with Cuba, Haiti, the United States, and the Turks and Caicos Islands.

**Geopolitical and economic context**: The Bahamas is a member of the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States and CARICOM.

In 1964, a new constitution set up a ministerial system of government and the legislature was reformed to represent majority interests. After the general election in 1967, the Progressive Liberal Party (PLP) formed a government with the support of the Labour Party. The PLP won the next two general elections outright and led The Bahamas to independence under a new constitution on July 10, 1973.

Nassau is the political capital and the commercial hub of The Bahamas. As one of the most prosperous countries in the Caribbean region, The Bahamas relies on tourism which, as an industry, accounts for over 60% of the Bahamian GDP and provides jobs for more than half of the country’s workforce. After tourism, the most important economic sector is financial services, accounting for about 15% of GDP.

**Socio-educational context of The Bahamas**: Twenty-three islands in The Bahamas archipelago have 166 schools in the public school system, with 48,646 students, 3,021 teachers and 365 administrators. School sizes range from 1,600 to four students. The Ministry of Education and Technology, situated in Nassau, administers all schools (Sears, 2014). For obvious reasons of geography and accessibility, The Bahamas is placing considerable energy into introducing and using ODL and TEL in its schools.

Education is compulsory between the ages of five and 16. School attendance rates are high and 75% of primary and secondary schools are state owned. Schooling is a top priority of the government that spends up to 20% of its available money on it.

Unlike all of the other Commonwealth Caribbean countries, The Bahamas has not adopted the CXC system and does not participate in regional CXC examinations. Although the education is generally based on a British model, the exit examinations are nationally administered: at the

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end of secondary school, students write examinations leading to the Bahamas Certificate of General Education.

National ICT and ICT in Education policies, strategies and programmes in The Bahamas: The Bahamas did not have an ICT in Education policy or an ICT policy in 2015. It does have a 2002 telecommunications sector policy calling for the provision of a world-class communications system as the key to rapid economic and social development of the country. The telecommunications sector policy was the first major step in the government’s removing the regulatory authority for telecommunications from the Bahamas Telecommunications Company (BaTelCo), which it did in 2003, reorganising the telecommunications sector and establishing an independent regulator, the Public Utilities Commission, that separated the distinct functions of policy-making, regulation and service provision under the 2003 “Policy Statement on Electronic Commerce and The Bahamian Digital Agenda” developed by the Ministry of Finance. This policy outlines a vision to transform the country into a regional centre of excellence for e-commerce. As part of the programme, the government committed to education-based broadband programmes such as:

- access to Internet from public libraries and other public sites; and
- delivery of distance learning programmes from homes and places of work.

In 2010, The Bahamas adopted a telecommunications policy that is the foundation for Internet connectivity in schools.

As the Bahamas Focal Point for COL reported to the Focal Points Meeting in Trinidad in 2014 (Sears, 2014):

The Learning Resources Section of the MOE provides teachers with a variety of curriculum based multi-media learning and teaching resources. Most notable is the Bahamas Learning Channel (BLC), established in 2006, with initial support from COL, to produce indigenous learning materials, primarily educational videos. The BLC has extended its portfolio to include a fully functional website capable of recorded broadcast, live broadcasts, interactive lessons and feedback capabilities. In January 2015, the BLC intends to launch a 24-hour television channel totally dedicated to the broadcast of educational material in the form of instructional, informational and character-building programmes. In addition to the resources of BLC, teachers use other electronic learning resources such as a melodic learning package – Tune into Reading, Novanet, Auto Skills and Skills Tutor which have significantly improved the reading levels of under-achieving students at all levels.

Teachers are introduced to the pedagogical value of instructional technology from the time they enter the profession. The Future Teachers Programme (FTP) uses online distance learning tools – Skype and Wiz IQ to conduct interviews and to participate in school meetings virtually. A website has also been created for FTP for the real-time dissemination of information to cadets and their advisors. On-going professional development for serving teachers is provided by ICT coordinators in collaboration with curriculum officers to ensure the effective integration

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11 The BLC has a YouTube repository of television programmes to support learners in 2015. Access to the YouTube programmes is through the BLC. See http://www.thebahamaslearningchannel.com/links.html.
of technology into instruction and the promotion of technology planning as part of school improvement initiatives. In preparation for recent technology upgrades, school administrators and teachers received professional development using the COL CCTI curriculum along with a locally developed module, called ICT in Education: Potentials and Possibilities.

Gaining in popularity is the development of communities of practice among teachers and administrators, across public and private schools. Teachers are sharing best practices, creating and sharing indigenous resources, creating and sharing open educational resources and collaborating through groups, blogs and forums, and developing web portals for curriculum and instructional resources. In addition, Curriculum Officers design and share instructional webinars and conduct monthly meetings using technology to enable the participation of teachers resident on islands beyond the capital. Additionally, select workshop sessions and presentations are recorded on DVD or CD for sharing with teachers and administrators in remote schools.

At the tertiary level, the College of The Bahamas (COB) and University of the West Indies Open Campus (UWIOC) are increasing access to learning through distance learning. Notes Sears (2014):

COB currently offers college prep programmes online and during the 2014/15 academic year, will introduce an online Diploma in Education, undergraduate degrees in law, nursing and a variety of general education courses. Since 2011, UWI Open Campus has offered professional education, certification, undergraduate and continuous education study programmes using distance, blended and face-to-face, and each year continues to expand its offerings.

The Bahamas’ Ministry of Education 10-Year Plan articulates training in ICTs and use of ICTs under its first priority, Curriculum and Instruction (Government of The Bahamas, 2009, p. 16):

Objective 11: Integrate the use of modern technology such as LCD projectors, laptop computers, audio and video broadcasting, and interactive white boards in the teaching/learning process.

Performance Indicator 11: All schools outfitted with the relevant ICT equipment and all teachers trained to use and integrate ICT in their teaching.

These very open and undefined generalisations about the role of ICT in Education have been interpreted as encouraging the adoption of OERs in education. As reported at the COL/UNESCO Regional Policy Forum in 2012, “The Bahamas ... reported having an ICT in Education Strategy that makes provision for the inclusion of OER” (FGSOERI, 2012).

**ICT access and use in The Bahamas education system:** The Inter-American Development Bank-supported INSPIRE Project (Investing in Students and Programmes for the Innovative Reform of Education) significantly boosted hardware, software and the requisite training to support distance education and TEL (Sears, 2014):
Since 2012, the Government has provided additional servers, desktop PCs and laptops, projectors and interactive whiteboards in 76 primary and secondary schools; existing computer labs were upgraded and 81 subject-specific labs were installed throughout 27 secondary schools and all-age schools. The installation of subject-specific labs, supported by revision of high school curricula in the core subjects is intended to enable teachers to extend learning beyond the classroom walls, and ultimately improve student achievement.

National libraries have been upgraded with computers and educational technologies and support has also been given to the Learning Resources Section, the Curriculum Section, and Resource Centres in the Family Islands.

**Major initiatives in The Bahamas education system:** In June 2011, The Bahamas and CKLN submitted a project proposal to Telecom Telematique International to support the establishment of The Bahamas NREN. The College of the Bahamas is undergoing a 10-year upgrading to university status and sees the Bahamian NREN as an important component of its upgrading.

**Prospects and challenges for TEL in The Bahamas:** According to the COL Focal Point, the greatest impediment to developing TEL and ICTs in education is the absence of an ICT in Education policy (M. Sears, e-mail communication, May 2015).

In mid-2014, The Bahamas signed a partnership agreement with Microsoft to further advance trends in technology that will strengthen educators ICT skills. The benefits of the partnership include (Campbell, 2014):

- Assisting the Ministry to increase digital inclusion of all students and schools in The Bahamas
- Providing technical assistance to refine the Ministry’s e-Strategy that guides ICT initiatives
- Creating a Microsoft 365 platform that is free to education and extends teaching and learning within and beyond the classroom
- Providing an e-mail platform for all teachers and students in the public education system to have access to an education email address that they could have for their lifetime
- Allowing 1,500 teachers and 22,000 students to be able to download Microsoft Suite programmes on up to five devices.

More than many of the other small island developing states of the Commonwealth Caribbean, The Bahamas, with its 30 occupied islands, stands to benefit significantly from the use of ODL and TEL. Indeed, it has been using ODL and some limited TEL for decades to reach and connect with the Family Islands. Continuing to build on what it has already achieved is the appropriate direction to follow. The Bahamas Learning Channel, with its interactive features for teacher communities of practice, offers an opportunity for wider replication in other states.

The short-term focus in The Bahamas is apparently on strengthening tertiary education at the College of The Bahamas and TVET education at The Bahamas Technical and Vocational Institute (BTVI). That The Bahamas does not have an ICT in Education policy, and that its telecommunications policy is focused primarily on business and building e-commerce suggest that there is an opportunity to encourage The Bahamas to develop the policy framework (similar to that of Antigua & Barbuda) and encourage OER development.
Barbados

Location of Barbados and geographical features: Barbados is the most easterly island in the Caribbean chain of islands, located at latitude 13° north and longitude 59° west. Barbados is relatively flat, rising from the west coast in a series of terraces to a ridge in the centre. The highest point on the island rises to 340 metres above sea level. The capital of Barbados is Bridgetown, which is the main commercial centre. Bridgetown received a UNESCO designation as a World Heritage site in 2011.

Geopolitical and economic context of Barbados: Barbados is a member of the United Nations, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States and CARICOM. It gained its independence from Britain in 1966. Barbados is a parliamentary democracy based on the Westminster model.

Barbados is a small island developing state with a fragile natural resource base and an open economy. The main foreign exchange earners are tourism, international business, financial services and banking, manufacturing, the sugar industry and agriculture. Barbadians generally enjoy a high quality of life.

Socio-educational contexts of Barbados: Barbados has free compulsory primary and secondary education for its citizens and prides itself on its school system and on having one of the highest literacy rates in the world at 98%. The Barbados government provides tuition-free education for students at the primary, secondary and post-secondary level. However, since 2014, Barbadian students attending the University of the West Indies (UWI) have been required to pay tuition fees.

In order to ensure active participation by all students, the government provides school meals at the primary level, free textbooks and workbooks for vulnerable and marginalised students at the primary level, a textbook loan scheme for secondary students, free transportation on state-owned buses for primary and secondary students in uniform and post-secondary students with approved national identification, a uniform grant and bursaries at the secondary level, and a wide range of awards, grants and scholarships for students at the tertiary level.

Students sit a Common Entrance Examination to transition to secondary schools. Secondary education is provided for children aged 11 to 18 years. At age 16, students sit the Caribbean Examination Council (CXC) Caribbean Secondary Education Certificate examinations. At approximately age 18, those students who continue at school can sit the Caribbean Advanced Proficiency Certificate examinations (CAPE) also set by CXC.

Recently, Barbados has become aware that the CXC-based school system is not serving the needs of marginalised youth. The COL Focal Point proposed to COL that Barbados would

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benefit from a consultancy to develop an avenue for students to continue to receive accredited secondary school classes online, possibly through a portal that delivers instruction on demand, covering the complete syllabus for CXC subjects (King, 2014).

Barbados benefits from having four important tertiary institutions: the UWI Cave Hill and its Open Campus, Barbados Community College, Erdiston Teachers’ College, and Samuel Jackman Prescod Polytechnic.

**National ICT and ICT in Education policies, strategies and programmes in Barbados:** In many respects, Barbados has been an innovative leader in ICT in Education as long ago as 2000, when it initiated the massive USD213 million EduTech 2000 project targeted at the primary and secondary school systems in the country. The project’s objectives included the integration of all available ICTs within the school system. Not only did the project enable the acquisition of hardware and software, it featured curriculum revision to incorporate ICTs in both primary and secondary courses and provided teacher professional development to support teachers’ use of ICTs in their classrooms. In 2007, the project was revised and installed computer laboratories in schools. This project has been a massive focus for ICT development and integration in the country.

Barbados has a National Information and Communications Technologies Strategic Plan for Barbados 2010–2015, which was developed by the Ministry of Economic Affairs, Empowerment, Innovation, Trade, Industry and Commerce, and is sub-titled “An Efficient Networked Island” (Government of Barbados, 2010). However, the plan is much broader than education, which is only one of 11 sectors addressed in it. Education is addressed under “Sectoral Initiatives” and has three initiatives, which summarise and address the objectives of the EduTech project:

1. Continue to reform the educational system and integrate ICTs fully into the revamped curriculum.
2. Upgrade the ICT training programme for students at primary and secondary schools and extend the programme to all schools. This would also include the provision of special ICT training programmes geared toward children who are physically challenged.
3. Continue the schools’ “refurbishment programme” to ensure that they can house computer hardware and software in a secured environment.

**ICT access and use in the Barbados education system:** The impact of EduTech 2000 has been to provide broad access to computers in primary and secondary schools, in computer laboratories and classrooms in the public education system. Teachers have received training on the integration of ITs into the curriculum through two-week intensive professional development workshops financed initially through a grant from Microsoft. Although the initial ambition of the teachers’ professional development programme was that 2,700 of Barbados’s 3,000 teachers be trained, the early reality (to 2005) was that only about 65% of teachers attended the training (King, 2014).

**Major initiatives in the Barbados education system:** The EduTech 2000 project and its renewal in 2007, coupled with the national ICT plan 2010–2015, have been the foundation initiatives in ICT and ICT for education in Barbados. As King (2015) noted:
The Barbadian educational system continues to integrate modern technology into its revamped curricula, and has subsequently embraced the use of interactive whiteboards to complement instruction and classroom activities. To date at least one Smart Interactive Whiteboard has been placed in each of the 69 public primary schools, 10 public Nursery Schools and 22 public secondary schools. Professional development training in the effective use of the software has been provided for teachers in approximately 90 percent of the schools. In the primary system, general training was conducted for teachers, whereas in the secondary system training was conducted in subject-specific areas.

The Ministry of Education, Science, Technology and Innovation (MESTI) has also facilitated the introduction of tablet technology in schools to support curriculum delivery. Sixteen primary schools have been supplied with a number of iPads through the Media Resource Department (MRD) of the MESTI. Teachers were trained in the use of these devices to ensure effective integration of the devices in lesson delivery in the classroom. The MRD has also created a blog that allows for adequate monitoring of the project and for the teachers involved in this initiative to share resources and best practices, including lessons learnt.

Barbados Community College, Erdiston Teachers’ College and UWI Open Campus all offer courses by distance education. In the first quarter of 2015, Barbados Community College offered a massive open online course (MOOC) linked with Athabasca University in Canada.

**Prospects and challenges for TEL in Barbados:** Since the UWI Cave Hill Campus in Barbados is the home of the Open Campus, and since UWI Cave Hill has been the assigned evaluators of the EduTech project, there is both experience and competence in open education available in Barbados.

As described previously, Barbados has had a longer history of ICT provision and integration than most other Commonwealth Caribbean States because of its early investment in EduTech 2000. In the Barbados Country Report to the COL Focal Points Meeting in March 2014, King (2014) stated that, for 2015–2018, Barbados was looking to COL for “areas of focus ... drawn from COL’s categories of Open Schooling and Online Learning, Teacher Education, Higher Education, VUSSC and TVET Development.” However, King also pointed out that Barbados needs a guiding policy for ICT in Education to orchestrate this wish-list of initiatives.

Certainly, Barbados could benefit from other countries’ experiences in drafting a policy for ICT in Education that includes OER and open licensing. It could also determine, based on its own experience and system, the need for strengthened ODL, coordinated development of ICTs and training across tertiary institutions, and OER policies.
Belize

**Location of Belize and geographical features:** Belize is located on the Caribbean coast of northern Central America at 17°15′ north of the equator on the Yucatán Peninsula. The country shares a land and sea border on the north with Mexico, and a land border on the west and a sea border on the south with Guatemala. Belize is bounded on the east by the Caribbean Sea. The second-longest barrier reef in the world flanks much of the 386 kilometres of the country’s predominantly marshy coastline. The area of the country is twice the size of Jamaica. However, the frequency of lagoons along the coast and in the northern interior reduces the actual land area to 21,400 square kilometres. The western border follows no natural features and runs a north-south imaginary line through lowland forest and highland plateau. The north of Belize consists mostly of flat wetlands and coastal plains that are heavily forested in places. The flora is highly diverse considering the small geographical area. The south contains the low Maya Mountains range. A large part of the mainland is forest.

**Geopolitical and economic context of Belize:** Belize is a member of the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States and CARICOM. Belize was called British Honduras until 1973.

Belize is a sovereign democracy that achieved full independence on September 21, 1981. The government is a parliamentary democracy based on the Westminster system, with a Prime Minister and Cabinet. A 28-member elected House of Representatives and eight-member appointed Senate form a bicameral legislature.

The economy of Belize was traditionally based on forestry. However, the country’s economy is now based on agriculture, which currently provides some 65% of the country’s total foreign exchange earnings, and employs approximately 30% of the total labour force. Sugar accounts for more than 50% of the country’s foreign exchange earnings, but because of the uncertain future of sugar, major efforts are underway towards agricultural diversification.

**Socio-educational contexts of Belize:** The education system in Belize has its roots in the English system but has been greatly influenced by the U.S. education system. According to statistics from the Ministry of Education, in 2013/14, a total of 105,209 students were enrolled in Belize schools and colleges at all levels, including close to 8,500 students in post-secondary studies.

Primary education is free and compulsory through age 14. However, a sizable minority of Belizean children do not complete primary school in the prescribed time. Students move through Infant 1 (age five) and Infant 2 (age six) and Standards 1–6 in primary school to Forms 1–4 (ages 12–16) in secondary school to sixth form (junior college).

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The Catholic Church, and to a lesser extent the Methodist and Anglican churches, through agreements with the government, operate many of Belize’s public schools under a church–state partnership that has its roots in Belize’s history as a British colony.

Only about 63% of primary teachers and 40% of secondary teachers are professionally trained (C. Aird, e-mail communication, May 2015), but that number is growing with recent amendments to the Education Act (2010) that aims at 100% of all teachers being professionally trained as a requirement to obtain a teacher’s licence.

National ICT and ICT in Education policies, strategies and programmes in Belize: There is preparation for a draft national ICT in Education policy related to the Belize National ICT Policy: 2011 (Flowers, Namis, & Montserin, 2011). The vision of Belize’s national ICT strategy for 2011–2015 is to “accelerate development and improved quality of life for all Belizeans through universal access and widespread usage of information and communication technology.” It is anticipated that the ICT in Education policy will be completed by the end of 2015 (Aird, 2014).

Belize is currently in the process of laying the groundwork for that ICT in Education strategy. In 2014, COL facilitated the development of a draft of the ICT in Education strategy for 2014–2019. The national ICT strategy 2011–2015 envisages establishing ICT as an integral part of the curriculum at all levels as a core subject area, as well as a content-delivering tool.

In addition, the government is committed to drafting a comprehensive National ICT policy for primary and secondary education. ICT training will be made available to both teachers and librarians, and it is recommended that both groups receive computers and Internet access at reduced costs.

There are no available policy documents applicable to OER or distance education programmes at this time. However, although there is no overt mention of OER in the national ICT policy, it is implied (C. Aird, e-mail communication, May 20, 2015). The draft national ICT in Education strategy includes the need for setting up an OER repository.

ICT access and use in the Belize education system: The Belizean government has high aspirations for ICT in Education, including: integration of ICT into the curriculum at secondary and tertiary levels; development of advanced skills training in ICT; and promotion of ICT internship programmes with industry and educational institutions. However, problems with accessibility may cause difficulties for the provision of technical support and even connectivity, especially to primary schools, which are located mostly in villages across Belize. Secondary schools and upper secondary schools are located mainly in one of the nine large cities or municipalities, making them reasonably accessible. Notes Aird (2014):

In 2010, the student-to-computer ratio in secondary schools across Belize averaged 12:1, with an average Internet connection speed of 512 Kbps. The Ministry of Education and Youth (MoEY) recognises the importance of e-learning as means to overcome the educational divide between secondary and primary schools, for which a policy still has to be devised.

In March 2014, the COL Focal Point (Aird, 2014) reported:
In 2013, after the nationalisation of the Belize Telemedia Limited in 2010, for the first time, the company released its block on access to VOIP, in addition to reducing the overall cost of internet per bandwidth. Although in a recent survey of Caribbean countries, Belize had one of the highest charges per bandwidth of internet and the lowest speed, with a reduction in cost for increased bandwidth, many Belizeans can now afford to have access to internet in their homes. All schools in the country with access to telephone lines may also have internet access free of charge. With access comes the increase in the opportunities to harness the benefits of open and distance learning throughout much of the communities of the country.

The Belize Education Strategic Strategy 2011–2016 has a number of prospective uses of ICT incorporated in it (Government of Belize, 2012):

- Undertake feasibility study of use of ICT (electronic book) alternatives to textbooks
- Examine options (including looking at the ESUSAT model) for open schooling (open centres) via ICT for certain subjects in rural areas as well as for school age children who are not in school
- Examine opportunities to deliver in-service training programmes through on-line or multi-media modalities
- Examine opportunities to delivery part or all of core and option secondary curriculum using ICT
- Develop on-line or multi-media programmes for Adult and Continuing Education
- As part of textbook review, consider ICT alternatives
- Use ICT for teacher resources.

The University of Belize offers two degrees in Information Technology in its Faculty of Science and Technology. The university is just beginning to explore the use of online learning using a Moodle platform.

**Major initiatives in the Belize education system:** The following institutions operating in Belize offer some limited online and blended programmes (C. Aird, e-mail communication, May 20, 2015):

- Sacred Heart Junior College and Corozal Junior College use a Moodle platform to support programme for the Certificate in School Leadership – the programme is blended.
- University of Belize offers some blended programmes.
- UWI Open Campus offers on-line and blended courses.
- The Gwen Lizarraga Adult Education Open School provides access for High School equivalency programmes for Adult Learners and uses CXC Notesmaster.
- Kaina High School provides high school courses up to the CXC CSEC level.

Currently, Galen University, a private university, has progressed the most in online and blended learning, and lists the following programmes and initiatives in ICT-based learning:

- Bachelor’s level in Primary Teacher Education
- M.Ed. in Secondary Education (with University of North Carolina-Wilmington, blended)
- Bachelor’s in Business Administration, Banking and Finance (Years 3 and 4)
- Master’s level in Business Administration
- B.Sc. in Criminal Justice

As well:

Galen University offers six online, undergraduate programs and four blended, graduate programs across business disciplines and education. Classes are conducted live-online, using the University’s video conferencing technology and complementing the University’s online academic repository, where class resources are managed. In addition to our Galen programs, the University shares partnerships with the University of North Carolina at Wilmington (UNCW) and the University of Nicosia (UNIC) for two of Master of Education offerings. The Master of Education in Educational Leadership and Administration is offered distance solely through the UNIC. Our Master of Education in Secondary Education is dually offered with UNCW.¹⁴

Galen University encourages its teaching staff to use the Moodle platform to upload student notes and assignments, and encourages its staff to access good quality (refereed) textbooks from free websites.

In addition to the passage of the National ICT Policy, Belize has identified the following major initiatives for planning in mid-2015:

- Teacher Education and School Leader Education
- Adult and Continuing Education (expanding for more access through tertiary institutions: three or four tertiary schools that can develop and offer Adult Education Programmes)
- Development of standards for quality assurance for online programmes
- Training for online course development and delivery

Currently, the Gwen Lizarraga Open School for Adult Education is supported by the University of Belize in collaboration with the Commonwealth Open School Association and COL (C. Aird, e-mail communication, 2015).

**Prospects and challenges for TEL in Belize:** Now that the cost of Internet access has been made more affordable for home access, and schools with telephone access have been provided with free Internet access, the identification and development of useable resources will be important. Training of the many untrained teachers in the system and new teachers coming into the system will need to include the integration of ICTs in the curriculum and classroom lessons. Training national trainers to conduct that training will be imperative to speed the integration process. Belize is, in many ways playing “catch-up” and will need special encouragement.

Some of the areas the Belize Focal Point identified for assistance from COL in early 2014 remain important in mid-2015 (Aird, 2014): “There is ... [in the TVET sector at present] no infrastructural development in place to facilitate technology driven skills development outside of the traditional workshops within the vocational institutions. It is envisioned that ... [ICT] will be used as part of professional development for teachers in vocational education in the near future, and in the distant future as the demand for programmes increase, to integrate skills development into the open school and vocational institutions as a part of programme offering.”

In May 2015, the COL Focal Point identified the following priorities for COL involvement in ICTs in education for Belize:

- Training of tertiary-level instructors in delivery of adult education programmes
- Development of institutional policies for ODL
- Development of online course materials
- Delivery of online courses.

This list indicates an awareness of the range of needs confronting Belize to enable it to implement ICTs in education successfully.

**Dominica**

**Location of Dominica and geographical features**: Dominica is a mountainous island of volcanic origin in the Lesser Antilles in the Caribbean, located between the North Atlantic Ocean and the Caribbean Sea south of Guadeloupe and north of Martinique. Dominica is the largest and most northerly of the Windward Islands. It has spectacular, lush and varied flora and fauna protected by an extensive natural park system. It is the most mountainous of the Lesser Antilles. The country has one of the most rugged landscapes in the Caribbean, covered by a largely unexploited, multi-layered rain forest.

**Geopolitical and economic context of Dominica**: Dominica is a member of the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States, CARICOM and the Organisation of East Caribbean States. Dominica is a parliamentary democracy constructed on the Westminster model.

In 1997, Dominica became the first Caribbean country to participate in the work of Green Globe, aiming to make Dominica a model ecotourism destination. The Dominican economy has been dependent on agriculture — primarily bananas — in years past, but increasingly has been driven by tourism as the government seeks to promote Dominica as an “ecotourism” destination.

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In 2003, the government began a comprehensive restructuring of the economy (including elimination of price controls, privatisation of the state banana company, and tax increases) to address an economic and financial crisis and to meet International Monetary Fund requirements. In 2009, the economy contracted as a result of the global recession. Although the island is poorer than some of its Caribbean neighbours, Dominica has a relatively low crime rate and does not have the extremes of wealth and poverty evident on other islands (Index Mundi, 2014a).

**Socio-educational contexts of Dominica:** The population of Dominica is mostly of African and mixed African/European descent, with European, Syrian and Carib minorities. There is a Carib reserve on part of the east of the island.

Dominica has compulsory education to age 16 and follows the CXC syllabi at secondary level. Students sit CXC examinations for the Caribbean Secondary Education Certificate (CSEC) at the end of secondary school. Dominica State College is Dominica’s government-funded tertiary education institution, and it also hosts a branch of the regional UWI Open Campus. There are also two offshore medical schools providing instruction primarily to foreigners, but some Dominicans as well. In addition, many students use distance learning to earn degrees from universities in other countries, and there are several private tutorial colleges that provide instruction for external programmes of universities based in other countries, such as the University of London.

**National ICT and ICT in Education policies, strategies and programmes in Dominica:** The Education Planning Unit of the Ministry of Education, Human Resource Development, Sports and Youth Affairs prepared a draft *Information and Communication Policy Framework for Use in the Education System* (Andrew and Durand, 2001) and drafted the *Strategy for Implementing the National ICT in Education Policy in the Commonwealth of Dominica 2004–2009* (Durand, 2004). Given the extraordinary advances in technology and thinking about ICTs in the past decade, the strategy and implementation plan are very dated (e.g., specifying a list of documents students should be taught to prepare using the computer) when examined in light of ICT use and capability in 2015. Both need evaluation and updating.

Despite the fact that Dominica was on the regional cutting edge in designing an ICT in Education policy and implementation plan earlier than many other states in the region, it does not appear that any subsequent work has been done in this area. In 2012, UNESCO identified Dominica as one of the four countries in the Caribbean region reporting that their national curriculum did not include recommendations for ICT-assisted instruction (UNESCO Institute of Statistics, 2012, p. 9).

The COL Focal Point for Dominica reported at the Caribbean Regional Focal Points Meeting in 2014 that “the Government of Dominica has policies for ICT and the Ministry of Education has an ICT in Education policy,” but noted that, “The status of the Open and Distance Learning is at the ‘infancy’ stage at the Dominica State College (DSC). Though, there have been several interjections starting from as early as 2002, ODL has slowly been implemented” (Hyacinth, 2014).
**ICT access and use in the Dominica education system:** Between 2006 and 2010, staff at the Dominica State College drafted a strategic plan for ODL, and staff have benefited from several training opportunities to develop or improve their skills in online and eLearning through Humber College, the UWI and CKLN. Currently, Dominica State College offers several blended courses and some staff use Facebook and YouTube resources in addition to the Moodle Learning Management System to augment their courses.

In the Ministry of Education and Human Resource Development ICT Professional Development Plan for Educators in Dominica (Government of Dominica, 2012), the Ministry reported that 200 teachers had received an International Computer Driver’s Licence (ICDL) through an already concluded EU project.

**Major initiatives in the Dominica education system:** In 2012, the Dominica Ministry of Education and Human Resource Development drafted the comprehensive and detailed *ICT Professional Development Implementation Plan for Educators in Dominica*. It projected that, in cooperation with COL and a Canadian university, it would, between 2012 and 2015, “Ensure that all education officers, school administrators, teachers, teacher educators, and Ministry officials are competent to harness ICT effectively to support high quality teaching and learning in Dominica schools.”

The strategy committed to submitting modules and courses to VUSSC and releasing them as OER. Over the three years of the strategy, by the end of 2014, the ministry projected training a total of 1,260 people in the following categories:

- school and college administrators (principals, vice-principals and heads of department),
- pre- and in-service teachers,
- teacher educators,
- students, and
- Ministry officials (in particular, Curriculum Officers and Education Officers).

The status of implementation of this ambitious plan is not mentioned in the COL Focal Point’s 2014 report. Therefore, it is unknown the extent to which the ministry has been able to implement the plan.

**Prospects and challenges for TEL in Dominica:** Available documentation supports the idea that Dominica is well situated to make rapid advances in the implementation of TEL if the trained teachers remain in the system and if the projected 2014 training took place. However, there is a dearth of recent national documentation guiding ICT/TEL in the country, and priority should be given to updating the national ICT and ICT in Education policies and implementation frameworks, since the existing documents are outdated.

There is also need for development of an institutional ICT in Education policy framework at the Dominica State College to guide the use of eLearning. If TEL is useful to the college, then COL and CKLN — both of whom have long experience in facilitating strategic planning for
ICT and ODL — could support the college and the Ministry of Education and Human Resource Development in developing ICT and ODL policies for development of OERs, a policy for open licensing, and implementation plans.

The absence of any guiding plan for ICT/TEL use and development at Dominica State College is a current impediment to encouraging their use for student and staff benefit.

**Grenada**

**Location of Grenada and geographical features**: Grenada has three main islands — Grenada and its dependencies, Carriacou and Petit Martinique. Additionally, Grenada has several small and largely uninhabited islands. They are the southernmost of the Caribbean’s Windward Islands, located some 160 kilometres north of Venezuela and 145 kilometres southwest of Barbados. Grenada is the largest of the three islands, with a width of 18 kilometres and a length of 34 kilometres.

**Geopolitical and economic context of Grenada**: Grenada is a member of the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States, CARICOM and the Organisation of East Caribbean States. It is currently a parliamentary democracy modelled on the British system, with two major political parties and other minor parties.

Grenada was granted full autonomy over its internal affairs in March 1967. Full independence was granted on February 7, 1974. After obtaining independence, Grenada adopted a modified Westminster parliamentary system based on the British model. According to Index Mundi (2014b):

Grenada relies on tourism as its main source of foreign exchange, especially since the construction of an international airport in 1985. Hurricanes Ivan (2004) and Emily (2005) severely damaged the agricultural sector – particularly nutmeg and cocoa cultivation – which had been a key driver of economic growth. Grenada has rebounded from the devastating effects of the hurricanes, but is now saddled with the debt burden from the rebuilding process. Strong performances in construction and manufacturing, together with the development of tourism and higher education – especially in medicine – have contributed to growth in national output; however, economic growth remained stagnant in 2010–13 after a sizeable contraction in 2009, because of the global economic slowdown’s effects on tourism and remittances.

**Socio-educational contexts of Grenada**: Most of Grenada’s population is of African descent, although a few East Indians and a small community of the descendants of early

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European settlers reside in the country. About 50% of Grenada’s population is under the age of 30. English is the official language. A significant reminder of Grenada’s historical link with France is the strength of the Roman Catholic Church, to which about 60% of Grenadians belong.

Grenada uses the CXC curricula and students sit the CXC examinations at the end of secondary school to be awarded the Caribbean Secondary Education Certificate. Students may continue for one or two further years to sit the Caribbean Advanced Proficiency Examinations.

Grenada also has a National Training Agency that is a member of the Caribbean Association of National Training Agencies (CANTA); and learners who pursue technical programmes are eligible for Level 1, 2 or 3 Caribbean Vocational Qualification (CVQ) certification after they sit the relevant examinations. The National Training Agency is targeting the employed workforce for its learning initiatives (Grenada National Training Agency, 2013).

According to the Economic Commission for Latin America and the Caribbean (ECLAC) Country Profile on Grenada (Levy, 2006), prior to Hurricane Ivan in 2004, the Government of Grenada had already been installing computers in schools, both in Grenada and in Carriacou and had “launched a Virtual Classroom, a satellite based education system for the untouched and deprived areas ... to give better education to the students.” Other institutions, including NGOs (e.g., GLENCODA), the United Nations Development Programme and the OECS established centres where there was community access to the Internet. St. George’s University was reported to have 100 computers for students to access, and free wireless Internet for those who had their own computers.

National ICT and ICT in Education policies, strategies and programmes in Grenada:
The most recent ICT-related documents available through the Commonwealth Telecommunications Organisation relate to ICT in Education and TEL in Grenada, as noted in the ECLAC Grenada Country Profile (Levy, 2006). In 2013, COL and UNESCO assisted Grenada in developing a draft ICT in Education policy, which is expected to be approved in 2015.

ICT access and use in the Grenada education system: The Ministry of Education’s Strategic Plan for Educational Enhancement and Development (SPEED II) 2006–2015 defines ICT as central to facilitating learning in the education system. The strategies included in SPEED II (Government of Grenada, 2006) are:

- The provision and effective use of computer labs in schools;
- Introduction of students to ICT as a tool for learning and accessing knowledge;
- Use of computer programmes to facilitate and support learning;
- Developing the competence of teachers in the use of ICT tools for instruction and professional development;
- Using ICT solutions to promote sharing of best practices in teacher education, management and school/community partnerships.
While this has been the all-encompassing strategic plan for education, its aspirations for ICT in Education are modest and not well defined.

According to the T.A. Marrryshow Community College (TAMCC) website, there are eight computer labs available to students on campus. In 2014, the Chinese government donated 26 computers to upgrade a computer laboratory dedicated primarily to Business Administration students.

The TAMCC calendar advertises two two-year Associate degrees: an Associate degree in Information Technology is offered in the School of Arts, Sciences and Professional Studies, and an Associate of Applied Science degree in Computer Systems Engineering Technology is offered for the period 2013–2015. While the first is equivalent to the first two years of a Bachelor’s degree in Computer Science, the other is a more skills-oriented programme. TAMCC encourages online support for face-to-face courses by employing a Moodle platform for the use by both students and lecturers.

**Major initiatives in the Grenada education system:** The COL Focal Point for Grenada reported on the Education Management Information System (EMIS) as follows (Augustine, 2014):

> The EMIS system is [a national priority for ICT use in Grenada] ... and has been identified in the SPEED (2006–2015) document as a major ICT initiative that is given priority. In 2013 the OECS has provided support toward the implementation of a pilot of an EMIS in partnership with Community Foundation Services (CFS) and UNESCO. The system is currently in the pilot state with a strategic focus on administrative data, such as managing teachers and staff through this system. The EMIS will be initiated in a soft rollout in September 2015.

There is a plan to improve the existing 4 MB of bandwidth to 10 MB for each 100 students. The Caribbean Regional Communication Infrastructure Programme has been approached to undertake this project.

In March 2013, 20 high-ranking policy-makers from the Ministry of Education gathered for a consultative workshop to facilitate the development of an OER policy for Grenada. The workshop identified the essential elements to be incorporated in such a policy, while aligning it to the national educational goals, plans and strategies. Because the participants wanted to situate the OER policy within a broader ICT in Education policy, the workshop expanded its focus to defining the key elements of such a policy for Grenada, namely:

- strategic education priorities for Grenada
- policy positions on the ICT infrastructure
- connectivity
- the use of ICT in teaching and learning
- management and administration
- human resources
- governance issues
During the workshop, participants expressed strong commitment to open licences (specifically, the Creative Commons licence framework) for all educational and research materials produced with public funds in Grenada (UNESCO, 2013).

ICT and ODL have been used in a variety of ways in Grenada’s education system in the past, itemised as follows by the COL Focal Point in 2014 (Augustine, 2014, p. 2):

- Training of teachers, education administrators and specialists, public officers, nurses and other professionals up to the Bachelor’s and Master’s degree levels through the Open Campus of the UWI.
- State administered, World Bank-funded delivery of customized degrees in Education, via a blended modality, through the Open Campus in order to build the capacities of selected groups of teachers in Literacy and Mathematics & Science.
- Short and medium term delivery of Continuing Professional Development (CPD) courses in diverse areas with assistance of developmental partners using their portals and/or platforms e.g. World Bank Institute; ITEN; OAS Portal for Education; UNESCO’s International Institute for Educational Planning (IIEP); COL’s CCTI and DTOC [Developing and Teaching Online Courses] courses.
- Collaborative international discussions delivered through discrete e-platforms e.g. UNESCO IIEP e-forum on Teachers’ Codes of Conduct; ITEN webinars on diverse topics in Education.
- Ongoing delivery of tertiary-level education through the local community college, the T.A. Marryshow College, using the Moodle course management system.
- Networking at a regional level through C@ribNET (CKLN); limited use of online collaborative tools by teachers and lecturers for enhancement of course and programme delivery.
- Very limited use of mobile technologies in primary and secondary classrooms, dependent on teacher competence and interest and infrastructural readiness of classroom settings.
- Very limited provision of computer hardware, multi-media equipment, by the MoEHRD, often at the secondary level, (through external funding, as part of Special Project allocations).
- Ongoing piloting and use of open source systems e.g. Open Orange – an IT solution for modernising the record keeping of personnel files within the MoEHRD.
- Ongoing piloting of an Open Education Management Information System (Open EMIS) through the OECS Education and Management Unit (EDMU) and UNESCO.
- Development and use of an EMIS for the management of TVET practitioners, service providers by the recently established Grenada NTA.
- Conceptualising of and collaborating with developmental partners in the development of an ODL Policy, particularly at an institutional level for TAMCC.
- Using an e-government system with e-services for the public, specifically for the Inland Revenue Department of the Ministry of Finance.

**Prospects and challenges for TEL in Grenada:** In keeping with the plans outlined in SPEED II, a project is being developed to provide hardware to child development centres and pre-schools in order to enable the EMIS and Internet to reach these centres. The request for funding will include 250 Chromebooks and Mice and 450 Wi-Fi access points. A funding estimate of USD 300,000 is to cover 58 pre-primary schools and 38 day care centres (Government of Grenada, 2006, pp. 40–41).
Grenada has included OER in its new draft ICT in Education policy, but needs to begin the adoption of OER that align with the curriculum and open licensing. Furthermore, any discussion of the provision and use of ICT/TEL and ODL needs to include a direct focus on teacher training. Although UWI is using TEL and online learning through Open Campus courses, the teachers in classrooms in Grenada have not been trained to use these strategies effectively.

The COL Focal Point’s report in March 2014 identifies four priorities in ICT/ODL and OER development for COL’s consideration in its next Strategic Plan (Augustine, 2014, p. 3):

- Technical assistance for the development of a National ODL Policy to govern all sectors.
- Training of educational administrators, teachers, health educators, agricultural officers re the integration of ICT in Education and the role of ODL in teaching and learning within the respective sectors.
- Specific attention to the tertiary institution, T.A. Marryshow Community College for the training of lecturers in the development and use of Open Source materials (OER’s), the development of e-texts and the application of ODL for greater efficiency and effectiveness in the delivery of all post-secondary and tertiary programmes.
- Continuation of capacity-building course delivery (Continuing Professional Development), particularly the CCTI and DTOC [Developing and Teaching Online Courses] or their equivalents, for teachers at the primary and secondary levels, with emphasis on the use of mobile and emerging technologies in the classroom and the place for ODL in learning.
- Orientation and training of TVET teachers and providers, TVET teacher educators in the implementation of flexible & blended, gender-sensitive learning and technology-enhanced course delivery.

The list omits any mention of monitoring and evaluation. However, with the lengthy and ambitious list of priorities presented — covering technical assistance with policy development and a diversity of training services for various target audiences in many areas (including OER, CCTI and DTOC) and emerging technologies in TEL for TVET — it would seem that tracking the projects as they are developed and implemented, and then assessing their impact, should be a priority for Grenada.

Grenada will have to prioritise the items on this list to make it possible for COL to participate in assisting Grenada in the most useful way in the next strategic plan. It seems unlikely that COL could do more than facilitate the best approaches to achieving this lengthy wish-list.

COL could be helpful to Grenada first by facilitating the refinement and prioritising of the items on this list to concretise an implementation plan with viable time lines over the life of the COL Strategic Plan 2015–2021.
Guyana

Location of Guyana and geographical features: Guyana is situated on the northern coast of South America bordering the Atlantic Ocean. It lies east of Venezuela, west of Suriname and north of Brazil. A tropical forest covers more than 80% of the country. The country has a land area of approximately 214,969 square kilometres and a 459-kilometre Atlantic coastline on the northeast. Guyana has four main geographical regions: a narrow and swampy coastal plain, a hillier sandy region in the east, the Rupununi Savannah of the south, and tropical rain forests and interior highlands. The country has many rivers and a few relatively low mountain ranges that are fronted by steep cliffs that produce dramatic waterfalls.

Geopolitical and economic context of Guyana: Guyana is a member of the United Nations, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States and CARICOM.

When Guyana gained independence in 1966, it was one of the least developed areas in the Western Hemisphere. However, over the past five years, Guyana has recorded the largest improvement score in economic freedom of any South or Central American country (2015 Index of Economic Freedom, 2015). Exports of sugar, gold, bauxite, shrimp, timber and rice represent nearly 60% of formal GDP and are susceptible to weather conditions and fluctuations in commodity prices.

Guyana’s government is a representative democratic republic. The elected President of Guyana is Head of Government and of a multi-party system.

Socio-educational contexts of Guyana: Guyana’s population is made up of five main ethnic groups: East Indian, African, Amerindian, Chinese and Portuguese. About 90% of the inhabitants live on the narrow coastal plain, where population density is more than 115 persons per square kilometre. The population density for Guyana as a whole is low: fewer than four persons per square kilometre.

Although the government has provided free education from nursery school to the university level since 1975, it has not allocated sufficient funds to maintain the standards of what had been considered the best educational system in the region. Many school buildings are in poor condition; there is a shortage of textbooks and exercise books; the number of teachers has declined; and, recently, fees have been introduced at the university level for some courses of study (SDNP, 2011). However, Guyana has long seen distance education as a necessary support system for its face-to-face education system.

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National ICT and ICT in Education policies, strategies and programmes in Guyana: 
Guyana’s education system has consistently faced the challenge of providing equality of educational opportunities between its coastal and hinterland schools. Therefore, in its education system, Guyana has a strong commitment to ICT and TEL that extends back almost 30 years.

In 1986, Guyana established the National Centre of Education Resource Development (NCERD) which has responsibility for the Curriculum Development Unit, developing learning resources, materials production, distance education, and school libraries. NCERD is also responsible for in-service professional development of teachers in the use of learning resources and TEL in the curriculum. Integration of the management of these units provides greater opportunity for the development and use of relevant and supportive TEL in the system. Because of its geographic challenges, Guyana also operates a series of regional Learning Resource Centres, and the University of Guyana has a very active Institute for Continuing Education that operates centres in the coastal and hinterland areas.

In 2002, the Government of Guyana and the Inter-American Development Bank (IDB), with technical assistance from the Education Development Center (EDC) undertook the Basic Education Access and Management Support (BEAMS) project, which provided technical support to improve quality teaching and learning with appropriate technologies. To that end, the BEAMS project developed daily Interactive Radio Instruction programmes that provided core Mathematics instruction for Grades 1–3 in all Guyanese government schools. The BEAMS initiative produced measurable improvement in student mathematics achievement in the first year of its operation. Interactive Radio Instruction ceased to be project based and was formalised in the education system in 2008.

The IDB Technology in the Primary Schools: Grades 1–3 project (2006) introduced computer laboratories in 14 primary schools loaded with the licensed software SuccessMaker (Pearson) to teach literacy and numeracy to slow learners. This project was expanded to 50 primary schools in 2009.

NCERD includes an Innovative and Information Technology Unit charged with the research, implementation, monitoring and evaluation of a variety of innovative new ICT technologies, both high and low cost, that can be infused into the teaching environment.

Launched in 2011, the Guyana Learning Channel (GLC) is a fairly recent addition to distance education resources in Guyana. Managed by NCERD, GLC is a satellite communications network that facilitates the production and broadcast of education-related programmes. School-based programmes follow the curriculum guides and are produced by educators. Open broadcasting and Creative Commons licensing govern the programmes produced for the GLC. The current Education Sector Plan describes the reach of the GLC this way (Guyana Ministry of Education, 2014, p. 21): “The [Guyana] Learning Channel has moved from reaching only a few areas in Guyana to more than 16 locations, touching all regions, even remote hinterland ones. The major limitation to its reach at this time would be access to a television and a source of power in some of these communities.”

18 See http://www.guyanalearningchannel.com/web/about.
Guyana passed a national ICT policy in 2006 (ICT4D, 2006). Two thematic areas in the policy allude to education and training. Under capacity building, the policy contains the strategic objectives, “Develop and implement policies to integrate ICT into the education and training system,” and “Develop programmes to strengthen human capacity of the broader society.” Under development of content and applications, the policy states, “Encourage the development and dissemination of local content... Promote the development and dissemination of local content ... and Develop and promote local applications.”

In 2009, Guyana entered into a Memorandum of Understanding with UNESCO/COL and Microsoft to adapt UNESCO’s ICT for Teacher ICT Integration in Education. With the support of a COL consultant, the ICT Unit at NCERD designed the courses. All teachers are trained in: (Stage 1) Technology Literacy, and (Stage 2) Knowledge Deepening of the ICT-CFT. All teachers currently teaching at the Cyril Potter College of Education are at Stage 2 of the training modules.

**ICT access and use in the Guyana education system:** Guyana’s latest *Education Sector Plan for 2014–2018* (Volume 1) also contains significant sections discussing ICT in Education at all levels of education, except tertiary.¹⁹ The plan includes an assessment of the impact of the objectives in the preceding sector plan (2008–2013) and the national ICT policy in improving students’ access to ICT: “The data show a significant increase in the number of secondary school leavers who have some level of ICT competency. In 2008 only 1,842 students wrote an IT related subject for the CXC examinations. In 2013 that number was 4,200” (Guyana Ministry of Education, 2014, p. 17). These data indicate that there is both a greater interest in and likelihood in continuing studies in ICTs at the tertiary level.

TVET institutions, too, were reported to have greater use of ICTs: “Most TVET institutions were equipped with functioning computer laboratories, and all students are exposed to Basic Computer Science. Over half of the institutions have at least three teachers who are using ICT in the classrooms” (Guyana Ministry of Education, 2014, p. 18).

According to the Ministry of Education’s Guyana Improving Teacher Education Project (GITEP, 2010), funded by World Bank, the initiative “provided laptops and notebooks at subsidized cost to the lecturers and teacher trainees in order to integrate the use of technology into the programme. It is expected that graduates of the programme will leave the College with the basic computer skills as well as some skill in using the technology to support their delivery of education.”

As well, the World Bank included “the integration of information and communication technology in the teaching and learning process ... in support of the transition to a dual mode delivery of the initial teacher training program.”

At the 2014 COL Focal Points Meeting in Trinidad, Guyana’s Focal Point reported that: “Approximately 10,000 teachers, over 70 percent [of the teacher cohort] were exposed to digital literacy training, using the UNESCO ICT Competency Framework for Teachers. This course has been packaged as both a paper based course and as CD ROM” (Nathoo, 2014).

¹⁹ Volume II of the Guyana *Education Sector Plan* will address tertiary education.
Nathoo also reported that, as a result of GITEP, “Seventeen lecturers from the Cyril Potter College of Education (CPCE) are doing online Master’s programmes and two are doing their doctorates. And, at the University of Guyana, an additional six lecturers are doing online Master’s programmes under GITEP.” As well:

The Commonwealth Executive MBA/MPA programmes ... [continue] at the University of Guyana with approximately 30 students enrolled. These programmes ... [have been] offered by the University of Guyana since 2007. In June 2014, under the Ministry of Education, 13 students will be graduated at the Lesley University, after having completed an online master’s degree program in the field of counselling psychology and expressive arts therapies.

In summary, all sectors of the Ministry of Education, the NCERD, the Cyril Potter College of Education, the TVET institutes and the University of Guyana are involved in the use of TEL for classroom teaching, adult education and distance education.

**Major initiatives in the Guyana education system:** The *Guyana Education Sector Plan 2014–2018* identifies the following ICT/TEL-related objectives for the current planning period (Guyana Ministry of Education, 2014):

- Continuous professional development (CPD) of teachers’ skills in integration of ICT into classroom teaching using the UNESCO Competency Framework for Teachers.
- Emphasis on CPD of teachers to improve the quality of classroom teaching (through NCERD) by: using The Learning Channel; enhanced facilities at the Resource Centres; provision of TEL resource materials; videotaping and critiques of teaching in face-to-face workshop contexts.
- Pilot project providing tablets and software to enhance Mathematics capabilities of secondary school students.
- Increased provision of ICTs and TEL aligned to ICT integration strategies and curriculum outcomes to enhance teaching and learning.

Volume II of the Education Sector Plan was unavailable in mid-June 2015. Therefore, the information on achievements and plans for ICT in Guyana’s tertiary sector (outside of the teacher training institution, Cyril Potter College of Education) is limited. However, at the COL Focal Points Meeting in 2014, it was reported that the next steps for ICT in Guyana — in addition to the ongoing integration and infusion of ICT in Education and training — was to (Nathoo, 2014):

- Build a cohesive and comprehensive ICT system for proper data analysis and assessment,
- Design and implement monitoring and evaluation strategies, which will seek to measure progress made and the impact on students’ performance,
- Adopt and implement the Professional Standards for Teachers, and
- Train teachers and lecturers in designing online courses and in the effective use of ODL for programme delivery.

There is no direct reference to OERs in the Education Sector Plan 2014–2018 or the Focal Point Country Report. However, the curriculum materials and learning resources developed by NCERD, although not identified as OERs on the NCERD website, fulfil the criteria for
being considered to be OERs: they are copyright-free and available for distribution in a variety of media formats without cost.

**Prospects and challenges for TEL in Guyana:** Because of its commitment to equitable education for all Guyanese, Guyana has in the past and continues in the present to invest heavily in ICT and TEL to enable students in the riverine areas and hinterland to have good educational opportunities. There is, however, a risk that the theory (expressed in the Education Sector Plan) and the ability of the government to implement the ambitions expressed in the plan may not match. The authors of the plan recognised those challenges and identified the following risks to achieving it (Guyana Ministry of Education, 2014, pp. 58–59):

- Political instability in the country.
- Changes in the Government priorities on which the plan depends. These can occur when the party in power changes or under the same party.
- Economic disruptions that undermine the Government’s funding base for the plan.
- Changes in donor priorities that undermine the funding of the plan.

As well, the COL Focal Point in March 2014 identified the following system challenges to ICT/TEL (Nathoo, 2014):

- Shortage of ICT infrastructure, interactive resources, internet connectivity and trained personnel at all levels,
- Absence of an adequate monitoring and evaluation system,
- Lack of ICT expertise in the system, and
- Lack of “buy in” from all stakeholder including education officials, school Head Teachers, educators, senior teacher trainers and lecturers.


The above list of challenges seems unduly pessimistic, considering the achievement of the preceding Education Sector Plan and the commitment of donors.
Jamaica

Location of Jamaica and geographical features: Jamaica is an island nation of the Greater Antilles. It is located in the northwestern Caribbean Sea, about 145 kilometres south of Cuba and 191 kilometres west of the island of Hispaniola, where Haiti and the Dominican Republic are located. Jamaica measures about 234 kilometres in length and 80 kilometres at its widest point, and is about 11,100 square kilometres in area. Jamaica is the third largest island in the Caribbean and the largest in the Commonwealth Caribbean.

Geographically, Jamaica has three main types of land forms: the central mountain chain formed by igneous and metamorphic rocks; the limestone hills in the Cockpit area; and the low-lying coastal plains and interior valleys. Kingston, the capital, is situated on the Liguanea Plain. Kingston Harbour is the seventh largest natural harbour in the world.

Geopolitical and economic context of Jamaica: Jamaica is a member of the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States and CARICOM.

Jamaica is a politically stable country constructed on a two-party democracy that follows the Westminster model. While a third party emerged briefly in the mid-1990s, that third party was unsuccessful in electing representatives to Parliament and its leader returned to his original party. The third party still exists, but is not a threat in elections.

The two-party arrangement differs from the British, Canadian and United States systems in two important respects: first, Jamaica’s elites, from which the leaders have emerged, are closely knit groups; and second, party identification is the primary political frame of reference, not race or class. Each party has a fiercely loyal inner core defined by family ties and neighbourhood.

The Jamaican economy is heavily dependent on services, which account for nearly 80% of GDP. The country continues to derive most of its foreign exchange from tourism, remittances and bauxite/alumina. While tourism and remittances account for most of the non-borrowed income of the country, bauxite took a serious blow during the global recession in 2009–2010.

The government is currently facing the challenge of having to achieve fiscal discipline to maintain debt payments while simultaneously attacking a serious crime problem that is hampering economic growth. Jamaica’s high unemployment rate is feeding into the crime problem, including gang violence fuelled by the drug trade.

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Information on Jamaica's location and geographical features was retrieved and synthesised from the following websites:
http://www.worldtravelguide.net/jamaica/weather-climate-geography;
http://www.mapsofworld.com/jamaica/jamaica-location-map.html;
Socio-educational contexts of Jamaica: Jamaica’s ethnic mix is so complex and integrated that the country’s motto is “Out of Many, One People.” About 90% of the population are of African origin. Indian and Chinese indentured labourers brought to Jamaica in the mid-1800s mixed with the original African population, although some Indians have not integrated and that ethnic minority is the largest, at 1.5% of the population. Many Chinese, who were shopkeepers and small business owners, emigrated during the 1990s. However, with China’s growing interest in, and financial support of, the country, new Chinese immigrants are arriving in Jamaica in the second decade of the 21st century.

The Jamaican education system is modelled on the British system, leading to the regional CXC and CAPE examinations and opportunities for tertiary education in national community colleges, teachers’ colleges, multidisciplinary colleges, and universities. Education is compulsory to age 16 and free in public primary schools to the end of Grade 6. However, there are many private primary schools with very high fees, too. At the end of primary school, students write a series of tests that make up the Grade Six Achievement Test (GSAT), which provides the teachers in each child’s secondary school with a profile of primary school achievement in English, Mathematics, Social Studies and Science.

School textbooks in English and mathematics are free at the primary level, and made available through a book rental scheme in secondary school (Government of Jamaica, 2015). On the basis of GSAT scores and parental choices, children are awarded places at the secondary level. Competition is fierce for places in what are called “traditional” high schools; students with the highest scores are accepted into the schools for which they apply primarily on the basis of their GSAT scores. Many parents “work the system” to find ways to get their children into a traditional high school at which they assume students will get good preparation for the CXC examinations.

Recently, however, other secondary schools are gaining respect for their achievement. The government has embarked on a programme to upgrade secondary schools to meet the needs of an emerging economy that requires more advanced literacy and mathematics skills. Libraries have been restocked and computers installed with Internet access.

National ICT and ICT in Education policies, strategies and programmes in Jamaica: The Ministry of Education’s implementation plans and policies originate in the National Education Strategic Plan 2012–2020 and correspond with the Education and Training chapter of Jamaica’s Vision 2030, a comprehensive national development plan constructed by 10 consultative committees in 2009/2010. One of the objectives listed in the Education and Training section of Vision 2030 is: “Enhance student learning by greater use of information and communication technology as preparation for life in the national and global communities.” Proficiency in using IT is cited as one characteristic of the benefits of Jamaica’s Education and Training System by 2030. Vision 2030 has been the foundation for the development of Jamaica’s ICT policy and the National Education Strategic Plan 2012–2020.

The Ministry of Science, Technology, Energy and Mining developed a national ICT policy in 2007 and a complementary and a detailed national ICT implementation strategy in 2012, titled E-Powering Jamaica. Under the education and training policy goals and strategies, the focus
is on connectivity rather than use. The strategies with relevant milestones include: “100% of secondary schools with Internet connection (by December 2010),” and “Trained teachers ... equipped to use technology to deliver syllabus (September 2011).” The strategy calls for collaboration among the related ministries and institutions to achieve the milestones, and the Ministry of Education is identified as the Lead Mobiliser.

The University of the West Indies (Mona), through the Caribbean Institute of Media and Communications (CARIMAC), has been training students from across the Caribbean in television, radio and print journalism since 1974. The demand for its services encouraged CARIMAC to expand its programme offerings from Mona to Western Jamaica, and it now offers both Bachelor’s and Master’s degrees.

**ICT access and use in the Jamaica education system:** All of Jamaica’s eight community colleges and the Human Employment and Resource Training (HEART) Trust/National Training Agency offer at least one two-year Associate degree in Information Technology. All 12 teachers’ colleges offer courses in ICT designed for integrating ICT into the curriculum. The University of Technology, Jamaica (UTech) offers two different undergraduate degrees, one in Computing and one in Information Technology. The University of the West Indies (Mona) offers both undergraduate and Master’s degree in Computer Science. The University College of the Caribbean (UCC) offers blended and online programmes in partnership with overseas institutions.

Jamaica has a long history in TEL, ICT and ODL use extending back to the 1950s. Educational broadcasting began in the early 1950s, when educational radio programmes were broadcast live across Jamaica. In 1962, when television first came to Jamaica, the government established the Educational Broadcasting Service (EBS), which broadcast educational television and radio for over 20 years, producing curriculum-based programmes that were aired live and in audio and videotape (and, later, CD formats) for teachers’ classroom use. As funding became more difficult, EBS transformed into the Creative Production and Training Centre (CPTC), which continued to supply curriculum-based audio and visual materials, but was also able to raise its own funds. CPTC now operates as a tertiary provider in Jamaica (the Media Technology Institute), training broadcasters and technical staff for the media.

The long-standing Media Services Unit is the Ministry of Education’s educational media production arm. The unit has responsibility for the development of educational materials in print, audio and audio-visual formats to further enhance the teaching-learning process. Charts, textbooks, picture books, teachers’ guides, instructional audio CDs and DVDs, and other materials are produced through the unit. Media production is accomplished through four areas: Print and Small Media; Television; Audio; and Information and Communications Technology. The Ministry of Education believes that electronic resources will eventually overtake print, and that has spurred the ministry to establish the Educational Broadcasting Network (EBN) — a 21st-century version of EBS (1962–1982) that will broadcast videos and training packages targeted to teachers and resource materials for subjects targeted to students.

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21 At one point, EBS had the enviable reputation as the longest operating educational broadcasting service in the world, having started in the 1950s with radio.
A conference on the use and development of OERs was held in Jamaica in July 2013, funded by the Caribbean Knowledge and Learning Network (CKLN), but to date there has been no concrete development of OER except through e-Learning Jamaica (e-LJam) and the regional CXC Notesmaster.

Emerging from a partnership between the Ministry of Education and Ministry of Science, Technology, Energy and Mining, and funded under the Universal Service Fund, e-LJam is the most recent addition to the TEL family. It was set up in 2005 and is dedicated to supporting the development and use of ICT-based learning in Jamaica.

The e-Learning Jamaica Co. Ltd. is an agency of the ministry responsible for the telecommunications portfolio. The company is funded largely from the Universal Service Fund. Its core functions are to:

- implement the e-Learning project in the high schools,
- promote the integration and infusion of technology in the education system, and
- act as the implementation arm for approved interventions funded through the Universal Service Fund.

In 2006/07, e-LJam collaborated with the Ministry of Education to pilot the integration of ICTs in high school curricula to improve student performance in five Caribbean Secondary Education Certificate (CSEC) subjects by supplementing and enhancing learning experience. Thirty schools were included in the pilot and 1,400 teachers received training in integrating technology into their classroom lessons.

Following the successful pilot in 2006–2007 with 30 institutions, e-LJam implemented the project in 203 institutions, including those offering special education. The project provided a comprehensive set of ICT-based instructional materials for teachers and students in Grades 7–11 for 11 subject areas. Video with sign language was included by the end of the project in 2011. Under this project, a total of 11,000 teachers were trained, and 4,000 of those were secondary and tertiary teachers who were trained in ICT integration. e-LJam also provided thousands of items of educational resources in 11 CSEC subjects free online, fulfilling the statement, “e-Learning is FREE learning.”

e-LJam has a YouTube channel (elearnja) and a free SlideShare site where two years of print lessons with Internet links in 11 CXC subjects are available at no cost. However, as the e-LJam Project Manager observed, “downloads from Moodle are painfully slow.”

Another feature of ICT/TEL access and use especially targeted to teachers and ICT professionals is the semi-annual EduVision Conference and Exposition. Established originally in the early 2000s under an Inter-American Development Bank Project and continued under the Ministry of Education’s Education Transformation Support Program, EduVision brings

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22 The sign language and special education videos will be made available of e-LJam’s YouTube channel.
23 The University of Technology, Jamaica (UTech) is currently conducting an evaluation of the project.
together educators, decision-makers and major actors in the field of TEL to discuss the progress of implementation of ICTs in the classroom and curriculum. The last EduVision Conference was held in March 2014 with the theme, “Transforming Education: Technology Making the Connections.”

At the tertiary level, the Regional Policy Framework for Open and Distance Learning approved by the CARICOM Council of Ministers in 2013 became the substance for the information provided in the University Council of Jamaica (UCJ) in its “Standards for Distance Education (2014),” a publication launched at UCJ’s anniversary conference in 2014.26

The COL Focal Point, at the 2014 Focal Points Meeting in Trinidad, reported that 44 UTech personnel participated in two workshops supported by COL to strengthen their capacity to use online teaching and learning (web-assisted, blended and online) (Marshall, 2014).

UTech has been working in, and exploring, ODL and conducting ODL programmes since 2000. The Faculty of Education, which had actually been offering online and blended courses for almost a decade prior to these two workshops, seemed to benefit the most, because it is reported to have the highest percentage of online courses on offer in 2014.

UTech has been using the Moodle platform — as has UWI through its Open Campus — for teaching courses for almost 10 years and has recently translated a blended teacher training certificate to an online Associate degree offered in Caribbean countries. This programme was developed with the support of COL, piloted and implemented at UTech, and is now a full programme offering in the Faculty of Education and Liberal Studies. The Faculty of Education and Liberal Studies also offers a Master’s degree in Educational Leadership, targeted at principals in Eastern Caribbean countries.

Major initiatives in the Jamaica education system: One initiative announced in the 2013/14 Budget presentation by the Ministry of Education and Ministry of Science, Technology, Energy and Mining was the pilot phase of the distribution of tablets to 38 schools, including infant departments, special education institutions targeting schools deemed to be under-performing academically, and teachers colleges. The pilot cost more than 1.4 billion Jamaican dollars.27

In 2014, e-LJam initiated the pilot of the tablet provision project, which, while experiencing some teething pains, is developing knowledge about strategies that work in the provision of tablets. The Tablets in Schools pilot project distributed 30,000 tablet computer devices to systems administrators, school leaders, community groups, teachers, students and others in 40 educational institutions at all levels throughout Jamaica. To allow for full integration of the tablet devices into the school curriculum from pre-school to high school, e-LJam has supported the use of these devices with Internet access, trained 1,400 teachers, and provided learning materials.28 To date, early in the evaluation phase, there is evidence of marked improvement in student achievement in one parish (St. Ann) and 70% of students have reported that they are using the resources at school. Some publishers have converted their

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26 This booklet is only available for a fee from UCJ.
27 Information provided by Robert Philips, e-LJam Project Manager, interview, May 20, 2014.
28 UTech is conducting an evaluation of the pilot of the Tablets in Schools project.
materials to electronic format,\textsuperscript{29} but in certain places, Internet speeds do not facilitate easy downloads of the materials.

Following the pilot project, future phases of the Tablets in Schools initiative will include the provision of tablets to more than 600,000 students and teachers across Jamaica (Tamim et al., 2015, p. 10).

**Prospects and challenges for TEL in Jamaica:** Jamaica has stated its intention to develop a policy for ICT in Education, but as yet has not progressed beyond articulation of the idea. It may be that with the encouragement of the Jamaica Tertiary Education Commission, the development of that policy could be seen as a priority. The development of OERs to support online courses would be a great advantage to the growth of eLearning. However, ways of engaging the publishers (both in Jamaica and overseas) need to be found.

While online and eLearning look like they will continue to expand without interruption over the next few years, the limiting factors need to be considered:

- **Cost** – Jamaica has severe financial challenges, and large-scale investment in improving ICT infrastructure may limit the expansion of eLearning.
- **Human resources** – Although many graduates from the IT and computing programmes are available at tertiary level in Jamaica, they are having difficulty finding work. Many are emigrating.
- **Student and parent acceptance** – There is suspicion about the credibility of online degrees.

\textbf{St. Kitts & Nevis}

**Location of St. Kitts & Nevis and geographical features**\textsuperscript{30}: St. Kitts & Nevis is a two-island state in the Lesser Antilles, located southeast of Puerto Rico, northwest of Dominica and west of Antigua & Barbuda in the Caribbean Sea. St. Kitts is the larger of the two islands. The Narrows, a three kilometre-wide channel, separates St. Kitts from Nevis. St. Kitts & Nevis is considered the smallest country in the Americas based on its area and population.

Both of the islands are volcanic with sandy beaches. The highest point in the two islands is Mount Liamuiga on St. Kitts. The circular-shaped Nevis is surrounded by coral reefs and the island is dominated by a single mountain, Nevis Peak.

\textsuperscript{29} The learning materials and content e-LJam provided on the tablets were purchased.

Geopolitical and economic context of St. Kitts & Nevis: St. Kitts & Nevis is a member of the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States, CARICOM and the Organisation of Eastern Caribbean States. St. Kitts & Nevis has been independent since 1983.

The island of Nevis enjoys a certain amount of autonomy within the federal structure. It has its own Premier and legislature in the union and has the right to secede if certain procedures are followed.

Sugarcane cultivation, which was once the staple of the economy, declined with the collapse of international markets and ceased in 2005. Tourism has replaced it as the most important economic sector. There is some light industry on St. Kitts and on Nevis, but no manufacturing. St. Kitts & Nevis is also trying to nurture the growth of a financial services industry in its economy.

Socio-educational contexts of St. Kitts & Nevis: About 95% of the population of St. Kitts & Nevis are descendants of African slaves imported to work in the sugar plantations. English is the language of business. It is estimated that children have approximately 11.5 years of education.

Education is compulsory and free in St. Kitts & Nevis. An overview of the sector of interest to this research was presented by the Minister of Education, Nigel Carty, in a speech to the Commonwealth Network (Carty, 2014):

[St. Kitts and Nevis has] ... a literacy rate of 98 percent. It was the first Commonwealth Caribbean country to introduce free universal secondary education when it did so in 1968. At the pre-primary level (Early Childhood Education), 70 percent of the children are enrolled in formal education. A fundamental goal of education as enunciated in the Education Act (2005) is to provide access to high-quality education for all nationals...the greatest achievement of the education system in St. Kitts and Nevis is the existence of a network of free public schools that are highly accessible and reasonably well-resourced. Computer labs, libraries and reading clinics are common in our schools. Students are provided free transport to and from school, and receive free textbooks. Recently, an initiative was undertaken to provide laptop computers to every secondary school student. Students in primary schools are provided with lunch on a daily basis.... The quality of basic education is impacted by the relatively low percentage (50 percent) of fully-trained teachers.

... St. Kitts and Nevis cannot sustain a full tertiary level educational institution at this time. Students attend universities located within the wider Caribbean region, North America and the United Kingdom, principally. This arrangement has impacted the cost of tertiary education and consequently the number of persons accessing it. Herein lays one of the greatest challenges in the education sector.

Although there is a well-established tertiary institution operating in St. Kitts & Nevis — in Clarence Fitzroy Bryant College offering Associate’s degrees, Bachelor’s degrees and
Diplomas — given the Minister’s perspective on the financial viability of face-to-face tertiary education in St. Kitts & Nevis, ICT and TEL have much promise in the state.

**National ICT and ICT in Education policies, strategies and programmes in St. Kitts & Nevis:** St. Kitts & Nevis published the *National Information and Communications Technology (ICT) Strategic Plan* in November 2006 with a projected lifetime of five years. The rationale for this ICT plan was “to provide the framework whereby Information and Communication Technology (ICT) can become a lead sector of the economy of St. Kitts and Nevis” (Government of St. Kitts & Nevis, 2006, p. 19). To achieve its plan, the government indicated the need to develop “the widest possible level of ICT literacy through inclusion of ICT in formal and informal education and the training of teachers and instructors” (p. 5). The plan called for 10 initiatives to strengthen and/or develop ICT literacy:

- Providing vocational training to upgrade the existing ICT workforce.
- Providing lifelong learning through community access points (for the general public).
- Expansion of ICT instruction in the primary and secondary schools
- Training teachers to be able to use ICTs in the curriculum with the support of the Curriculum Development Unit and Educational Planning Unit in the Ministry of Education.
- Establishing an Education Management Information System (EMIS).
- Supporting the building of and training in open source applications and software.
- Supporting the creation of a national or regional consortium to negotiate licences for software, serving as a distribution hub for these materials, facilitating sharing of efforts in the use of Internet-based distance education modalities, and supporting the development of a national and regional inter-library loan system.
- Supporting the creation and use of digital libraries.
- Giving strong support to educational institutions, including the Clarence Fitzroy Bryant College and UWI to use ICTs in the delivery of education and the possible emergence of an open university.
- Supporting the concept of CKLN and C@ribNET.

The government foundation of ICT development in educational sectors has been a strong impetus to ICT growth and development in St. Kitts & Nevis. COL assisted St. Kitts & Nevis to develop a draft ICT in Education policy in October 2013, which awaits approval. The draft ICT in Education policy includes OER within its ambit.

**ICT access and use in the St. Kitts & Nevis education system:** St. Kitts & Nevis has been involved in providing ICT access in schools since 1998. All schools at the primary and secondary levels have access to computers and instruction in ICT. Primary students use software to build their skills in Mathematics and Language Arts. MIT’s One Laptop per Child was initiated in 1998 and completed in 2002, providing computer labs in all public primary schools.

Building on the primary school initiative, the One2One Laptop Project, which was initiated in 2011, is providing laptops to all secondary school students beginning in Form 1. Originally funded in 2011/2012 by the Republic of China, Taiwan, the project has continued to be
funded by the Federation Government in 2013/2014. An important component of this project was the provision of technical support to address any hardware difficulties students confronted with their laptops and the inclusion of a monitoring and evaluation component to gather data annually on the progress of the project.

UWI Open Campus offers courses in online and in blended formats. The Associate degree in Teacher Education offered at Clarence Fitzroy Bryant College is offered at a distance.

**Major initiatives in the St. Kitts & Nevis education system:** To support the laptop provision in secondary schools, the EDUNET Education Network was established in March 2014. It is designed to provide connectivity for all public secondary schools in the Federation. EDUNET is a project of the National Telecommunication Regulatory Commission (NTRC) and was spearheaded by the Department of Technology. The EDUNET infrastructure was constructed at a cost of USD1.2 million. The broadband service and maintenance of the network is provided by the telecommunications provider LIME.

**Prospects and challenges for ICT/TEL in St. Kitts & Nevis:** It appears there is now a strong ICT infrastructure in St. Kitts & Nevis which provides opportunities for expanding TEL and ODL in the country’s educational institutions. As a first step, it would be useful for the Ministry of Education to pass the draft policy for ICT in Education that COL assisted in drafting in 2013, updating the national information and communications strategy’s education focus of 2006. Certainly, an area where there is perceived need for support to maximise ICT/TEL use in the education system is in the area of teacher training. As reported by the COL Focal Point at the Focal Points Meeting in Trinidad in 2014 (Lloyd, 2014):

> Current issues hindering the implementation of ICTs in the classroom include the lack of ICT skills/certification of teachers, both basic and advanced and the lack of teacher accessibility to training and other resources due to financial constraints. There is also the need to increase the capacities of teachers ... to respond more effectively to the expectations and needs of 21st Century students through innovative secondary education programmes.

Lloyd also reported that the Ministry of Agriculture was seeking assistance in training people in the area of video/audio processing and editing to prepare training videos for farmers.

St. Kitts & Nevis is a member of the Research and Education Network (OREN) of the Organisation of Eastern Caribbean States (OECS). This provides the opportunity to expand online and blended programme access and researcher use of OREN at Clarence Fitzroy Bryant College. However, as yet there is little information about St. Kitts & Nevis’ planned involvement in OREN or about whether the college has identified plans for using OREN to the benefit of tertiary students.

The most formidable problem with the operation of the Research and Education Networks — including OREN — is sustainable funding to facilitate their ongoing operation. Although Marcellus Albertin, Director of OECS’ Education Development Management Unit, has been named as Chair of OREN, there is no St. Kitts & Nevis-named counterpart identified on the CKLN website to represent the interests of St. Kitts & Nevis and Clarence Fitzroy Bryant College on OREN.
St. Lucia

Location of St. Lucia and geographical features: Situated between the Caribbean and the Atlantic Ocean, St. Lucia is the second largest of the Windward Islands in the Eastern Caribbean. It lies north of St. Vincent, northwest of Barbados and just south of Martinique. St. Lucia’s terrain is of volcanic origin, and it has a chain of wooded mountains from which rivers flow into fertile valleys. The island is known for the Pitons, two volcanic peaks on the west coast of the island, its interior rain forests and waterfalls, and volcanic beaches. Fishing villages and luxury resorts co-exist along the coast.

Geopolitical and economic context of St. Lucia: St. Lucia is a parliamentary democracy modelled on the Westminster system. It achieved full independence in 1979. The actual power in St. Lucia lies with the Prime Minister and the Cabinet, usually representing the majority party in parliament. It is a member of the Organisation of East Caribbean States, the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States and CARICOM.

St. Lucia has been able to attract foreign business and investment, especially in its offshore banking and tourism industries. However, tourism is St. Lucia’s main source of jobs and income, accounting for 65% of GDP, and is the island’s main source of foreign exchange earnings. The manufacturing sector is the most diverse in the Eastern Caribbean area. Crops such as bananas, mangos and avocados continue to be grown for export, but St. Lucia’s once solid banana industry has been devastated by strong competition (Index Mundi, 2014c). St. Lucia has experienced anaemic economic growth since the onset of the global financial crisis in 2008, largely because of a slowdown in tourism.

Socio-educational contexts of St. Lucia: St. Lucia’s population is predominantly of African and mixed African-European descent, with small East Indian and European minorities. English is the official language, although many St. Lucians speak a French patois. About 90% of the population is Roman Catholic, a further reflection of early French influence on the island.

St. Lucia’s Education Act stipulates compulsory education up to age 16. St. Lucia has achieved universal primary education, and by 2010/2011 had made good progress toward universal secondary education, with a Gross Enrolment Rate (GER) of 98.4% in secondary school in 2010/2011. Several international donors are assisting the Ministry of Education, Human Resource Development and Labour to strengthen St. Lucian education: the Commonwealth Secretariat is funding a project to address male underachievement and gender disparities in subjects taken at secondary level; the Caribbean Development Bank is supporting the training of special education teachers; and the EU is funding a project to integrate ICT into teaching.

As is the case in most countries of the Commonwealth Caribbean, the education system is based on a British model. Students write a national examination at the end of Grade 6 and the regional CXC examinations at the end of Grade 11. They may go on to study one or two years more to write Caribbean Advanced Proficiency Examination (CAPE) subjects, or they may go to Sir Arthur Lewis Community College (SALCC), which offers CAPE subjects and programmes up to the Bachelor’s degree level in Arts, Agriculture, Education, and Technical Education (including Computer Systems Engineering).

**National ICT and ICT in Education policies, strategies and programmes in St. Lucia:** St. Lucia’s recent planning and policy documents all refer to the importance of ICT in the education system. One of the key objectives of St. Lucia’s *Education Sector Development Plan 2009–2014* is “Expand the use of information and communication technologies (ICT) in teaching/learning to ensure that all learners are computer literate, can apply ICT to their daily lives, and enhance their employment opportunities” (Government of St. Lucia, 2009, p. 13).


> Foster the use of ICT in education to develop human capacity, enhance competitiveness, modernize the teaching and learning environment, facilitate equity of access, and to develop individuals who are capable of functioning effectively in a technologically driven society.

St. Lucia’s most recent “Draft Policy for the ICT Integration in the Education System” was submitted in May 2013, but has not yet been adopted. It addresses the following policy areas to guide the integration of ICT in the education system:

- ICT for Curriculum and Professional Development
- Planning and Management of ICT Initiatives
- ICT for Administration
- Partnerships in ICT Initiatives
- Monitoring and Evaluation of ICT Initiatives
- Sustainability of ICT Initiatives

There are, however, no policies on OERs, open licensing or distance education.

**ICT/TEL access and use in the St. Lucia education system:** Recently, because of the EU’s primary school-focused provision of infrastructure and teacher training in ICT integration, more emphasis is on ICT availability and use in primary schools. However, all secondary schools have computer labs with Internet connections.

The *Comprehensive Situational Analysis of ICT Services and Resources: Final Report* (Ernest, 2011) reported teachers’ overwhelmingly positive attitudes toward using ICTs in primary schools and their classes as a result of implementing of the EU’s Education
Enhancement through Information Communication Technology Programme. Teachers believed that ICT in class lessons were important and they were positively inclined toward ICT use. However, they also reported that some of the constraints to their using ICTs in their classes were the lack of availability of software and training opportunities.

The project also funded workshops for teachers, enabling them to obtain an Advanced Certificate in Education–ICT Integration, which was offered online. The certificate was offered by SALCC and is modelled on the UNESCO ICT Competency Framework for Teachers and the Commonwealth Certificate for Teacher ICT Integration.

The following ministries and institutions are involved in using or implementing and supporting TEL in St. Lucia:

- Ministry of Public Service, Information and Broadcasting
- Ministry of Sustainable Development, Science and Technology
- Ministry of External Affairs, International Trade and Civil Aviation
- Ministry of Finance and Economic Affairs
- National Telecommunications Regulatory Commission through the Universal Service Fund
- local telecommunications firms
- Sir Arthur Lewis Community College (SALCC)

Beginning in September 2015, UWI Open Campus, SALCC and the Organisation of American States’ Education Portal of the Americas will offer courses using TEL or online learning in St. Lucia.

**Major initiatives in the St. Lucia education system:** According to Germaine Anthony, Curriculum Specialist, Technology Integration, Curriculum and Materials Development Unit (CAMDU) of the Ministry of Education, there are 10 discrete ICT-in-education initiatives in St. Lucia. These are (G. Anthony, 2014, supplemented by e-mail communication, 2015):

1. One Laptop per Child (Form three level students and up, and all teachers in secondary schools). Donors include the Governments of St. Lucia, Venezuela and Taiwan. Objectives include:
   a. To enhance the learning environment for students (to reflect 21st Century classroom)
   b. To improve the quality of instruction via the infusion of ICT in teaching and learning
   c. The development of 21st Century skills in students
   d. To reduce the inequity in access to computers and information among students
   e. To raise student achievement through specific interventions (such as improving through the use of education software)
   f. To facilitate the development of collaborative teaching and learning (student/student, teacher/student, teacher/teacher)
2. Technology Integration Training for Teachers (To train 750 in-service teachers over three years). Donors include the Governments of St. Lucia and Taiwan and the OAS Education
Portal of the Americas. The goal is to establish an effective means for improving teachers’ ICT competencies and promote continuing professional development in ICT.

3. High speed Internet access at all schools (To provide a minimum of 10Mbps for primary schools and 25Mbps for secondary schools. Possible donors include the Universal Service Fund and various telecommunication companies)

4. Campus Wi-Fi network access at all schools (To provide Internet access in classrooms at all schools. Possible donors include the Universal Service Fund and various telecommunication companies)

5. Digital curriculum content (To provide digital alternatives to approved textbooks and supplementary materials. Discussions are ongoing with textbook publishers for eBook solutions. No specific funding is yet identified. Some free supplementary materials for CXC and primary school curriculum have been sourced online and are being shared with and through teachers.)

6. Learning Intervention Software/tools (To provide specialised learning resources for literacy and numeracy interventions. AutoSkill® is currently installed in 20 schools and six additional learning centres. This is funded in part by the World Bank and the European Union. Learningtoday.com® was piloted successfully but funds were not found to continue. Destination Math®, which was funded by the National Insurance Corporation is soon to be re-launched)

7. Technology for Special Learning Needs (To provide access and specialized learning resources for students with different learning needs. Potential donors include the Universal Service Fund)

8. Online Learning Platform or portal (To extend teaching and learning activity beyond the classroom. Only OERs are being considered. Currently promoting CXC Notesmaster e-learning platform at secondary school. Some schools are on their own championing the use of Edmodo, Khan Academy and Edu 2.0 eg. http://cicss.edu20.org )

9. Uniform Education Management Information System (Evaluating options including OpenEmis, OpenSIS and Maplewood. All funding is from the Government of St. Lucia)

10. Testing, Grading and Assessment Software Solution (To improve efficiency and flexibility in testing, grading and assessment procedures. A pilot of a Lexmark solution is underway. A new national exams database has been created. The aim is to reduce expenditure while increasing functionality.)

This is a formidable list of initiatives and will need careful monitoring and evaluation to ensure that the initiatives collaborate and interact with each other and leverage opportunities for partnerships.

**Prospects and challenges for TEL in St. Lucia:** The diversity of ICT initiatives listed indicates an extraordinarily strong commitment to and interest in ICTs in education in St. Lucia. The integrated set of policies and their commonality of purpose indicate that at the policy level there is strong commitment to introducing and using ICTs and TEL in the education system.

The note of caution to be sounded, however, is to ensure that the momentum is not lost because of the number and variety of activities underway, and to ensure that a monitoring and

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32 This initiative seems to be exploring the possibility of OERs.
evaluation system follows the initiatives to document lessons learned and document successes that can be shared across the region.

**St. Vincent & The Grenadines**

**Location of St. Vincent & The Grenadines and geographical features**: Comprising 32 islands and cays, St. Vincent and the Grenadines are located in the Windward Islands in the Lesser Antilles at the lower end of the Caribbean chain. They are situated between Grenada 120 kilometres to the south, St. Lucia 43 kilometres to the north and Barbados 160 kilometres to the east. The total area of St. Vincent & The Grenadines covers 388 square kilometres. St. Vincent is a volcanic island of steep mountain ridges, valleys and waterfalls.

**Geopolitical and economic context of St. Vincent & The Grenadines**: St. Vincent & The Grenadines is a parliamentary democracy patterned on the Westminster model. It is a member of the United Nations, the World Trade Organization, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States, CARICOM and the Organisation of East Caribbean States. St. Vincent & The Grenadines gained full independence from Britain in 1979.

Although its economy is based primarily on agriculture and (in the Grenadines) tourism, St. Vincent & The Grenadines has diversified its economy relative to many countries in the region. Yachts and shipping vessels are its largest exports. It has continued to maintained strong trade ties with the EU, particularly France.

As part of its membership in international bodies, St. Vincent & The Grenadines frequently has the opportunity to make presentations. At the United Nations Third International Conference on Small Island Developing States in September 2014, the country’s Foreign Minister highlighted the challenges facing small island developing states (SIDS), including: their exclusion from international decision-making bodies; the use of GDP to determine development assistance or relief; the overwhelming debt burdens of the Caribbean’s SIDS and anaemic post-crisis growth; and the refusal of large countries to acknowledge the urgency of attention to climate change issues (Gonsalves, 2014). This summary of challenges facing the SIDS applies to St. Vincent and the Grenadines and its economy.

**Socio-educational contexts of St. Vincent & The Grenadines**: Most of the population of St. Vincent lives in the coastal areas and the main valleys of the interior. About a quarter of the people live in the capital, Kingstown and its suburbs. About 8% of the population lives on the

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Grenadine Islands. Most of the people are of African descent. However, a small percentage of the population are of Amerindian/black, European, East Indian and Carib origin.

The school system follows the same model as most other countries in the Caribbean do, and students write examinations to complete primary school and move on to secondary school. At the end of secondary school, students write the regional CXC examinations, and if they continue on for another one or two years, they sit for the CAPE examinations.

There is one tertiary institution, St. Vincent and the Grenadines Community College (SVGCC), and the regional UWI Open Campus also offers courses online and by blended modalities.

The major internationally funded education project is under the EU 9th Framework Agreement, and the current project follows on an education project targeting primary schools. This iteration of the project is “Improvement of Education through the Use of Information Communication Technology in Secondary Schools.” However, the project has included the upgrading and development of ICT for teaching and learning at SVGCC where, in 2014/2015, there were 2,000 students enrolled. This number marks a sizeable increase, which is due to the implementation universal secondary education. Facilities at the upgraded college feature improvements in infrastructure to facilitate improved ICT at the college: a 5 MB cable under the SMART project. The SVGCC teacher training programme includes two courses in ICT Integration in the Classroom.

**National ICT and ICT in Education policies, strategies and programmes in St. Vincent & The Grenadines:** In September 2010, the Ministry for Telecommunications, Science, Technology and Innovation launched the *National Information and Communication Technology Strategic and Action Plan 2010-2015.* The strategy noted that (Government of St. Vincent & The Grenadines, 2010, pp. 44–45):

> The process of acquiring hardware and connecting schools to the Internet has accelerated over the last 3 years ... [while] most institutions have Internet access via the principal office/lab, the number of students per PC in ... [schools and tertiary institutions] is 55:6, which is not optimal. The number of students with Internet connectivity is 9.7 per 100 primary school students and 6.4 per 100 secondary school ... three (3) major initiatives will significantly improve or provide additional infrastructure, namely:
>  - The EU-funded ICT in Education Project
>  - The use of the Universal Service Fund to enhance connectivity for school and household access to wireless broadband
>  - The Laptop Project which will enable a level playing field.

The companion *St. Vincent and the Grenadines National Economic and Social Development Plan 2013–2025* also includes references to the role of ICT in Education and the larger society under two of its goals (Government of St. Vincent & The Grenadines, 2013, pp. 59 and 65–66):

> a) Goal One: Re-engineering Economic Growth includes the strategic interventions,
>  - To develop the Information and Telecommunications services sector and
• Formulate and implement a clearly focused national policy for information and communication technology interventions.

b) Goal Two: Enabling Increased Human and Social Development includes a strategic intervention to increase the use of ICT in the delivery of the curricula at all levels: primary, secondary, tertiary, TVET and adult and continuing education.

The intention stated in the latter plan for 2013–2025 is to develop an ICT in Education policy. In May 2013, COL assisted St. Vincent & The Grenadines to draft such a policy, which is now awaiting approval. The policy includes sections on open licensing to make all educational materials developed with public funds be available as OER.

**ICT access and use in the St. Vincent & The Grenadines education system:** As well as the establishment of an education portal under the EU Framework in 2011, ICT access in primary schools improved markedly with the issuing of laptops under the One Laptop per Child programme funded by Portugal and Venezuela. All children in Grades 2–5 were issued netbooks; and the following year, students in Grades 7–11 were issued laptops. The government’s initiative to improve connectivity supported the utility of the netbooks. Teachers and Ministry of Education personnel were trained in ICT integration from the beginning of when the netbooks were issued.

**Major initiatives in the St. Vincent & The Grenadines education system:** The EU’s 9th European Development Fund supports major improvements in access to and use of ICT/TEL in secondary and tertiary education. The availability of increased bandwidth will support increased ICT access and use at all levels of education. The availability of connectivity in community development centres across St. Vincent means that adult learners will also have the potential for access to ICT.

In 2011, under the EU Framework Agreement, staff at SVGCC were trained in the use of Moodle for teaching courses online or using blended strategies and in incorporating ICT into lessons and the curriculum. At present, the network system at SVGCC facilitates instructors’ delivering courses online that students can access synchronously (i.e., in real time online) or asynchronously (i.e., via a recording of the class).

At the 2014 Focal Points Meeting in Trinidad, the Focal Point for St. Vincent & The Grenadines reported that (Gilchrist, 2014, p. 1):

> The St. Vincent and the Grenadines Community College (SVGCC) is working steadfastly to offer online courses to off-campus students. In the interim, the College has been using its Moodle open source learning platform to offer some blended mode courses to some of its on-campus students. At the moment, some tutors use a mixture of online and face-to-face tutoring in delivering some of their courses at the college. The College is working to offer full online TVET programmes to off-campus students by the beginning of the academic year 2014–2015.

**Prospects and challenges for TEL in St. Vincent & The Grenadines:** Because of the strong government support for ICT in Education and the EU project, which is still continuing, the outlook for ICT/TEL in education is favourable. However, to reduce the government
investment in textbooks and resources for children in school, the approval of the ICT in Education policy and its implementation would support TEL/ICT in the curriculum.

The COL Focal Point identified the priorities for strengthening ICT/TEL in the education system in St. Vincent & The Grenadines as (Gilchrist, 2014):

- Enhance the competence of the Education Officers, school administrators and teachers to harness ICT effectively to support high quality teaching, learning / skills development as well as human resource management and development (EMIS) in all educational institutions.
- Further support the St. Vincent and the Grenadines Community College in introducing flexible learning modalities to reach remote communities in our multi-island state and strengthen the policy framework for ICT and ODL.

**Trinidad & Tobago**

**Location of Trinidad & Tobago and geographical features**: Located in the Lesser Antilles, Trinidad & Tobago are the southernmost islands in the Caribbean, located only 11 kilometres off the coast of Venezuela. The two islands form the state of Trinidad & Tobago.

**Geopolitical and economic context of Trinidad & Tobago**: Trinidad & Tobago function as a single state operating under a parliamentary democracy built on Britain’s Westminster model. Trinidad & Tobago achieved independence in 1962. It is a member of the United Nations, the World Trade Organisation, the African, Caribbean and Pacific group of countries, the Non-Aligned Movement, the Organization of American States and CARICOM. As a member of CARICOM and the Commonwealth, Trinidad & Tobago has strong geopolitical ties with other Caribbean countries, the United States, Canada and Britain. Countries external to the region (e.g., China) have recently been showing interest in developing ties with Trinidad & Tobago.

According to the World Factbook: Trinidad and Tobago (2015):

Trinidad and Tobago attracts considerable foreign direct investment from international businesses, particularly in energy, and has one of the highest per capita incomes in Latin America…. GDP has contracted during 2009-2012 due to depressed natural gas prices and changing markets. Growth had been fuelled by investments in liquefied natural gas, petrochemicals, and steel…. Trinidad and Tobago is the leading Caribbean producer of oil and gas, and its economy is heavily dependent upon these resources. It also supplies manufactured goods, notably food products and beverages, as well as cement to the Caribbean region. Oil and gas account for about 40 percent of GDP and 80 percent of exports, but only 5 percent of employment….

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The country is also a regional financial center with a well-regulated and stable financial system. Other sectors the Government of Trinidad and Tobago targeted for increased investment and projected growth include tourism, agriculture, information and communications technology, and shipping.

**Socio-educational contexts of Trinidad & Tobago:** Trinidad & Tobago has one of the most ethnically diverse populations in the Caribbean. Approximately 40% of the population are East Indian in origin, 37.5% are of African origin and 20.4% are “mixed.”

Education is highly valued in Trinidad & Tobago and is free from primary to the end of undergraduate level in approved tertiary institutions (UWI, the University of Trinidad and Tobago, and the University of the Southern Caribbean). School attendance is compulsory for ages five to 15. At the end of the primary cycle, students sit the Secondary Entrance Assessment (SEA); and at the end of secondary school, they sit the regional Caribbean Secondary Education Certificate (CSEC) examinations. After one or two years of further study, students sit the regional CAPE examinations in selected subjects. According to UNICEF statistics (2012), 90.4% of females and 84.1% of males attend secondary school (UNICEF, 2013).

The National Training Agency of Trinidad and Tobago (NTATT) is a member of Caribbean Association of National Training Agencies (CANTA) and has a vibrant programme targeted at TVET institutions and learners. The agency is responsible for monitoring and improving the quality of vocational training in Trinidad & Tobago. It provides services in standards setting, development of National Vocational Qualifications (NVQs), and employer assistance (NTATT, 2015).

**National ICT and ICT in Education policies, strategies and programmes in Trinidad & Tobago:** Trinidad & Tobago has developed and approved five strategy documents related to ICT in the past 12 years. The country’s first national ICT strategy was the *National Information and Technology Plan*, also referred to as “fastforward”. The government revised and updated the plan, publishing it in May 2013 as *smarTT: The National ICT Plan 2014–2018* (Government of the Republic of Trinidad and Tobago, 2013).

In addition to these two strategy papers, Trinidad & Tobago has drafted the following:

- *Draft Policy for Information and Communications Technology in Education* (Ministry of Education), September 30, 2005
- *eConnect and Learn Programme Policy* (Ministry of Education), September 23, 2010 (listed as draft in version available online)
- “Open and Distance Learning Policy Framework: Managing Open and Distance Learning Opportunities for Education in Trinidad and Tobago” (Ministry of Tertiary Education and Skills Training), Vers. 2, January 2014 (draft; not yet available online)

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35 This document is no longer accessible online. It is referenced in the *smarTT: National ICT Plan 2014–2018*. 

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ICT access and use in the Trinidad & Tobago education system: Under the original “fastforward” plan (2003), all government secondary schools were to receive 34 computers (a computer lab) and teachers were to receive training on integrating ICTs into the curriculum through the National Institute of Higher Education, Research and Technology (NIHERST), community college professional development courses, and Microsoft Partners in Learning. In the Draft Policy for Information and Communications Technology in Education (2005), plans for equipping schools, training staff and incorporating ICT in the curriculum were also articulated. However, it is unclear to what extent that initial 2003 strategy and the 2005 policy were able to achieve their plans, and at a press conference in May 2014, “the Ministry of Education announced plans to incorporate ICT in the curriculum in a variety of ways, including the rollout of tablets and whiteboards, and partnering with Intel to initiate a pilot of smart classrooms in 20 schools.”

The important achievement of the original 2003 strategy and the 2013 strategy was that they articulated the realisation that ICT needed to be on the forefront of the educational agenda, and students and teachers needed to have access to the technology to enable Trinidad & Tobago classrooms to address the requirements of a 21st-century curriculum.

However, as the COL Focal Point for secondary education and teacher education in Trinidad & Tobago pointed out, there are still gaps in the topics and objectives of the ICT secondary school curricula (S. Hyatali, e-mail communication, June 4, 2015):

> The gaps may have originated as a result of misunderstanding or limited appreciation of the role of media in ICT fluency and national development.... The most significant stride in addressing this shortcoming has been the introduction of a CXC subject at CAPE level in Digital Media (effective 2014), which is a competency-based programme that engages students in exploring all aspects of media including digital imagery, digital graphics, digital video and digital audio. These topics can be approached using OERs sourced on the Internet.

Significant omissions exist in the CSEC Information Technology syllabus. In fact, the media do not feature among the range of objectives and content to be delivered. At the lower secondary level, the new ICT curriculum addresses video creation and graphics.

Major initiatives in the Trinidad & Tobago education system: The renewal of the 2003 “fastforward” plan in the 2013 smarTT: The National ICT Plan 2014–2018 is a central initiative to continue the work of incorporating ICT into the education system. However, the new national ICT strategy is more comprehensive and wide-reaching in its scope, objectives, intended outcomes, support systems, training, partnerships and monitoring and evaluation strategies than the original plan. This strategy can attract international and private sector partners to collaborate in its implementation.

The thematic area “Innovation and Human Capital Development” is the first of five in the new draft national ICT policy and is at the centre of the smarTT document, emphasising the

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36 See news article at http://www.newsday.co.tt/politics/0,194736.html.
37 However, Trinidad & Tobago cannot address this alone. Any curricular changes to CXC and CAPE syllabi are decided by and agreed upon by representatives of all CARICOM countries.
imperative to change traditional ways of learning in order to foster creative and innovative thinking. This change will be accomplished by expanding and integrating ICTs into learning processes across all levels of education, and by fostering an environment that addresses different learning styles. As noted by the government (2013, p. 27), the aim of the 2014–2018 strategy is to encourage a society that is both comfortable and adept at ICT usage and application:

The acquisition of ICT skills is a crucial first step for employment in the new digital economy. Training is a key requirement to address the growing demand for an ICT savvy workforce. A formalised training programme that caters to the different levels of ICT competencies across both the public and private sectors is necessary to build an e-Ready workforce. In addition to introducing a formalised ICT training programme, ICT courses must be internationally accredited to ensure that ICT training and certification is globally recognised. Further, interest in ICT must be cultivated from an early age and sustained on an on-going basis, given that the ICT landscape is dynamic, and citizens must keep abreast of changes.

The strategy documents the following steps to develop a society and workforce equipped with relevant ICT competency skills:

- Upgrade ICT facilities in learning institutions and ICT capabilities of school administrators and educators in order to better integrate ICT school administration and teaching methods
- Establish ICT as a mainstream subject at the primary and secondary school levels
- Set up computer clubs at various levels of education to raise media and technical awareness
- Host innovation technology competitions to energise the creative classroom and develop new technologies
- Engage in Public Sector Resource Development to ensure a dynamic public sector workforce that is able to utilize ICTs to improve government efficiency.

The key imperative, “Building an e-Ready Society through ICT Enriched Learning,” cites the following programmes to achieve it (Government of the Republic of Trinidad and Tobago, 2013, p. 30):

- Computers and connectivity for all
- Create a system/culture to challenge traditional ways of thinking
- M-learning
- Develop an ICT Training Framework
- Integrate human capital development, education and training with industry needs

There are two major educational initiatives in Trinidad & Tobago’s ICT integration plans:

**eConnect and Learn (eCAL)** – This programme provides laptop computers to secondary school students. The first phase of eCAL involved the provision of laptops to students entering Form 1 having successfully completed the 2010 Secondary Entrance Assessment (SEA). According to the Government of the Republic of Trinidad and Tobago (2013, p. 17):
The eCAL Programme, or Student Laptop Initiative, is an initial step in realizing a comprehensive programme of educational transformation. Through the programme, approximately sixteen thousand laptops are provisioned each year to students entering secondary school. These laptops are used to deliver curriculum and enhance the learning process.

**Trinidad and Tobago Research and Education Network (TTRENT)** – TTRENT is an ICT Research and Education Network promoted by and using C@ribNET as the ICT link. TTRENT was launched in 2012 and is a dedicated fibre-based network connecting tertiary-level institutions, research centres, training facilities, research laboratories, schools and other appropriate sites nationally, regionally and internationally. The eight major partners in TEL in Trinidad & Tobago are:

- Ministry of Education
- Ministry of Science and Technology
- Ministry of Tertiary Education and Skills Training (TEST)
- College of Science, Technology and Applied Arts of Trinidad and Tobago (COSTAATT)
- National Institute of Higher Education, Research, Science and Technology (NIHERST)
- University of the West Indies (UWI), St. Augustine Campus
- University of the West Indies (UWI), Open Campus
- University of Trinidad and Tobago (UTT)

There are 29 public and private academic institutions in Trinidad & Tobago partnering with a total of 49 offshore institutions to offer degrees and internationally accredited certification such as the Association of Chartered Certified Accountants (ACCA). Some of these programmes are offered in blended format and others are fully online. UWI St. Augustine hosts the Open Campus courses in Trinidad & Tobago.

This formidable list of institutions, ministries and policies can lead to confusion and overlap. Part of the challenge in Trinidad & Tobago is keeping straight which entity is responsible for which programme.

**Prospects and challenges for TEL in Trinidad & Tobago**: There is no question that many exciting opportunities exist for the advancement of ICT/TEL in Trinidad & Tobago’s future, given its national ICT plan, its ODL policy framework and its eConnect and Learn programme. In fact, the multiplicity of initiatives and government and private players presents the greatest potential danger to the success of ICT/TEL in Trinidad & Tobago: with so many important and useful initiatives in operation or about to roll out, the challenge is how the major partners will recruit/hire and retain the human resources and acquire the monies necessary to implement all of the strategies in a meaningful way. Prioritising the programmes and their activities and remaining in touch with what each initiative is doing will be extremely important. Communication between and among the programmes should be the first priority in order to undertake activities in an orderly fashion.
4 SUMMARY OF FINDINGS AND IMPLICATIONS

Overview of the Region

The 12 Member States of the Commonwealth Caribbean are frequently lumped together and considered homogenous because they are all relatively small in size (except Guyana, although it has a relatively small population); they have populations that are largely an ethnic mix of African, East Indian and Chinese; they are members of the Commonwealth; and they have English as their official language.

However, each country is in fact distinct and has developed a unique perspective on the region, the larger world community and its nation’s place in that community. Collectively, these 12 countries have the potential to leverage themselves as a block in the larger world community (as intended with the formation of CARICOM and the OECS) – but, because of their individual commitment to their respective individualities, they are often unable to do so.

Location of the Commonwealth Caribbean states: All 12 of the states are located in or border on the Caribbean Sea. Ten are island states and two are located on the mainland (Belize in Central America and Guyana in South America). Because of their location, most of these countries have a flourishing tourist trade, especially in the cold months in northern countries. Tourists arrive by air and, more recently, by cruise ship. Even Guyana is capitalising on the tourist trade, primarily eco-tourism and travel to the country’s interior rainforests and waterfalls.

Population of the Commonwealth Caribbean states: Jamaica has the largest population with 2.7 million people. Trinidad & Tobago has 1.3 million people and Guyana has just over 780,000. The smallest populations are in St. Kitts & Nevis, with 55,000 people; Dominica, with 72,000; and Antigua & Barbuda, with 93,000 people. The total population of 6.5 million across all the countries is only 1.3% of the population of their neighbours of the Caribbean Basin, Latin America and South America. The English-speaking Commonwealth Caribbean countries are surrounded by neighbours who speak Spanish, Portuguese, French and Dutch.

Land size of the Commonwealth Caribbean states: The three largest countries in land mass are Guyana, Belize and Jamaica. Guyana has the largest land mass, but its population is approximately 28% that of Jamaica. Because its population is so small relative to its land mass and geographical challenges, Guyana has difficulty in communicating easily with its citizens in the coastal areas and the hinterland.

Geographic considerations: Because of their relatively small size and proximity to the sea, all 12 countries face the threats of climate change and rising sea levels. The Leeward and Windward island countries and Jamaica annually face hurricane threats. As well, Jamaica faces the same earthquake threats as Haiti does, with both sitting on the same fault line.

Economic status: With the exception of Trinidad & Tobago, which has a petroleum-based economy, the rest of the countries are in varying degrees of economic difficulty. Some governments inherited their financial challenges from their predecessors; some simply find it
difficult to build a vibrant, internationally competitive economy on such a small population base. Several countries have debt-to-GDP ratios in excess of 65%, and St. Kitts & Nevis and Jamaica have debt-to-GDP ratios well above 100%. These massive debt ratios have led to the International Monetary Fund being brought into several countries. The result is a reduction in social services and the inability of the countries’ economies to address fundamental social services and public sector wage increases. It has also limited the countries’ ability to address existing problems in innovative ways.

In the current economic situation, the citizens of many countries depend on remittances from relatives who have gone abroad to work. Unfortunately, given the reality of shrinking economies and loss of manufacturing and business, many of the most highly trained graduates of the tertiary system are also forced to go abroad to find work. Once they go, even though they initially anticipate returning home, many stay overseas, only visiting on annual vacations.

The increase in crime and violence in many of these small economies is the result of several factors, including the seemingly unrestricted influx of guns, the inability of police and security forces to address crime in a meaningful way, the use of several countries as drug trans-shipment points, and the lack of economic opportunity for youth in the formal economy.

**International Relationships**

Ten of the 12 Commonwealth Caribbean countries are small island developing states. In 2014, all 12 countries were categorised as having High Human Development. All are members of the United Nations, the World Trade Organization, the Commonwealth, the Non-Aligned Movement, the Organization of American States and CARICOM. The six smallest states make up two-thirds of the members of the Organisation of Eastern Caribbean States. All are members of the Virtual University for Small States of the Commonwealth (VUSSC), and two countries’ representatives (The Bahamas and Trinidad & Tobago) sit on the VUSSC Management Committee.

**Donors and International Funding Agencies Supporting the Commonwealth Caribbean Countries**

The World Bank, Inter-American Development Bank, Caribbean Development Bank, UNESCO, UNICEF, USAID, CIDA/DFATD, and the EU all have either major national or regional projects in the Commonwealth Caribbean. The EU has a standing development framework in place for St. Vincent and the Grenadines; CIDA/DFATD is supporting CARICOM with regional projects in skills development, Human Resource Development and poverty alleviation. The Caribbean Development Bank funds projects across a diversity of sectors in Members States economies including education, through CARICOM, the OECS, and with individual countries (Caribbean Development Bank, 2015). The Commonwealth

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38 A recent UWI survey of graduates found that more than 80% anticipated having to move to North America or the UK to find work when they graduated. At UTech, a Career Services Office is dedicated to trying to find work for graduates.
Secretariat, The Commonwealth of Learning and several private donors (e.g. the Hewlett Foundation, the Gates Foundation, Microsoft) work with individual countries in areas related to education and ICTs in education.

It is worth noting that the recent interest of Brazil, Russia, India, China and South Africa (sometimes referred to as the BRICS) presents a new development support opportunity to the Caribbean, although primarily in debt relief, and infrastructure (Jessop, 2014).

**ICT and ICT in Education Policy Development in the Commonwealth Caribbean**

Commonwealth Caribbean countries have embraced ICTs for a variety of reasons, not least of which is that they see ICTs as answering their formidable communication needs and contributing positively to their growth and economic development in the 21st century. However, not all countries have placed the same importance on developing an ICT in Education policy, or even integrating ICTs into the broad base of the operations of their tertiary institutions. In 2015, there are five of 12 countries that do not have a national ICT in Education policy, and three of the countries acknowledged having an ICT in Education plan actually have discussions of ICT in Education situated in another document.\[^{39}\]

Beginning in the late 1990s, several countries developed national ICT policies, focusing on building national ICT infrastructure, anticipating that a strong ICT infrastructure would encourage growth of the sector nationally. However, although many countries were able to attract donor funds to strengthen the ICT sector, the acquisition of hardware and software alone did not guarantee economic growth or development. The equipment and infrastructure acquisition needed to go hand-in-hand with human resource development, which actually lagged behind the equipment acquisition in many cases.

Recently, because of initiatives by COL and private sector partners like Microsoft and the Hewlett Foundation, some countries have been able to make significant advances in the ICT for development agendas. Antigua & Barbuda is an example of such advances. However, in several other countries, while there have been theoretical advances in ICT in Education, the governments have yet to put a viable ICT in Education policy in place and pass the necessary legislation to support its contents. Instead, they point to their national ICT strategies, which acknowledge the necessity for training of students in ICTs but understate the need to train teachers and instructors in ICT integration into the curriculum.

Two countries that have been invested in TEL, ODL and ICT in Education for decades are worthy of mention:

- Jamaica, because of: its educational radio broadcasts that began in the 1950s; UWI Mona’s long-standing educational radio station supporting its continuing education

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\[^{39}\] See Appendix 2. Guyana, Jamaica and St. Lucia have strategies for ICT in Education located in a different document, although Guyana’s draft ICT in Education policy has yet to be approved or released to the public.
programmes; and the inclusion of public educational television in 1962 in the Broadcast Bill that introduced television to Jamaica; and

- Guyana, because of demanding — as a result of geographical challenges in accessing students in parts of the country that are remote and difficult to reach from Georgetown — the introduction of distance education strategies both through the Ministry of Education and the University of Guyana’s Institute of Continuing Education (ICE).

Jamaica’s broadcasting and ICT initiatives are robust and long-standing. Therefore, it seems that it has determined that its national development plan, *Vision 2030*, is sufficiently attentive to ICT in Education policy needs, therefore, doing away with the needs to develop another policy.

Guyana has lately come to developing a national ICT in Education policy that addresses ICTs, OERs, open licensing, training, curriculum development and infrastructural support. However, it began ODL with the BEAMS project, and established a government-funded Centre (NCERD) to manage all ICT- and distance-related initiatives.

Trinidad & Tobago has recently launched several ICT in Education initiatives, managed by several different ministries and institutions. All of the initiatives are apparently well funded and operational, but the government has noted that there is need for an ICT in Education policy, presumably to rationalise the various different projects and facilitate their collaboration with each other to the benefit of the students, teachers and general public.

**OERs and Open Licensing in the Commonwealth Caribbean**

Interests in OER policy and open licensing were expressed by participants in workshops organised by COL. In fact, however, there is little evidence of OERs being used in Commonwealth Caribbean countries, with some exceptions, for example:

- NCERD’s learning materials and continuing professional development materials for teachers in Guyana;
- the Caribbean Examination Council’s (CXC’s) *Notesmaster*, which is available to all CXC students pursing CXC subjects across the region;
- the materials being developed under the aegis of Jamaica’s e-LJam project, supplying learning resources to students and training materials for teachers;
- the programming developed for the Bahamas Learning Channel;
- the Educational Broadcast Network (to come) in Jamaica; and
- the St. Vincent & The Grenadines web portal;
- Antigua & Barbuda’s open textbook project supported by the Commonwealth of Learning

The reality is that on its website, CXC makes a point of the fact that its curricula, syllabi and learning materials are copyright protected.

Nevertheless, it should be noted that UWI Open Campus does provide free learning materials in their eLearning courses. It is unclear whether these are OERs or materials whose cost is
included in the students’ course fees, or whether, where government provides tertiary education at no cost to the students, the governments are paying for these learning materials.

**Availability of ICT Programmes and Courses across the Commonwealth Caribbean**

All tertiary institutions in the Commonwealth Caribbean are offering programmes in IT, Computing, Computer Engineering or Computer Science, Computer Maintenance, Media Design or other ICT-related study. The exception is Dominica State College, where there is no programme related to ICT in any faculty, although there is evidence of the expectation that lecturers will use Moodle as a teaching support system. However, a review of college literature and brochures does not reveal any carefully designed approach to integrating ICT into the curriculum or to studying IT or ICTs to acquire skills in their use. It would be necessary to visit each of the colleges and discuss the faculty programmes, plans and use of ICTs on a regular basis to address this issue more completely.

Nevertheless, UWI Open Campus operates online in all of the Commonwealth Caribbean countries. The Caribbean Institute for Media and Communication (CARIMAC) located at UWI Mona in Jamaica, offers theoretical and practical studies in media and film production, television (broadcast and recorded), and digital media. CARIMAC also offers Master’s degrees in areas of communication and marketing. However, whether the curricula of these programmes include study of OERs and open licensing is unknown.

**Projected Teacher/Instructor Training in ICTs and Their Integration into Curriculum**

The area most often stressed as necessary to integrate ICT and TEL into the curricula in all of the Commonwealth Caribbean countries is teacher/instructor training. This is so even in Jamaica, where 11,000 teachers have been trained to date. Furthermore, even those who have already received training in various projects need further training, because of the limited scope of project-related training and the changes that are always ongoing in technology and curriculum approaches over time.

**Gaps in ICT Integration in the Commonwealth Caribbean**

From this baseline study, the following areas have been identified as being in significant need of attention in order to better integrate ICT and TEL in education in Commonwealth Caribbean countries:

- ICT in Education policy development – The Bahamas, Barbados, Grenada, St. Kitts & Nevis and St. Vincent & The Grenadines do not have an ICT in Education policy.
- National open licence policy development – All countries and tertiary institutions need to explore how open licensing can positively impact their education and training.
- Expanded Internet penetration – Improvements are needed in Belize, Grenada, Guyana, Jamaica and St. Lucia.
• Reliable upload and download speeds – Improvements are needed in Antigua & Barbuda, Belize, Guyana, and Grenada.
• Greater availability of mobile devices – Improvements are needed in Belize and Guyana.
• ICT policy and implementation – Improvements are needed in all countries in the development and integration of ICT policy and uses in the curricula of tertiary and TVET institutions.
• OER development and use (and policy integration in ICT into Education policy) – Improvements are needed in all countries, except Antigua & Barbuda, The Bahamas, and Trinidad & Tobago.
• Curriculum development – Improvements are needed in in teacher training institutions in all countries for pre-service and in-service teachers in the integration of ICT into the classroom.
• Curriculum and strategies for training of teacher trainers in ICT integration – Improvements are needed in all countries.
• Training in materials development, open licensing, OERs and integration of ICTs in curricula – Improvements are needed in all countries for curriculum and planning units in Ministries of Education, and for practising teachers and teacher trainers.
• Monitoring and evaluation of ongoing projects, plans and implementation impact – Lessons learned and success stories need to be documented so that others can learn and use best practices.
APPENDIX 1: TERMS OF REFERENCE FOR THE BASELINE STUDY

1.1 The Consultant shall be responsible to:

1.1.1. Prepare a Baseline study report for Technology Enabled Learning in the Caribbean Commonwealth countries of Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, and Trinidad and Tobago covering:

1.1.1.1. Country-wise status of ICT in education, including the availability of policies related to Information, Communication and Technologies (ICT), ICT in education, Open Educational Resources (OER), etc.
1.1.1.2. National priorities and initiatives on ICT in education, including presence of major donors and their activities in the area of Technology-enabled Learning;
1.1.1.3. Identification of key agencies/institutions and Ministries involved in Technology-enabled Learning;
1.1.1.4. Identification of institutions offering courses using technology (especially online learning) and availability of institutional policy for eLearning/ Technology-enabled Learning;
1.1.1.5. Availability of OER repositories in different subjects, and identify gaps in the topics/subjects related to Media and ICT skill development;
1.1.1.6. Estimate of approximate number of teachers to be trained in the next 6 years in the area of Technology-enabled Learning in each of the countries;
1.1.1.7. Estimate of approximate number of students studying ICT and Media related courses in each of the countries;

1.1.2. Critically examine the data gathered to prepare the country-wise reports and present consolidated tables as appendices;
1.1.3. Provide links to all policy documents and sources identified and reported in the report;
1.1.4. Prepare the report using the indicative outline given in Annex-1, in about 40 pages, excluding appendices, and use APA 6th edition reference style; and
1.1.5. Provide periodic updates to COL on a regular basis over the term of the contract on the status of the activities undertaken, upcoming schedules and any issues or problems encountered.

*Note from the consultant: The length of the report has become longer than expected due to more information available on the subject matter, and it was important to cover these to give a relatively complete picture.*
APPENDIX 2: SUMMARY OF FINDINGS FOR THE BASELINE STUDY OF TECHNOLOGY-ENABLED LEARNING IN THE COMMONWEALTH CARIBBEAN

<table>
<thead>
<tr>
<th>Questions</th>
<th>Antigua &amp; Barbuda</th>
<th>The Bahamas</th>
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<th>Trinidad &amp; Tobago</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT in Education policy (Yes/No). If yes, give link to source.</td>
<td>Yes (^{40})</td>
<td>No</td>
<td>No</td>
<td>Yes (^{41})</td>
<td>Yes (^{42})</td>
<td>No</td>
<td>Yes (^{43})</td>
<td>Yes (^{44})</td>
<td>NO</td>
<td>Yes (^{45})</td>
<td>NO</td>
<td>Yes (^{50})</td>
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<tr>
<td>Year of ICT in Education policy; and is revision due?</td>
<td>2013 No</td>
<td>N/A</td>
<td>N/A</td>
<td>2011 No</td>
<td>2004 Yes</td>
<td>2006 Yes</td>
<td>2006 Yes</td>
<td>2011 No</td>
<td>2013 (draft) Yes</td>
<td>No</td>
<td>2013 No</td>
<td>2010 No</td>
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<tr>
<td>ICT in Education policy covers OER? (Yes/No)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes, in the draft (supported by COL)</td>
<td>No</td>
<td>Yes, in the draft (supported by COL)</td>
<td>No</td>
<td>No</td>
<td>Yes, in the draft (supported by COL)</td>
<td>No</td>
<td>Yes, in the draft (supported by COL)</td>
<td>Yes</td>
</tr>
</tbody>
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\(^{50}\) [http://moe.edu.tt/laptop_info/eConnect_and_Learn_Policy.pdf](http://moe.edu.tt/laptop_info/eConnect_and_Learn_Policy.pdf)
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<th>Trinidad &amp; Tobago</th>
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<tbody>
<tr>
<td>ICT in education policy cover gender issues? (Yes/No)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Yes</td>
<td>No</td>
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<tr>
<td>National Open Licence Policy available (Yes/No). If yes, give link.</td>
<td>No</td>
<td>No</td>
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<td>No</td>
<td>No</td>
<td>No</td>
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<td>Open licence policy for projects/institutions (give name of the project/institutions with link to the policy).</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>NCERD</td>
<td>N/A</td>
<td>No</td>
<td>No</td>
<td>SVG Learning Portal (EU)</td>
</tr>
<tr>
<td>Major OER repositories (give name and link).</td>
<td>Ministry of Education, Sports, Youth, and Gender Affairs^52</td>
<td>N/A</td>
<td>CXC Notes-master^53</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>NCERD</td>
<td>e-learn Jamaica^55</td>
<td>N/A</td>
<td>N/A</td>
<td>Star.tt^56</td>
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<tr>
<td>Institutions offering online programmes (give links).</td>
<td>UWI Open Campus^57</td>
<td>College of The Bahamas^59</td>
<td>UWI Open Campus^60</td>
<td>UWI Open Campus^61</td>
<td>UWI Open Campus^62</td>
<td>UWI Open Campus^63</td>
<td>University of Guyana^65</td>
<td>with UWI Open Campus^67</td>
<td>UWI Open Campus^72</td>
<td>UWI Open Campus^73</td>
<td>UWI Open Campus^74</td>
<td>SVG</td>
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</table>

^56 [http://www.star.tt/free-online-courses](http://www.star.tt/free-online-courses)
^57 [https://www.open.uwi.edu/antigua_barbuda/](https://www.open.uwi.edu/antigua_barbuda/)
^58 [http://abiit.edu.ag/](http://abiit.edu.ag/)
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<tr>
<td>T.A. Marry- show Community College</td>
<td>University of Technology Jamaica</td>
<td>Northern Caribbean University</td>
<td>Community College</td>
<td>Universi- ty of Trinidad and Tobago</td>
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59 http://www.cob.edu.bs/Academics/schools/cees/onlinelearning.php
60 https://www.open.uwi.edu/barbados/
61 https://www.open.uwi.edu/dominica/
62 https://www.open.uwi.edu/dominica/
63 https://www.open.uwi.edu/grenada/
64 http://www.uog.edu.gy/
65 https://www.open.uwi.edu/jamaica/
66 https://www.open.uwi.edu/st_kitts_nevis/
67 https://www.open.uwi.edu/st_lucia/
68 https://www.open.uwi.edu/st_vincent_grenadines/
69 https://www.open.uwi.edu/trinidad_tobago/
70 http://www.tamcc.edu.gd/
71 http://www.open.ac.uk/
72 http://www.utech.edu.jm/
73 http://www.utech.edu.jm/
74 https://www.ncu.edu.jm/
75 http://www.ucc.edu.jm/ucc-online/st-vincent-grenadines
76 https://u.tt/index.php?ict=1
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Institutions with institutional policy for eLearning/technology-enabled learning (give name and link)

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<td>UWI Open Campus</td>
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<td>UWI Open Campus</td>
<td>UWI Open Campus</td>
<td>UWI Open Campus</td>
<td>Open University UK</td>
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<td>Edna Manley College of the Visual and Performing Arts</td>
<td>All teachers colleges</td>
<td>Univeristy of Belize</td>
<td>Galen University</td>
<td>University of Technology Jamaica</td>
<td>University College of the Caribbean</td>
<td>University College of the Caribbean</td>
<td>University of Technology Jamaica</td>
<td>Clarence Fitzroy Bryant College</td>
<td>OAS Portal for the Americas</td>
<td>OAS Portal for the Americas</td>
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71 http://emc.edu.jm/programmes/
78 https://www.open.uwi.edu/antigua_barbuda/about-us
79 http://www.open.uwi.edu/about/welcome-uwi-open-campus
80 http://www.cob.edu.bs/Academics/schools/cees/onlinelearning.php
81 http://odlubb.edu.bz/
82 http://www.galen.edu.bz/redefining-online-learning
83 http://www.utech.edu.jm/
84 http://www.ucc.edu.jm/
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86 http://www.cfbc.edu.kn/
87 http://salcc.edu.lc/
88 http://www.oas.org/en/scholarships/educationalportal.asp
89 http://www.ucj.org.jm/
90 http://www.fosigrid.org/caribbean/antigua-and-barbuda
91 http://www.ckln.org/home/sites/default/files/Bahamas_Blueprint_-_B_&_F%5b1%5d.pdf
92 http://www.thebahamaslearningchannel.com/page/page/7340015.htm
93 http://www.guyanalearningchannel.com/web/
94 http://www.elearnja.org/
95 http://www.thestkittsnevisobserver.com/2014/03/14/edunet.html
97 http://sygedfpmcu.com/
98 http://moe.edu.tt/laptop_info/eConnect_and_Learn_Policy.pdf
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99 http://www.stte.gov.tt/MediaCentre/News/tabid/255/articleType/ArticleView/articleId/55/Trinidad_and_Tobago_Research_and_Education_Network_TTRENT.aspx
100 http://www.education.gov.ag/
102 http://www.bahamaseducation.com
103 http://mes.gov.bb/
104 http://www.moe.gov.bz/
105 http://education.gov.dm/
106 http://www.ckln.org/home/content/oecs-sub-regional-research-education-network-oren
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112 [http://www.ckln.org/home/content/oecs-sub-regional-research-education-network-oren](http://www.ckln.org/home/content/oecs-sub-regional-research-education-network-oren)
113 [http://education.govt.lc/](http://education.govt.lc/)
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<th>St. Lucia</th>
<th>St. Vincent &amp; The Grenadines</th>
<th>Trinidad &amp; Tobago</th>
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</thead>
<tbody>
<tr>
<td>Estimated number of students enrolled annually in Media and ICT courses (in tertiary and TVET institutions)</td>
<td>100</td>
<td>130</td>
<td>250</td>
<td>50</td>
<td>N/A</td>
<td>50</td>
<td>150</td>
<td>750</td>
<td>100</td>
<td>n/a</td>
<td>n/a</td>
<td>250</td>
</tr>
<tr>
<td>Estimated number of teachers to be trained in TEL (in six years)</td>
<td>1,200</td>
<td>1,800</td>
<td>3,000</td>
<td>1,800</td>
<td>1,800</td>
<td>3,000</td>
<td>1,800</td>
<td>5,000</td>
<td>1,200</td>
<td>1,000</td>
<td>1,300</td>
<td>3,000</td>
</tr>
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</table>

119 https://u.tt/index.php?ict=1
References and Documents Consulted

http://www.ckln.org/home/sites/default/files/OER%20Workshop_Resources_Links_0.pdf


University Council of Jamaica. (2014). Standards for Distance Education. Kingston: UCJ.


