



**CARICOM-SPECIFIC
ICT4D
(CS-ICT4D)
INDICATORS
FRAMEWORK**

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LIST OF ACRONYMS

CARICOM	-	Caribbean Community
CS-ICT4D	-	CARICOM-Specific Information and Communication Technology for Development
CSMDG	-	Caribbean-Specific Millennium Development Goal
DEL	-	Direct Exchange Line
ICT	-	Information and Communication Technology
ICT4D	-	Information and Communication Technology for Development
IMT	-	International Mobile Telecommunications
ISCED	-	International Standard Classification of Education
ISDN	-	Integrated Services Digital Network
ITU	-	International Telecommunications Union
LAN	-	Local Area Network
MDGs	-	Millennium Development Goals
NSOs	-	National Statistical Offices
PCs	-	Personal Computers
PDA	-	Personal Digital Assistant
PIAC	-	Public Internet Access Centre
PSTN	-	Public Switched Telephone Network
RICTSC	-	Regional Information and Communication Technology Steering Committee
SMS	-	Short Message Service
TV	-	Television
3G	-	Third Generation
UN	-	United Nations
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation
VoIP	-	Voice over Internet Protocol
WAN	-	Wide Area Network
WEF	-	World Economic Forum
WSIS	-	World Summit on the Information Society

INTRODUCTION

A set of core indicators for Information and Communication Technologies for Development (ICT4D) is necessary to guide decision making for ensuring the derivation of maximum benefits to all stakeholders. The framework developed herein addresses some of the questions raised relative to Information and Communication Technology (ICT) in the Region, and possible indicators that can be collected to answer them. The objective is to try, as much as possible, to answer these questions, which will serve to inform policy and can potentially be essential statistics that will spur action in order to take advantage of the global reach of the Internet in terms of export of Regional products. This would be done by picking-up these CARICOM-specific indicators (CS-ICT4D) in addition to the ones proposed by the Partnership for Measuring the Information Society. The concerns or issues are nested within themes which are incorporated within the broad categories proposed by the Partnership. This is necessary for there to be a dataset that will allow for international comparability at the “aggregated” level, while at the same time highlighting the issues that are of special interest to the Region.

In developing a core set of indicators relevant to the CARICOM Region, four (4) areas are considered:

1. the goals, targets and corresponding performance indicators (work plans) of the other sub-committees of the Regional ICT Steering Committee (RICTSC) (i.e., excluding the Statistics ICT Sub-Committee);
2. the review by the Statistics ICT Sub-Committee of the issues, concerns, and relevance of ICT to the Region;
3. the core set of indicators developed by the Partnership on Measuring ICT for Development and adopted by participants at the World Summit on the Information Society (WSIS); and
4. Millennium Development Goals (MDGs) (Targets and Indicators).

Data are to be gathered from a demographic perspective wherever possible, that is, by urban/rural, age, education, income, gender, race, etc.

In what follows, the four areas that can inform the Region’s ICT4D statistics are discussed.

DEVELOPMENT OF THE INDICATORS FRAMEWORK

1) Goals, targets and corresponding performance indicators (work plans) of the other sub-committees of the RICTSC (that is, excluding the Statistics ICT Sub-Committee)

In addition to the Statistics ICT Sub-Committee, the RICTSC includes sub-committees on:

1. Capacity Building;
2. Access, Connectivity and Internet Governance;
3. Regional Partnership;
4. Legal and Regulatory Framework; and
5. Business, Trade, Culture and Disaster Management.

At the Meetings of Sub-Committees 1, 2, 4 and 5, held in October 2008 in Barbados, Actions Plans¹ were developed, parts of which are reproduced and incorporated in this indicators framework. Statistics will be required to inform the implementation of some of the Actions, as well as to measure the performance and effectiveness of the Actions. The importance of demographics was stressed so as to be relevant to specific target groups.

In addition to the Action Plans, the Meetings of the Sub-Committees listed other issues for further consideration² (such as VoIP, e-Commerce, etc.), which were taken into account in the development of the indicators framework for the Region.

2) Considerations by the Statistics ICT Sub-Committee based on its own review of the issues, concerns, and relevance of ICT to the Region

The Statistics Sub-Programme has made presentations on ICT statistics at various fora in the past. Suggested indicators from these meetings (Advisory Group, Standing Committee of Caribbean Statisticians, etc) are also included in this indicators framework. In addition, elements of the data structure were identified at the First Meeting of the CARICOM Advisory Group to Establish a Core Dataset for the Region with Focus on Statistics on Information Communication Technology (ICT) held in Grenada (2002). The proposed data structure elements include indicators on ICT infrastructure and access, ICT expenditures, ICT business, ICT business and government environment, computers and the Internet, ICT earnings. Some sources cited for data on ICT include the websites of United Nations Educational, Scientific and Cultural Organisation (UNESCO), the International Telecommunications Union (ITU), the World Economic Forum (WEF), and the World Bank. As far as possible, these have been incorporated within this framework. Although the suggestion of an approach similar to that of Tourism Satellite Account was discussed at the Grenada meeting, indicators on production and trade of ICT products are included in this framework albeit currently without a satellite account.

At the Second Meeting of the ICT Sub-Committee on Statistics held in Barbados February 2009, the members identified some Caribbean-Specific Themes along with issues and concerns

¹ICT/SC(Sub)2008/1/Rep – Report of the Meetings of the Sub-Committees of the Regional Information and Communication Technologies (ICT) Steering Committee.

² ICT/SC(Sub)2008/1/Rep – Report of the Meetings of the Sub-Committees of the Regional Information and Communication Technologies (ICT) Steering Committee.

and attempted to develop corresponding indicators. These are crucial to the Region and are incorporated in the development of the framework.

3) Core set of indicators developed by the Partnership on Measuring ICT for Development

The Partnership on Measuring ICT for Development is an international multi-stakeholder³ initiative to improve the availability and quality of ICT data and indicators. Some National Statistical Offices (NSOs) from advanced countries are also members and contribute to the Partnership's activities by providing expertise and advice to NSOs from developing countries as well as in the transfer of knowledge in areas such as methodologies and survey programs.⁴

The Partnership, in late 2005, released a set of Core Information and Communication Technology (ICT) Indicators (41 ICT indicators and one reference indicator). This was during the Tunis phase of the Work Summit on the Information Society. In 2007, the United Nations (UN) Statistical Commission, at its 38th session, endorsed this core list of ICT indicators. The Commission encouraged countries to use the core list in their data collection programmes. ICT is recognised as a rapidly evolving area; hence, the Partnership has continued to improve and update the list of ICT indicators. In 2008, the Partnership made considerable progress in the revision and addition to the core list of indicators. It presented proposals for revisions to the current core list of ICT indicators and a proposal to include a set of indicators to measure ICT in education (8 ICT education indicators and one reference indicator). A revised core list of **46 ICT indicators and two reference indicators** was released in 2010, which encompasses the most recent changes to the definitions to reflect technological changes and the addition of new services.

The Partnership was encouraged by the Commission to develop indicators to measure the use of ICT in government, the contribution of ICT to economic growth and social development, and barriers to the use of ICT.

This core set, being harmonized internationally, can be used when comparing the Region to other countries and can be used as a base. However, these indicators alone are not adequate to inform policy, measure, and guide the development process that will positively impact most in the Community.

4. United Nations (UN) Millennium Development Goals (Targets and Indicators) and Caribbean Specific Millennium Development Goals

³Current members of the Partnership are the International Telecommunication Union (ITU); the Organisation for Economic Cooperation and Development (OECD); the United Nations Conference on Trade and Development (UNCTAD); the United National Educational, Scientific and Cultural Organisation's Institute for Statistics (UIS); the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC); the United Nations Economic and Social Commission for Western Asia (UNESCWA); the United Nations Economic and Social Commission for Asia and the Pacific (UNECA); the United Nations Economic Commission for Africa (UNECA); the United Nations Department for Economic and Social Affairs (UN-DESA); EUROSTAT; and the World Bank. <http://www.itu.int/ITU-D/ict/partnership/> (accessed February 24, 2010).

⁴<http://www.itu.int/ITU-D/ict/partnership/fomap.html> (accessed February 24, 2010).

The indicators on ICT required to measure the achievement of the Millennium Development Goals (MDGs) have been incorporated in the Social/Gender Component of the CARICOM Programme to enable the measurement of these variables as an interim measure while the framework for ICT Statistics is being developed. Once the framework is developed the MDG indicators would be duly incorporated in this data system. ICT Statistics are needed to monitor and measure the progress towards the achievement of internationally agreed goals.

To be achieved by 2015:

Millennium Development Goals (MDGs): Goal 8 of the MDGs includes the target 18 “in cooperation with the private sector, make available the benefits of new technologies, especially information and communications” to all countries; indicators 47, 48A, and 48B.

World Summit on the Information Society (WSIS) Targets (Annex II): the WSIS highlighted the importance of ICT measurement in order to track and evaluate the digital divide and benchmark information society developments and the performance of countries, through comparable statistical indicators and a composite index.

METADATA

Each of the indicators is presented with the following information and includes definitional material, method of calculation, and comments on associated statistical issues (and in some instances model questions):

- The themes and issues or concerns;
- The name of the indicator and a brief description;
- Definition of the ICTs covered by the indicator e.g. fixed telephone lines, mobile broadband subscribers;
- How the indicator is calculated;
- Classificatory variable;
- Data source; and
- Remarks, justification/relevance notes.

CARICOM-SPECIFIC CORE ICT4D INDICATORS

While infrastructure and access indicators are more widely available, indicators on ICT use (for example by households and businesses) are less frequent. Some indicators currently available, mainly from the decennial census of individuals and households and in other instances from household, business establishment, or special surveys, include:

- Access to the Internet
- Use of Internet, mobile cellular telephone and computer, and other devices
- Type of Internet connection
- ICT equipment, appliances or other facilities available for use
- Training and economic activity in ICT-related occupations and industries

Hence the core list of ICT4D indicators for the CARICOM Region should include those indicators which are currently available and those which are deemed necessary to measure and monitor progress in ICT4D in the Region. The recommended minimum core list of indicators for the CARICOM Region is outlined in Table 1.

Table 1
CORE LIST OF INDICATORS FOR THE CARICOM REGION

Indicators	Data Source
1) Number of persons with access to the Internet	Census
2) Location of Internet access in the last 3 months	Census
3) Number of mobile cellular telephone users	Census
4) Number of users or computer	Census
5) Number of users of various ICT devices	Census
6) Number of households with Internet connection	Census
7) Type of Internet connection used by households	Census
8) Equipment, appliances or devices used by households	Census
9) Number of households with computers by type of computer	Census
10) Individuals trained for ICT-related profession, trade, or craft	Census
11) Number of individuals employed in ICT industries	Census
12) Number of individuals employed in ICT occupations	Census
13) Number of households with electricity	Census

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance	
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source		
1	Information Literacy⁵						
1.1	Supply						
1.1.1	Print (newspapers)	1	Number of newspapers per 1,000 inhabitants	Refers to the total number of newspapers expressed in relation to the population of the country. <i>Newspapers are organization that provides voice or data transmission services, such as Digicel and Cable & Wireless.</i> <i>Number of newspapers per 1,000 inhabitants is calculated by dividing the number of newspapers by the total population and then multiplying by 1,000.</i>			
1.1.2	Radio	1	Number of radio stations registered to operate per 1,000 inhabitants				
		2	Number of radio sets per 1,000 inhabitants				
1.1.3	Television	1	Number of television channels per 1,000 inhabitants				

⁵The capacity of people to recognize their information needs; locate and evaluate the quality of information; store and retrieve information; make effective and ethical use of information, and apply information to create and communicate knowledge (UNESCO (2008). Towards Information Literacy Indicators. p. 7).

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/ Justification/ Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		2	Number of television stations registered to operate per 1,000 inhabitants					
		3	Number of television sets per 1,000 inhabitants					
1.1.4	Journalists	1	Print journalists per 1,000 inhabitants					
		2	Broadcast journalists per 1,000 inhabitants					
		3a	Enrolment in Journalism and Information			Level		
		3b	Graduates in Journalism and Information			Level		
1.1.5	Broadcast content	1a	Percentage of annual radio broadcasting time devoted to news					
		1b	Percentage of annual radio broadcasting time devoted to local news					
		2a	Percentage of annual television broadcasting time devoted to news					

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		2b	Percentage of annual television broadcasting time devoted to local news						
		2c	Percentage of annual television broadcasting time devoted to (local) education and science.						
		2d	Percentage of annual television broadcasting time devoted to (local) health information programming.						Also a health indicator
1.1.6	Online media	1	Number of online local newspapers per 1,000 inhabitants						
		2	No of local Internet radio stations per 1,000 inhabitants						
		3	Percentage of communities with government internet access centres by the number of inhabitants						
1.1.7	PCs	1	Number of PCs per 1,000 inhabitants						
1.1.8	Libraries	1	Number of libraries by parish/region				Urban/Rural Parish/Region Total Population Type e.g. mobile library		

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		2	Library employees per 1,000 inhabitants			
1.1.9	Availability: - Newspapers	1	Total weekly newspapers circulation, and per 1,000 inhabitants			
1.1.10	- Radio	1	Percentage of households with a radio			
1.1.11	- TV	1	Percentage of households with a TV			
1.1.12	- Online media	1	Percentage of households with Internet access			
		2	Number of Internet subscribers per 1,000 inhabitants			
		3	Percentage of schools with an Internet connection			
1.2	Information Reception					
1.2.1	Newspapers	1	Percentage of households/ persons reporting they have read a newspapers			

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/ Justification/ Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
1.2.2	Radio	1	Percentage of households/ persons reporting they read a newspaper					
1.2.3	TV	1	Percentage of households/ persons reporting they watch TV					
1.2.4	Online media	1	Percentage of households/persons reporting they use online media					
		2	Percentage of households/ persons reporting they use they Internet					
1.2.5	Use of libraries	1	Percentage of households/ persons reporting they borrow newspapers, books or magazines					
1.3	Skills							
1.3.1	Literacy	1	Literacy rate					
1.3.2	Literacy skills	1	Level of literacy				May be difficult to measure	
1.3.3	ICT skills in schools	1	Percentage of teachers with formal training in ICT					

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		2	Percentage of schools with PCs used for educational purposes			
1.3.4	Languages	1	Percentage of people speaking minority languages			
2	Health					
2.1	ICT facilities available in health care institutions	1	Percentage of health care institutions with Internet access			
		3	Percentage of hospitals with wireless Internet			
		3	Percentage of health care employees who use the Internet for research or referencing			
		4	Percentage of health care facilities with a LAN and WAN			
		5	Percentage of hospitals with available television service			
2.2	Use of ICT to reduce processing time of prescriptions, patients, statistics	1	Percentage of health care institutions with computerized medical records			

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
3	Policy and Regulatory Framework					
3.1	Harmonised policies to foster and regulate use of ICTs	1	Number of legislations enacted within the past 12 months			
4	Culture/Creative Industry					
4.1	Local businesses and artistes	1	Number of local businesses in creative industry with web presence			
		2	Number of local artistes with website			
		3	Percentage of local artistes who use ICT to produce and sell work			
4.2	Libraries	1	Number of electronic libraries and archives			
4.3	Museums	1	Number of museums with websites			

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
4.4	Online organizations and groups	6	Number of Caribbean organisations and groups online						
5	Building Human Capacity								
5.1	The development of information literacy programmes	1	Number of centralised data centres and online government services						
		2	Number of community access points established						
		3	Number of community-based learning centers						
		4	Number of persons per computer in community center						

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/ Justification/ Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		5	Number of school children per computer					
		6	Number of children exposed to ICT					
		7	Number of hours dedicated to train students in ICT					
		8	Number of schools using ICT to deliver courses					
		9	Enrolment in online courses					
5.2	Human resource capacity and skill set and sensitisation of e-work	1	Number of vacancies requiring ICT skills					
		2	Proportion of teaching staff that is ICT literate					
		3	Number of teachers using ICT					
		4	Number of ICT vocational programmes offered					

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/ Justification/ Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		5	Number of persons trained in ICT vocation					
5.3	Broadband expansion	6	Number of fomalised e-work arrangements					
		1	Number of available technology or access points					
		3	Cost per kbit					
		4	Number of broadband providers					

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance	
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source		
1	ICT Infrastructure and Access						
1.1	ICT Sector Liberalisation						
1.3	Tele-density						
		6	Number of mobile cellular telephones per person	<p>Refers to the number of mobile cellular telephone per person.</p> <p><i>Mobile cellular telephone</i> refers to portable telephones to a public mobile telephone service using cellular technology, which provides access to the PSTN. This can include analogue and digital cellular systems, including IMT-2000 (Third Generation, 3G).</p> <p><i>Number of mobile cellular telephones per person</i> calculated by dividing the total number of mobile cellular telephones by the total number of persons in a country.</p>	Gender Age Parish/Region	Census Household survey	

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
1.3.2	Is there access to mobile cellular telephones in areas where there are either no or a limited number of fixed telephone lines available?	8	Number of mobile cellular telephones in circulation by companies			Refers to the number of mobile cellular telephone in circulation by companies. <i>Mobile cellular telephone</i> refers to portable telephones to a public mobile telephone service using cellular technology, which provides access to the PSTN. This can include analogue and digital cellular systems, including IMT-2000 (Third Generation, 3G).	Circulation by company; type of mobile cellular telephone	Tele-communication company	
		1	Service range of mobile cellular telephone companies					Tele-communication company	
1.3.3	Where there is no access to mobile cellular or fixed telephone service, is there access to other forms of telephony, e.g., radio telephony?	1	Number of radio telephony stations				Parish/Region		This can be important in measuring hinterland access.
1.4	Number of Local and International Telephone Calls and Cost								
1.4.2	How many fixed line telephone calls are made within the same exchange? What is the cost?	1	Number of fixed line telephone calls made within the same exchange			Refers to the number of telephone calls made within the same exchange from a fixed line telephone. <i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber's terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms "main section" and		Tele-communication company	

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
						<p>“Direct Exchange Line” (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p>			
		2	Cost of fixed line telephone calls made within the same exchange			<p>Refers to the cost, in monetary value, per telephone call within the same exchange made from a fixed line telephone.</p> <p><i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber’s terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms “main section” and “Direct Exchange Line” (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p>	Peak/Off-Peak Weekdays/Weekends	Tele-communication company	Could specify the number of minutes
1.4.3	How many fixed line inter-exchange calls are made? What is the cost?	1	Number of fixed line telephone inter-exchange calls			<p>Refers to the number of telephone calls made among exchanges from a fixed line telephone.</p> <p><i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber’s terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms “main section” and “Direct Exchange Line” (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p>		Tele-communication company	

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/ Justification/ Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		2	Cost of fixed line telephone inter-exchange calls		<p>Refers to the cost, in monetary value, per telephone call to different exchanges made from a fixed line telephone.</p> <p><i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber's terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms "main section" and "Direct Exchange Line" (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p>	Exchange Peak/Off-Peak Weekdays/Weekends	Tele-communication company	Could specify the number of minutes
1.4.4	How many telephone calls are made from fixed line telephones to mobile cellular telephones? What is the cost?	1	Number of telephone calls made from fixed line telephones to mobile cellular telephones		<p>Refers to the number of telephone calls made from a fixed line telephone to a mobile cellular telephone.</p> <p><i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber's terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms "main section" and "Direct Exchange Line" (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p>		Tele-communication company	

Mobile cellular telephone refers to portable telephones to a public mobile telephone service using cellular

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
						including IMT-2000 (Third Generation, 3G).			
		2	Cost of telephone calls made from fixed line telephones to mobile cellular telephones			<p>Refers to the cost, in monetary value, per telephone call made from a fixed telephone line to a mobile cellular telephone.</p> <p><i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber's terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms "main section" and "Direct Exchange Line" (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p> <p><i>Mobile cellular telephone</i> refers to portable telephones to a public mobile telephone service using cellular technology, which provides access to the PSTN. This can include analogue and digital cellular systems, including IMT-2000 (Third Generation, 3G).</p>	Peak/Off-Peak Weekdays/Weekends	Tele-communication company	Could specify the number of minutes
1.4.5	How many telephone calls are made from mobile cellular telephones to fixed line telephones? What is the cost?	1	Number of telephone calls made from mobile cellular telephones to fixed line telephones			<p>Refers to the number of telephone calls made from a mobile cellular telephone to a fixed line telephone.</p> <p><i>Mobile cellular telephone</i> refers to portable telephones to a public mobile telephone service using cellular technology, which provides access to the PSTN. This can include analogue and digital cellular systems, including IMT-2000 (Third Generation, 3G).</p>		Tele-communication company	

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/Justification/Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
					<p><i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber's terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms "main section" and "Direct Exchange Line" (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p>			
	2	Cost of telephone calls made from mobile cellular telephones to fixed line telephones		<p>Refers to the cost, in monetary value, per telephone call made from a mobile cellular telephone to a fixed line telephone.</p> <p><i>Mobile cellular telephone</i> refers to portable telephones to a public mobile telephone service using cellular technology, which provides access to the PSTN. This can include analogue and digital cellular systems, including IMT-2000 (Third Generation, 3G).</p> <p><i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber's terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms "main section" and "Direct Exchange Line" (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p>	Peak/Off-Peak Weekdays/Weekends	Tele-communication company	Could specify the number of minutes	

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/Justification/Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
	2	Cost of international telephone calls from fixed line telephones, by destination	<p>Refers to the cost, in monetary value, of calls made from one country to another country from a fixed telephone line.</p> <p><i>Fixed telephone lines</i> refer to telephone lines connecting a subscriber's terminal equipment to the public switched telephone network (PSTN) and which have a dedicated port on a telephone exchange. This term is synonymous with the terms "main section" and "Direct Exchange Line" (DEL) that are commonly used in the telecommunication documents. It may not be the same as an access line or a subscriber. The number of ISDN channels, public payphones and fixed wireless subscribers are included.</p>	Destination county Per minute/total Peak/Off-Peak Weekdays/Weekends	Tele-communication company	
	4	Number of international calls made from mobile cellular telephones, by destination	<p>Refers to the number of calls made from one country to another country from a mobile cellular telephone.</p> <p><i>Mobile cellular telephone</i> refers to portable telephones to a public mobile telephone service using cellular technology, which provides access to the PSTN. This can include analogue and digital cellular systems, including IMT-2000 (Third Generation, 3G).</p>	Destination county	Tele-communication company	
	5	Cost of international telephone calls made from mobile cellular telephones, by destination	<p>Refers to the cost, in monetary value, of calls made from one country to another country from a mobile cellular telephone.</p> <p><i>Mobile cellular telephone</i> refers to portable telephones to a public mobile telephone service using cellular technology, which provides access to the PSTN. This can include analogue and digital cellular systems, including IMT-2000 (Third Generation, 3G).</p>	Destination county Per minute/total Peak/Off-Peak Weekdays/Weekends	Tele-communication company	Could specify the number of minutes

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance	
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source		
1.4.8	What is the cost of service relative to per capita income?	1	Cost of basic telephone (fixed line and mobile cellular) service		Fixed/Mobile	Tele-communication company	Relative to per capita income can be calculated once the basis statistics are collected
1.6	Access to Print and Electronic Media						
1.6.1	How many television stations are there?	1	Number of television stations				
		2	Service range of television stations				
1.6.2	Are there any restrictions on television programming?	1	Censorship of television programming content – yes/no?		Yes or no		
1.6.3	What proportion of television programming consists of local content?	1	Number of hours of local television content per week				
1.6.5	How many televisions are there per household?	1	Number of television sets per household				
1.6.6	How many radio stations are in operation?	1	Number of radio stations in operation				

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/Justification/Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		3	Number of radios per household			
1.6.8	What proportion of radio programming consists of local content?	1	Number of hours of local radio content per week			
1.6.9	How much time is spent listening to the radio?	1	Number of hours spent listening to the radio per week			
		2	Number of hours spent listening to local content			
1.6.10	How many newspapers are in circulation? What is the cost per paper?	1	Number of newspapers in circulation, by parish/region, type	Parish/Region Name of newspaper		This can be useful in analysing the relationship between access to the Internet (especially when there is little local content available online) and readership of the newspapers (which would contain a significant proportion of local content).
		3	Newspapers online	Name of newspaper		
		4	Online users	Users' demographics		
1.6.11	How many local magazines and other print media are available? What is the	1	Number of locally published magazines and other print media			Are any of the print media also disseminated

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
	cost?	2	Cost of locally published magazines and other print media						electronically?
		3	Modes of dissemination of local magazines and other print media			Modes of dissemination			
1.7	Access to Computer and Internet								
1.7.1	Are there any areas where the public can use a computer or access the Internet (either free or for a fee)?	1	Number of public Internet access centres (PIACs) (e.g., hot spots, libraries), by parish/region		Refers to the number of public access centres that provide Internet access to the public. <i>A public Internet access centre (PIAC) is a site, location, or centre of instruction at which Internet access is made available to the public, on a full-time or part-time basis. PIAC include telecentres, digital community centres, Internet cafés, libraries, education centers and other similar establishments that offer Internet access to the general public. All such centres should have at least one public computer for Internet access.</i>	Type of public access Parish/Region			
		2	Number of Internet cafés, by service provided and parish/region		Refers to the number of internet café by the service(s) provided. <i>Internet café or cybercafé is defined as a place where one can use a computer with Internet access, for a wide range of services from Internet access to VoIP, most for a fee, usually per hour or minute; sometimes one can have unmetered access with a pass for a day or month, etc. It may serve as a regular café as well, with food and drinks being served.</i>	Service provides Parish/Region			

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/ Justification/ Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		3	Cost of service provided in Internet cafés		Refers to the monetary value attached to the service(s) provided in Internet cafés. <i>Internet café or cybercafé</i> is defined as a place where one can use a computer with Internet access, most for a fee, usually per hour or minute; sometimes one can have unmetered access with a pass for a day or month, etc. It may serve as a regular café as well, with food and drinks being served. Services provide can range from Internet access to VoIP.	Type of service		
1.7.2	How many households have a computer?	1	Number of computers per household, by type		Refers to the number of computers each household has by the type of computer. A computer includes is a desktop or laptop computer (in working condition). It does not include equipment with some embedded computing abilities such as mobile cellular phones, personal digital assistants (PDAs) or TV sets.	Type of computer		
1.7.3	How many households/individuals have access to the Internet?	1	Number of households with Internet subscription, by type of service, parish/region			Type of service Parish/Region		Depending on the ISP used, the cost of service may vary. By capturing this data at the household level, analysis can be made in terms of household income.
		7	Cost of Internet subscription, by type of service			Type of service		

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
1.7.4	How many Internet service providers (ISPs) are there?	1	Number of Internet service providers, by type of service provided				Type of service provided		
		2	Cost of Internet service, by type				Type of service		
		3	Number of subscribers, by type of service subscription				Type of service subscription		
2	Access to, and Use of, ICTs by Households and Individuals								
2.1	Access to ICTs								
		3a	Number of households with telephone facilities						CSMDG
		5b	Number of households with a computer(s)		Refers to the number of households with computer access (not use) at home. A <i>computer</i> includes is a desktop or laptop computer (in working condition). It does not include equipment with some embedded computing abilities such as mobile cellular phones, personal digital assistants (PDAs) or TV sets.				CSMDG

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/ Justification/ Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		6a	Number of households with Internet connection		<p>Refers to the number of households which have access to (not use of) the Internet at home.</p> <p>The <i>Internet</i> is a world-wide public computer network (in working condition). It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files.</p> <p>Connection may be via any device enabling Internet access (not only a computer). This includes mobile phone, PDA, game machines digital TV. Access can be via a fixed mobile network.</p>			CSMDG
2.2	Use of ICTs							
2.2.2	How many households use VoIP?	1	Number of households using VoIP			Type of Internet service ISP Parish/Region		
2.2.3	????	1a	Number of households with computers in use		<p>Refers to computer use from home by in-scope households.</p> <p>A <i>computer</i> includes is a desktop or laptop computer (in working condition). It does not include equipment with some embedded computing abilities such as mobile cellular phones, personal digital assistants (PDAs) or TV sets.</p>			CSMDG
2.2.4	What is the Internet used for?	1	Total number of hours spent using Internet per week		<p>Refers to the total number of hours spent using the Internet for any activity undertaken by in-scope individuals in the past week.</p>			

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
						The <i>Internet</i> is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files.			
		2	Hours per week spent doing the following activities: chatting; Internet to cell phone text messaging (SMS); shopping; research and information (e.g., news), e-mail; Internet phone calls; online auctions; stock investing; gaming				Type of activity		
3	Access to, and Use of, ICTs by Business								
3.2	E-Commerce/E-Business								
3.2.1	Do businesses have a web presence?	1	Number of businesses with a website						This can possibly be captured in the Establishment Surveys already in place.
		3	Number of business with a website that is kept up-to-date						

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance	
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source		
3.2.2	How many businesses use the Internet to sell locally produced items?	1	Number of businesses using the Internet to sell their (local) products				Another indicator that might be captured is whether credit cards or other forms of payment are available to the general population for electronic purchases.
3.2.5	How many local Internet hosts are there? What is the cost of hosting a website?	1	Number of local Internet hosts				While websites with local content can be hosted anywhere in the world, local hosts will also contribute to the economy (job provision, income generation, etc.)
		2	Cost of hosting website/page				
3.3	Visibility						
3.3.1	Is an online directory of business establishments available?	1	Available online directory of business establishments		Yes or no		
		2	If yes, online directory inclusion of listings for businesses without web presence		Yes or no		
		3	Frequency of updates to website		Frequency		
3.4	Contribution to Development						

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
3.4.1	Does business offer training in ICT-related fields for their employees?	1	Number of business offering training in ICT to their employees, by type of business		Type of business	
4	ICT (Producing) Sector, Labour Force, Trade in Goods, Investment and Revenue					
4.1	Labour Force					
4.1.1	What proportion of the labour force is employed in the ICT Sector?	1	Percentage of labour force directly employed in the ICT sector			
4.1.2	What proportion of workers is employed in an ICT capacity within business?	1	Number of employees in an ICT-related capacity within businesses as a percentage of total employees in the business			
4.2	ICT Sector and International Trade in ICT Goods					
5	Education (Whenever disaggregating data on schools by ISCED levels prove complex, countries should provide their national definition of primary, lower and upper secondary education and append the system of national grade structure as metadata)					
		4	Proportion of schools/institutions with computer access (by ISCED level 1 to 3)	Schools with access to computer as a percentage of the total number of schools in the country for each ISCED level (1-3). Data requirement: Total number of both public and private schools providing Internet access at ISCED levels 1-3.	ISCED Levels 1 to 3 Public/private	Administrative data from schools; ministry of education; or national statistical office To measure the overall presence of computers in schools. This indicator measures only the availability of computer access in

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
			Total number of both public and private schools at ISCED levels 1 to 3.			schools but not the intensity of use and time spent on it by students for learning purposes. A high percentage or value for this indicator shows the extent to which computer accessibility is prevalent within schools in a given country.
		1b	Ratio of computers available for use in secondary schools to number of students enrolled in secondary schools			CSMDG
5.3	What ICT-related courses/certification are offered?	1	Courses and certification offered (primary – tertiary)		Level	
5.4	How many graduates are there with certification in ICT-related fields?	1	Number of graduates, by type and level of certification		Type of certification Level of certification	
6	Local Content					
6.1	Type of Local Content and Availability to the Population					

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
6.1.1 Is local information on various sectors (e.g., health/healthcare, tourism, etc.) available on websites?	1	Number of Government agencies with a website				
	2	Number of Government agencies with a website that is kept up-to-date				
	3	Number of Government Agencies with information about their programmes/departments available on the website				
6.1.2 Is there a Government Information Service (GIS) website with up-to-date information on services available?	1	Availability of GIS website – yes/no?		Yes or no		
	2	Available information on Government services on GIS website – yes/no?		Yes or no		
	3	Up-to-date GIS website – yes/no?		Yes or no		
6.1.5 Are there any local e-zines in circulation?	1	Number of local e-zines in circulation				
	2	Topics/issues dealt with in e-zines				
6.2	Language					

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns	Core Indicators	Model Questions	Metadata			Remarks/ Justification/ Relevance
			Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
6.2.1	Is local content available in local languages/dialects?	1	Proportion of web pages with local content in local languages/dialects			
7	Security					
7.1	Data Protection					
7.1.1	How secure are local servers?	1	Number of local hosts, by server type and level of security		Server type Level of security	Important if sensitive data (e.g., banking) is stored on local hosts.
7.2	Security and Protection of Intellectual Property					
7.2.1	What laws are in place for the prosecution of illegal use of intellectual property?	1	Number of laws in place for copyright protection including trademarks and patents	Copyright is the set of exclusive rights granted to the author or creator of an original work, including the right to copy, distribute and adapt the work. These rights can be licensed, transferred and/or assigned. Copyright lasts for a certain time period after which the work is said to enter the public domain. Copyright applies to a wide range of works that are substantive and fixed in a medium. Some jurisdictions also recognize "moral rights" of the creator of a work, such as the right to be credited for the work. Copyright is described under the umbrella term intellectual property along with patents and trademarks.		

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions		Metadata			Remarks/ Justification/ Relevance
						Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
7.2.2	Are laws on illegal use of intellectual property being enforced?	1	Number of cases brought before the Courts with regard to copyright infringement			Copyright infringement (or copyright violation) is the unauthorized or prohibited use of works covered by copyright law, in a way that violates one of the copyright owner's exclusive rights, such as the right to reproduce or perform the copyrighted work, or to make derivative works. For electronic and audio-visual media, unauthorized reproduction and distribution is also commonly referred to as piracy.		Supreme Court	
		2	Number of fines/convictions in copyright infringement cases			Copyright infringement (or copyright violation) is the unauthorized or prohibited use of works covered by copyright law, in a way that violates one of the copyright owner's exclusive rights, such as the right to reproduce or perform the copyrighted work, or to make derivative works. For electronic and audio-visual media, unauthorized reproduction and distribution is also commonly referred to as piracy.		Supreme Court	
11	Disaster Management								
11.1	Effective support for integrated and comprehensive disaster management	1	Number of countries that have made a decision on signing the TAMPERE and similar typed of conventions						
		2	Existence of interconnected network						
		3	Existence of an emergency response system						

CARICOM-SPECIFIC ICT4D INDICATORS FRAMEWORK

THEMES, ISSUES/CONCERNS, AND INDICATORS

Themes & Issues/Concerns		Core Indicators		Model Questions	Metadata			Remarks/ Justification/ Relevance
					Concept & Definition/Method of Computation	Classificatory Variable(s)	Data Source	
		4	Successful mitigation or recovery from disaster					
		5	Number of online emergency operating centres					

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ANNEX I

WSIS TARGETS FOR ICTs⁶

- a) To connect villages with ICTs and establish community access points;
- b) To connect universities, colleges, secondary schools and primary schools with ICTs;
- c) To connect scientific and research centers with ICTs;
- d) To connect public libraries, cultural centers, museums, post offices and archives with ICTs;
- e) To connect health centers and hospitals with ICTs;
- f) To connect all local and central government departments and establish websites and email addresses;
- g) To adapt all primary and secondary school curricula to meet the challenges of the Information Society, taking into account national circumstances;
- h) To ensure that all of the world's population have access to television and radio services;
- i) To encourage the development of content and to put in place technical conditions in order to facilitate the presence and use of all world languages on the Internet;
- j) To ensure that more than half the world's inhabitants have access to ICTs within their reach.

⁶ <http://www.itu.int/wsis/docs/geneva/official/poa.html> (accessed February 24, 2010).

ANNEX II

INTERNATIONAL STANDARD CLASSIFICATION OF EDUCATION (ISCED) (UNESCO, 1997)⁷

ISCED recognises seven levels of education as follows:

1. ISCED Level 0 – Pre-primary education;
2. ISCED Level 1 – Primary or first stage of basic education;
3. ISCED Level 2 – Lower secondary or second stage of basic education;
4. ISCED Level 3 – Upper secondary education;
5. ISCED Level 4 – Post-secondary non-tertiary education (programmes that lie between the upper secondary and tertiary levels of education);
6. ISCED Level 5 – First stage of tertiary education (not leading to an advanced research qualification); and
7. ISCED Level 6 – Second stage of tertiary education (leading to an advanced research qualification).

⁷ UIS (2008). <http://www.uis.unesco.org/template/pdf/csci/ICT/bckgrdcore.pdf> (accessed March 12, 2010).

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