

Regional Workshop on Environment
Statistics and Climate Change Statistics for
the CARICOM Region



ESSAT STUDY

AND

**PRIORITIZED LIST OF ENVIRONMENTAL
INDICATORS FOR BELIZE**

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Background

- ES started in 1996 with technical support from Statistics Sweden
- ES Unit established at Statistical Institute of Belize (SIB; formerly CSO)
- Several Compendia were published, most significant achievement is the GEO Belize report of 2010

Status

Governance issue – defining responsibility

- Department of the Environment – Ministry of Agriculture, Fisheries, Forestry, the Environment, Sustainable Development and Immigration

Legal Framework

The development of Environment Statistics in Belize falls under 2 major umbrella pieces of legislation

1. Statistical Institute of Belize Act 2006

- The functions of the Institute shall be the collection, compilation, extraction, analysis and release of official statistics relating to demographic, social, environmental, economic and general activities and conditions of Belize.

2. Environmental Protection Act 1992

- Section (4) The powers, duties and functions of the Department shall be to -
 - (a) be responsible for the continuous and long-term assessment of natural resources and of pollution;
 - (k) provide information and education to the public regarding the importance of protection and improvement of the environment;
 - (l) undertake resource inventories, surveys and ecological analyses to obtain information on the social and bio-physical environment with special reference to environmentally sensitive areas and areas where development is already taking place or likely to take place;
 - (r) provide decision-making with the necessary information so as to achieve long-term sustainable development;
 - (v) monitor trends in the use of natural resources and their impact on the environment.

Belize ES Program

- Governance issue resolved: DOE responsible for ES and to be developed under the National Statistical System with support from SIB
- Environmental Information Management Unit with responsibility for ES was established in the DOE;
- ES strategy and Action Plan was developed through IDB project;
- Environment Statistics Advisory Committee established- chaired by the DOE and co-chaired by the SIB; comprised of 15 major stakeholders (GOB, Statutory Bodies, NGOs, Academia); to provide overall guidance in the development of ES;
- ESSAT assessment – development of Belize’s preliminary Basic Set of Environment Statistics
- Data tables for data collection have been created – early 2020 first round of data collection

ESSAT BACKGROUND

In particular the ESSAT:

Guides data collection and compilation at a national level

Overall sets a basis for strengthening the environment statistics programs within the NSS.

Assesses: national relevance, importance, availability and the sources of environment statistics.

Assists in identifying qualitative and quantitative data gaps and overlaps

Plans for filling and strengthening environment statistics according to national priorities, needs and available resources

STRUCTURE OF THE ESSAT

Framework for the Development of Environment Statistics (**FDES**)

Hierarchical structure of the FDES in descending order

Component

Sub-Component

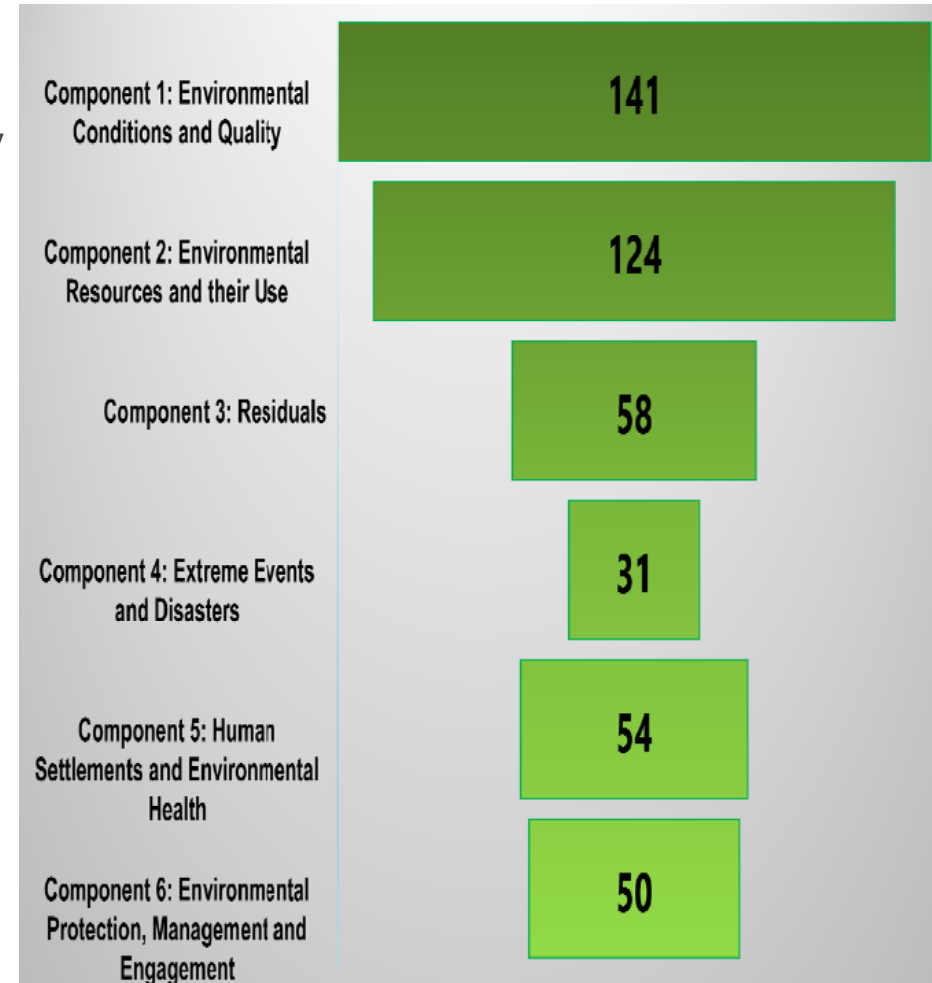
Statistical Topic

Statistics (Indicators)

STRUCTURE OF THE FDES AND THE BASIC SET OF ENVIRONMENT STATISTICS (BSES)

Has six components

1. Environmental Conditions and Quality
2. Environmental Resources and Their Use
3. Residuals
4. Extreme Events and Disasters
5. Human Settlements and Environmental Health
6. Environmental Protection, Management and Engagement



Total number of statistics **458**

STRUCTURE OF THE FDES/BSES

There are three types of statistics (TIERS)

- **TIER 1:** Minimum set that each country should produce
- **TIER 2:** Good medium term statistics
- **TIER 3:** Difficult to produce in short and medium term

BELIZE PARTICIPATING AGENCIES

Agriculture Department

Belize Agricultural Health Authority

Coastal Zone Management Authority Institute

Pesticides Control Board

Belize Fisheries Department

Forest Department

Department of the Environment

Belize Solid Waste and Management Authority

Meteorological Service

National Emergency Management Organisation (NEMO)

National Climate Change Office

BELIZE PARTICIPATING AGENCIES

Hydrology unit

Energy Unit

Ministry of Health

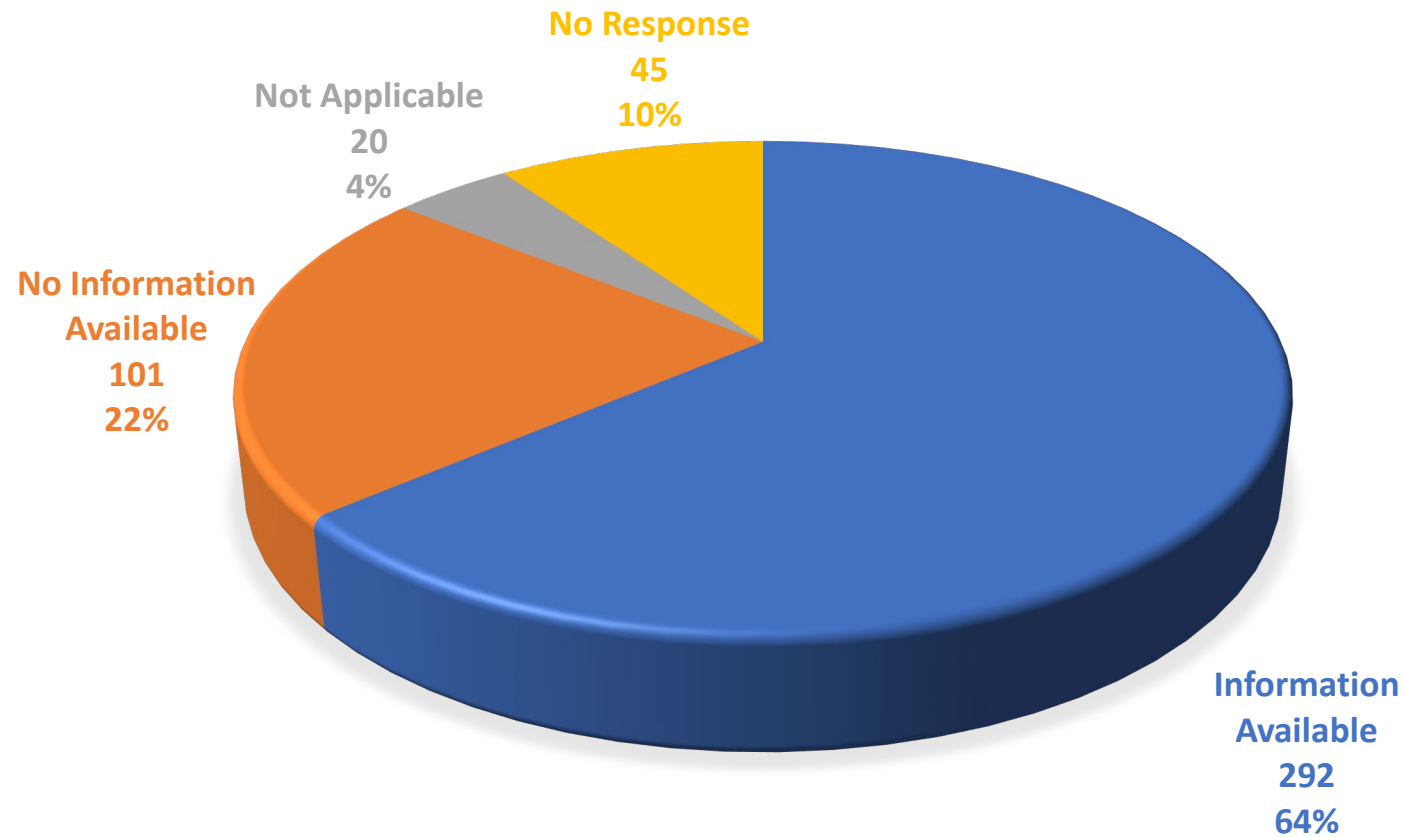
Public Health Department

BIOFIN

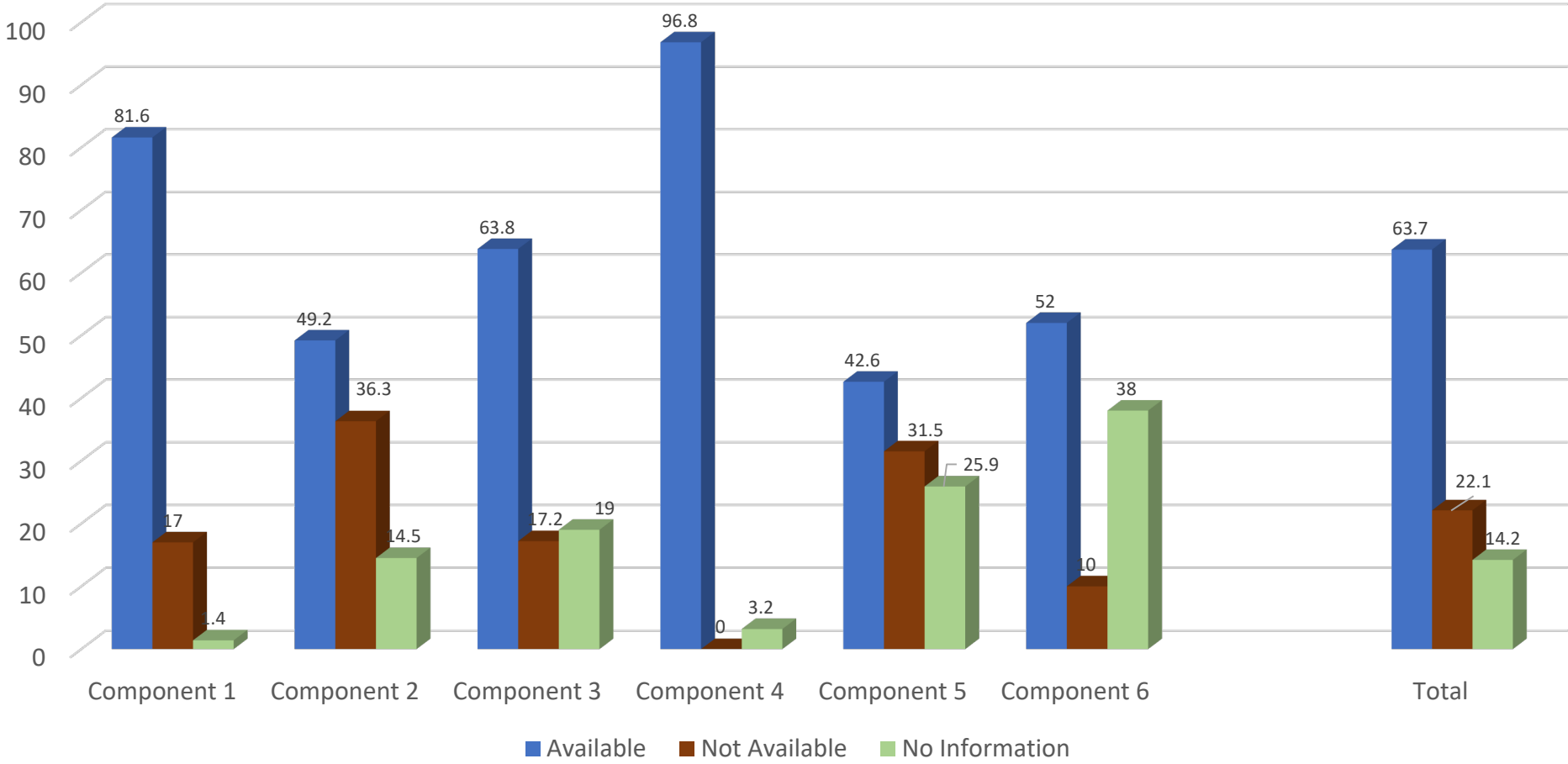
Statistical Institute of Belize

RESULTS

Availability of Information for Data Assessment Gap



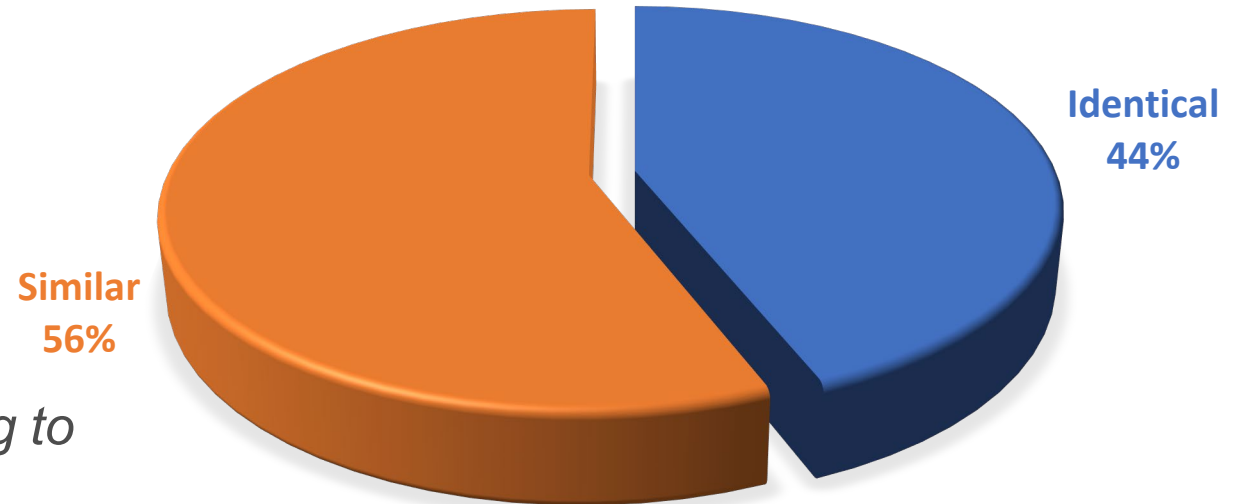
Distribution of Statistics by Availability and Component



Identical vs Similar

Identical (I): *available according to*
International concepts
Definitions
Classifications
Methodology

Similar (S): *available but **not** according to*
International concepts
Definitions
Classifications
Methodology



Data Gaps

- **What is a data gap:**

- **I**ndicator not collected

- **I**ndicator collected but

Definition used is similar but not identical to the international standard

BELIZE DATA GAP CLASSIFICATION (SIB)

Short-term: 6months- 1 year

Partially compliant Tier 1 Indicators

Medium-term: 1-2 years

Not available Tier 1 and partially compliant Tier 2
and Tier 3 indicators

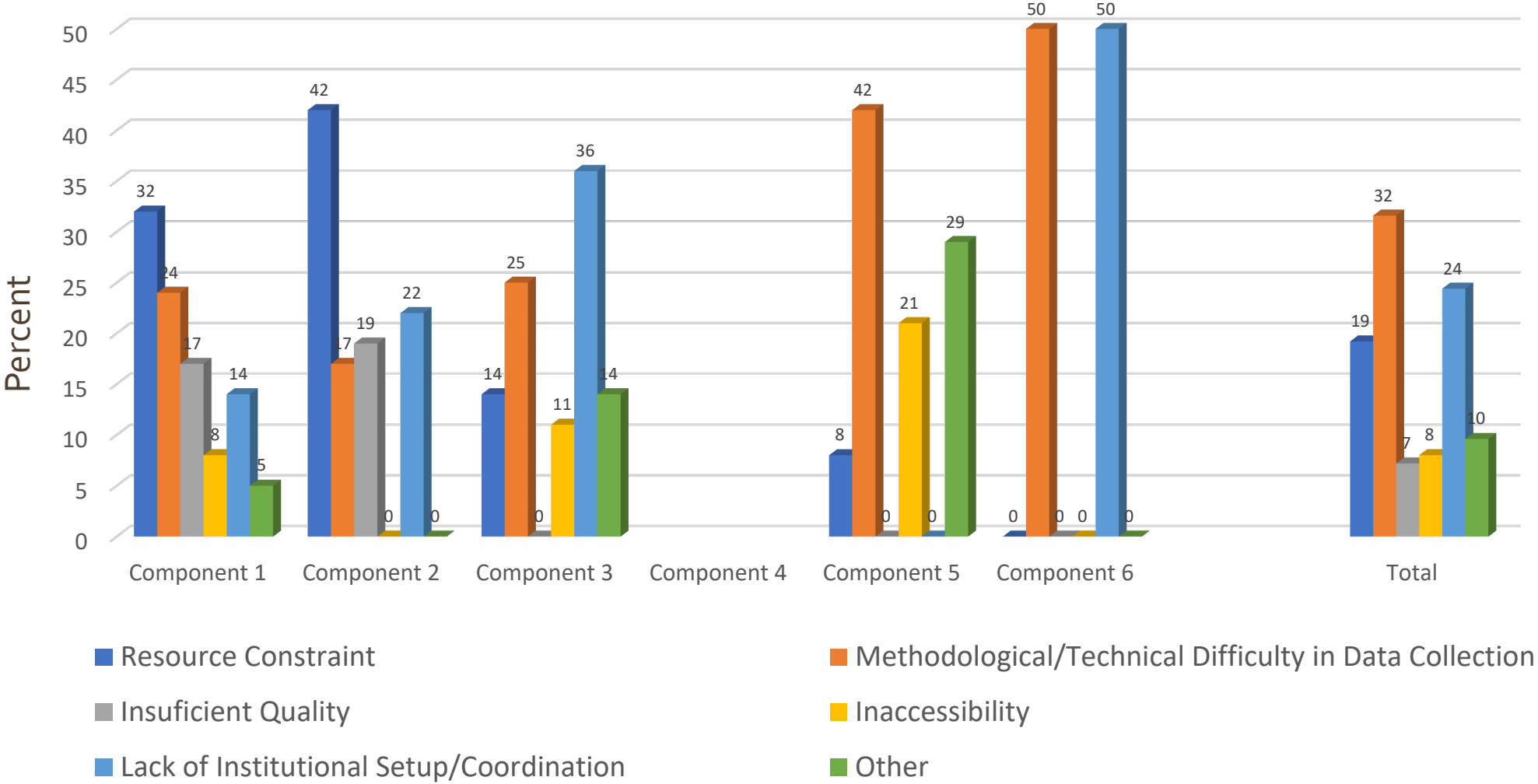
Long-term: 2-4 years

Not available Tier 2 and Tier 3 Indicators

Data Gaps

- Short Term 48 (all Tier 1) – e.g. data is similar may easily be converted to ‘identical’ category
- Medium Term 125 (9 Tier 1 , 61 Tier 2, 55 Tier 3) – e.g. no methodology exists in country, there is interest from parties to collect data
- Long Term 92 (37 Tier 2, 55 Tier 3)
- **Total 265**

Distribution of Data Gap by Component and Main Reason



THE BASIC SET OF ENVIRONMENT STATISTICS FOR BELIZE

Methodology

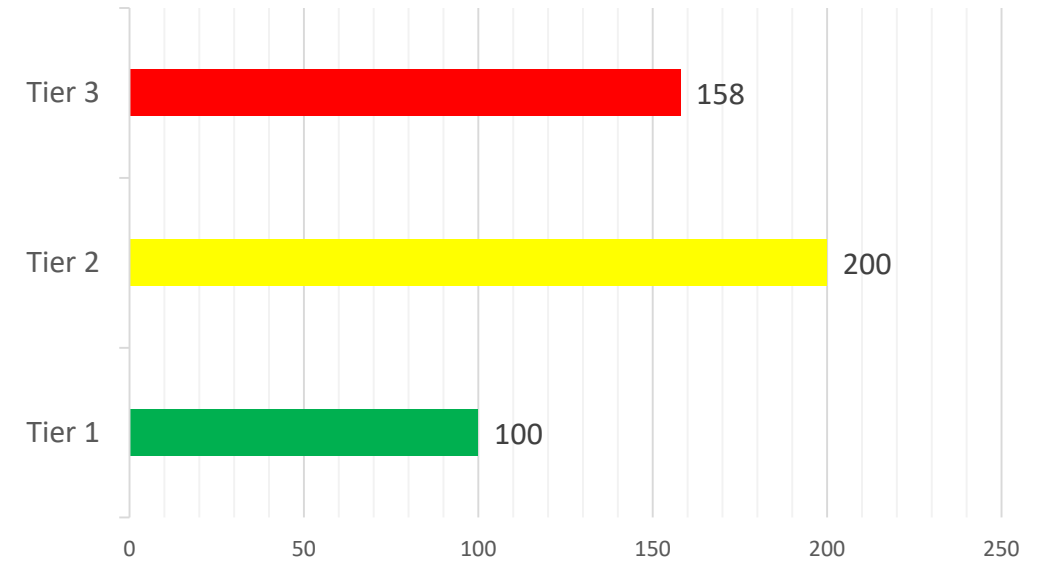
- **Prioritized list of Environmental Indicators for Belize**
 - **Short term Indicators**
 - **Long term Indicators**
- The prioritized list of environmental indicators was established based on data availability.
 - The short-term indicators was identified based on data that are being partially collected
 - Long term indicators were selected based on data that are not currently being collected. Data availability was identified by the Statistical Institute of Belize (SIB) that administered the environment statistics self-assessment tool (ESSAT).
 - Therefore, it is important to note that not all the statistics included in the tool is relevant to Belize; thus the basic set of environment statistics is based on national relevance

The Basic Set of Environment Statistics

Number of Statistics	Component 1	Component 2	Component 3	Component 4	Component 5	Component 6	Total
Tier 1	32	30	19	4	12	3	100
Tier 2	58	51	34	11	22	24	200
Tier 3	51	43	5	16	20	23	158
Total	141	124	58	31	54	50	458

Source: The Environment Statistics Self-assessment Tool (ESSAT) in support of the Framework for the Development of Environment Statistics (FDES 2013).

Basic Set of Environment Statistics

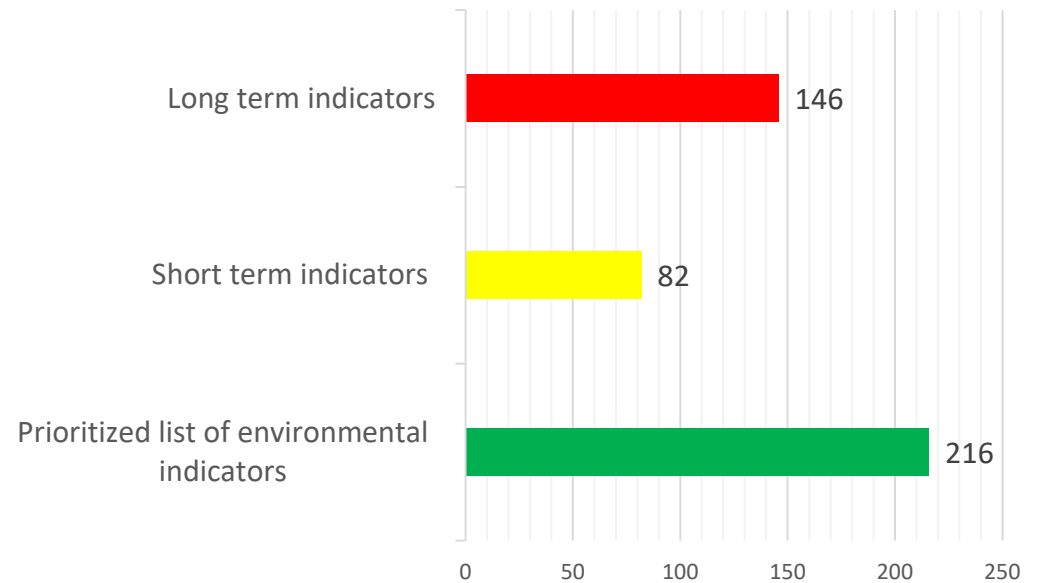


The prioritized list of environmental indicators for Belize

Number of Statistics	Original	Environmental Indicators for Belize		
		Prioritized List of	Short Term Indicators	Long Term Indicators
Tier 1	100	75	8	5
Tier 2	200	61	63	74
Tier 3	158	80	11	67
Total	458	216	82	146

Source: The environment statistics self-assessment tool (ESSAT) in support of the Framework for the Development of Environment Statistics (FDES 2013).

Number of Environment Statistics Indicators for Belize



Results: The basic set of environment statistics for the country of Belize

List of National Indicator's for Belize	Component 1	Component 2	Component 3	Component 4	Component 5	Component 6	Total
Prioritized List of Environmental Indicators for Belize	78	67	34	10	22	7	216
Short Term Indicators	38	13	10	6	0	15	82
Long Term Indicators	17	42	11	15	32	30	146
Total	131	122	55	30	54	52	444

Prioritized List of Environmental Indicators for Belize						
Component 1: Environmental Conditions and Quality		Agency Responsible	Status	Year collected	Year collected	LMF
Sub-component 1.1: Physical conditions						
Topic 1.1.1: Atmosphere, climate and weather						
a. Temperature	1. Monthly average	Met. Dept.		1961	2018	
	2. Minimum monthly average			1961	2018	
	3. Maximum monthly average			1961	2018	
b. Precipitation (also in 2.6.1.a)	1. Annual average			1961	2018	
	2. Long-term annual average			1961	2018	
	3. Monthly average			1961	2017	2
	4. Minimum monthly value			1961	2018	2
	5. Maximum monthly value			1961	2018	2
c. Relative humidity	1. Minimum monthly value			1961	2018	2
	2. Maximum monthly value			1961	2018	2
d. Pressure	1. <i>Minimum monthly value</i>			1961	2018	3
	2. <i>Maximum monthly value</i>			1961	2018	3
e. Wind speed	1. <i>Minimum monthly value</i>			1961	2018	3
	2. <i>Maximum monthly value</i>			1961	2018	3
f. Solar radiation	1. <i>Average daily value</i>					
	2. <i>Average monthly value</i>					
	3. <i>Number of hours of sunshine</i>			1968	2018	3
h. Occurrence of El Niño/La Niña events, when relevant	1. <i>Occurrence</i>			1961	2018	3
	2. <i>Time period</i>			1961	2018	3
g. UV radiation	1. <i>Maximum daily value</i>					
	2. <i>Average daily value</i>					
	3. <i>Maximum monthly value</i>					
	4. <i>Average monthly value</i>					

Topic 2.2.1: Stocks and changes of energy resources				
a. Energy resources	2. New discoveries	Energy Unit		
	9. Stocks of potentially commercially recoverable resources			
Topic 2.2.2: Production, trade and consumption of energy				
a. Production of energy	5. Imports of energy			
	6. Exports of energy			
Sub-component 2.3: Land				
Topic 2.3.1: Land use				
c. Land ownership		Min. of Natural Resources		
Topic 2.3.2: Use of forest land				
Sub-component 2.5: Biological Resources				
Topic 2.5.1: Timber resources				
b. Amount used of:	1. Fertilizers (also in 3.4.1.a)	Min. of Natural Resources		
Topic 2.5.2: Aquatic resources				
Topic 2.5.3: Crops				
b. Amount used of:	1. Natural fertilizers (e.g., manure, compost, lime) (also in 3.4.1.a)	MOA		
	4. Genetically modified seeds			
Topic 2.5.4: Livestock				
Topic 2.5.5: Other non-cultivated biological resources				
Sub-component 2.6: Water Resources				
Topic 2.6.1: Water resources				
Topic 2.6.2: Abstraction, use and returns of water				
b. Water abstraction from surface water		National Hydrological Services		
c. Water abstraction from groundwater	1. From renewable groundwater resources			
k. Losses during transport				
Component 3				
Sub-component 3.1: Emissions to Air				
Topic 3.1.3: Emissions of other substances				
a. Emissions of other substances:	3. Other	DOE		

Long Term Indicators				
Component 1				
Sub-component 1.1: Physical Conditions		Agency Responsible	Status	LMF
Topic 1.1.1: Atmosphere, climate and weather				
Topic 1.1.2: Hydrographical characteristics				
a. Lakes	2. Maximum depth	National Hydrology Service		
f. Aquifers		Min. of Natural Resources		
Topic 1.1.4: Soil characteristics				
b. Soil degradation	2. Area affected by desertification	Min. Natural Resources		
	3. Area affected by salinization			
	4. Area affected by waterlogging			
	5. Area affected by acidification			
	6. Area affected by compaction			
Sub-component 1.2: Land Cover, Ecosystems and Biodiversity				
Topic 1.2.2: Ecosystems and biodiversity				
c. Biodiversity	2. Endemic flora and fauna species			2
	3. Invasive alien flora and fauna species			2
	4. Species population			2
Topic 1.2.3: Forests				
B. Forest biomass	1. Total Volume	Forest Department		2
	2. Carbon Storage in Living forest biomass			2
Sub-component 1.3: Environmental Quality				
Topic 1.3.1: Air quality				
a. Local air quality	1. Concentration level of particulate matter (PM10)			1
	2. Concentration level of particulate matter (PM2.5)			1
	9. Concentration levels of dioxins			
	10. Concentration levels of furans			
Topic 1.3.2: Freshwater quality				
f. Physical and chemical characteristics	3. Total suspended solids (TSS)	DOE		
Topic 1.3.3: Marine water quality				
Component 2				
Sub-component 2.1: Mineral Resources				



Thank you!