



UNITED NATIONS



Economic Commission for Latin America and the Caribbean  
Subregional Headquarters for the Caribbean

---

Training Workshop on the Construction of  
Core Environmental Indicators in the Caribbean Subregion  
6–10 December 2010  
Port – of – Spain

LIMITED  
LC/CAR/L.298  
13 June 2011  
ORIGINAL: ENGLISH

**REPORT OF THE TRAINING WORKSHOP ON THE  
CONSTRUCTION OF CORE ENVIRONMENTAL INDICATORS  
IN THE CARIBBEAN SUBREGION**

---

This document has been reproduced without formal editing.



## CONTENTS

A. INTRODUCTION.....	1
B. ORGANIZATION OF THE TRAINING WORKSHOP .....	1
C. INAUGURATION OF THE TRAINING.....	2
D. DELIBERATIONS .....	2
Session 1: Basic Concepts and advances in environmental statistics work.....	2
Session 2: The institutional dimension of environmental statistics.....	2
Session 3: Methodology for the construction of environmental and sustainable development indicators.....	2
Session 4: Calculating the environmental indicators.....	2
Session 5: Presentation of environmental indicators.....	3
Session 6: Conclusions and the way forward.....	3
Annex I: List of participants .....	5
Annex II: Agenda .....	8



## **A. INTRODUCTION**

1. The project, “Strengthening the capacity of National Statistical Offices (NSOs) in the Caribbean Small Island Developing States to fulfil the Millennium Development Goals (MDGs) and other Internationally Agreed Development Goals (IADGs)” is being executed by the Economic Commission for Latin America and the Caribbean (ECLAC) Subregional Headquarters for the Caribbean. It aims to build and strengthen institutional capabilities for generating and compiling reliable social, economic and environmental statistics in the Caribbean subregion, through the provision of technical support, as well as the conduct of training workshops for statisticians and policymakers.

2. Within the framework of the above-mentioned project, the Statistical Division of ECLAC, the United Nations Environmental Programme (UNEP) and the United Nations Statistics Division (UNSD) co-organized a training workshop on the construction of core environmental indicators for the Caribbean subregion.

3. The objectives of the training workshop were to develop and strengthen national, technical capacity of public officials in the production, processing, systematization and dissemination of environmental indicators in the Caribbean subregion; to share and put into practice basic concepts of environmental statistics; to analyze developments of relevant sets of common environmental indicators for the Caribbean subregion (considering Millennium Development Goal 7, ILAC and Caribbean Community (CARICOM) environmental indicators); to present a methodology for the calculation, description, dissemination and feedback of environmental indicators, incorporating statistical and inter-institutional aspects according to international and regional recommendations and best practices; and to implement that approach by calculating a core set of approximately 10 environmental indicators selected for their relevance to the subregion and availability of data.

### **Outputs**

The main output of the training workshop was the construction of a set of national environmental indicators along with their methodological sheets, using official data series of participating countries. The training workshop was designed to put into practice methodological and statistical concepts.

## **B. ORGANIZATION OF THE TRAINING WORKSHOP**

4. The Training Workshop on the Construction of Core Environmental Indicators for the Caribbean was held at the ECLAC Subregional Headquarters for the Caribbean, Port- of- Spain, on 6–10 December 2010.

### **Attendance**

5. Representatives of 16 member and associate members of the Caribbean Development and Cooperation Committee attended: Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago, Anguilla, Cayman Islands and Montserrat.

6. Participants consisted of technical staff and practitioners from national statistical offices, ministries of environment, responsible agencies for Goal 7 national reports, sectoral ministries (energy, agriculture, urban planning/ housing, fisheries, economics). A full list of participants is attached at Annex I.

### C. INAUGURATION OF THE TRAINING WORKSHOP

7. At the opening session welcome remarks were delivered by Mr. Sylvan Roberts of ECLAC Subregional Headquarters for the Caribbean and Ms. Johanna Granados of UNEP. In his remarks, Mr. Roberts welcomed participants and trainers to the training workshop. He noted that statistical agencies in the Caribbean faced many challenges in producing accurate, timely and relevant statistics and indicators, especially due to the increasing demands placed on them to expand their output in order to monitor the many development goals. Therefore, activities such as the training workshop would enhance those capacities.

8. Ms. Granados also welcomed the participants to the training initiative. She stressed the fact that environmental statistics and indicators were key elements to assist in monitoring countries' progress towards meeting internationally agreed development goals and for building reliable information necessary to strengthen decision-making.

9. The adopted agenda is attached at Annex II.

### D. DELIBERATIONS

#### **Session 1 – Basic concepts and advances in environmental statistics work**

10. The presentations were made by UNSD and UNEP, respectively, on the situation of environmental statistics in Latin America and the Caribbean.

#### **Session 2 – The institutional dimension of environmental statistics**

11. ECLAC made two presentations on the importance of organizational strengthening and inter-agency collaboration from the perspective of the Latin America and Caribbean region.

#### **Session 3 – Methodology for the construction of environmental and sustainable development indicators**

12. Presentations on the methodology for the construction of environmental indicators were made by UNSD.

#### **Session 4 – Calculating the environmental indicators**

13. ECLAC made a presentation on the indicator set to be calculated by workshop participants and discussion ensued on the methodology and outputs expected from the working groups. Five working groups were established to work on the calculation of environmental indicators. Working groups were provided with a list of 11 environmental indicators with statistical series descriptions.

14. The selection of a set of 11 common environmental indicators to be calculated together with statistical series descriptions and respective methodological sheets were shared with each working group. To assist with this process, the list of Goal 7 (official and regionally supplementary), ILAC and CARICOM environmental indicators were analyzed in order to select the set of 11 common environmental indicators, based on agreed criteria, such as regional relevance and statistical feasibility.

15. The working groups comprised a combination of national teams consisting of technical staff and practitioners working in Caribbean institutions and agencies that produced, processed, compiled, published and/or used national statistics and environmental indicators, such as: national statistical offices, ministries of environment, agencies responsible for Goal 7 national reports and sectoral ministries (energy, agriculture, urban planning / housing, fisheries, economy, etc).

### **Session 5 – Presentation of environmental indicators**

16. The five groups each presented an example of the construction of a set of environmental indicators based on available national data, along with their methodological sheets, using official data series of participating countries.

17. The presentations of the five working groups were based on the following selected indicators, which were constructed over a two-day period:

(a) Indicator 1 - The proportion of land covered by forest for five Caribbean countries. That indicator aimed to measure the proportion of forested lands within the specified countries (Dominica, Jamaica, Anguilla, The Bahamas and Saint Vincent and the Grenadines).

(b) Indicator 7 – The intensity of fertilizer use in Grenada. The indicator aimed to measure the ratio of fertilizer use to agricultural land area; measured in metric tons per hectare. Fertilizers included potassium (K), nitrogen (N) and phosphorous (P).

(c) Indicator 8 – The proportion of the population using an improved water source. Dominica: A case study. That indicator aimed to calculate the proportion of persons in Dominica using an improved water source.

(d) Indicator 9 – Proportion of the population using an improved sanitation facility. That indicator aimed to show the percentage of the total population (urban and rural) using an improved sanitation facility. An improved sanitation facility separated human excreta from human contact.

(e) Indicator 11 – Tourist intensity. That indicator aimed to measure the impact of the tourism industry in the country receiving tourists. The purpose was to measure the overall pressure brought to the host area. It was an indicator of environmental and social carrying capacity which expressed both the level of tolerance on the part of the host population and the quality of the tourist experience in the host country.

The tourist intensity indicator (CARICOM) measured the number of tourists per square kilometre in a host country. That indicator was a proxy for environmental pressures caused by tourism, as increasing intensity had an impact on water resources, the expansion of infrastructure (roads, marinas, etc.), the generation of wastes and impacts to ecologically sensitive areas.

18. Feedback on each group presentation was provided by ECLAC and UNSD in terms of strengths and weaknesses. Participants also provided feedback.

### **Session 6 – Conclusions and the way forward**

19. In general, it was evident that countries appreciated the methodology, contents and knowledge gained from the workshop and wanted technical assistance and capacity-building opportunities in the field of environment statistics, as offered in the workshop. The participants were expected to return to their

countries and assist in building capacity by sharing their experiences and replicating that type of workshop at the national level.

20. ECLAC informed the participants that funding was possible to facilitate a selected number of national workshops and that interested countries should contact ECLAC accordingly.



Annex I**LIST OF PARTICIPANTS**

- Sylvester Belle, Chief Conservation Officer, Department of Physical Planning and Environment, Saint Kitts and Nevis. Email: [sylbelle44@gmail.com](mailto:sylbelle44@gmail.com)
- Hayden Billingsy, Superintendent of Rivers, Beaches and Recreation Sites, National Parks, Rivers and Beaches Authority, Saint Vincent and the Grenadines. Email: [haydensvg2003@yahoo.com](mailto:haydensvg2003@yahoo.com)
- Satee Boodoo, Statistician II, Central Statistics Office, Trinidad and Tobago. Email: [satee.boodoo@statistics.gov.tt](mailto:satee.boodoo@statistics.gov.tt) | [sat3boodoo@yahoo.com](mailto:sat3boodoo@yahoo.com)
- Jamal Byron, Administrative Cadet, Statistical Office, Central Planning Division, Ministry of Finance and Planning, Saint Vincent and the Grenadines. Email: [scheama@hotmail.com](mailto:scheama@hotmail.com)
- Brittany Christopher, Statistical Assistant, Anguilla Statistics Department, Anguilla. Email: [brittany.christopher@gov.ai](mailto:brittany.christopher@gov.ai)
- Dallen Connor, Pollution Coordinator, Department of Environment, Anguilla. Email: [Dallen.Connor@gov.ai](mailto:Dallen.Connor@gov.ai) | [drconn35@hotmail.com](mailto:drconn35@hotmail.com)
- Kenneth S. Ebanks, Senior Strategic Advisor, Office of the Premier and Ministry of Finance, Tourism and Development, Cayman Islands. Email: [kenneth.ebanks@gov.ky](mailto:kenneth.ebanks@gov.ky)
- Jacinta Francis, Statistician III, Central Statistical Office, Saint Lucia. Email: [ajacintafrancis@gmail.com](mailto:ajacintafrancis@gmail.com)
- Allan Franklin, Research Officer, Ministry of the Environment, Water Resources Management and Drainage, Barbados. Email: [franklina@gob.bb](mailto:franklina@gob.bb) | [allan\\_940@hotmail.com](mailto:allan_940@hotmail.com)
- Leticia Garnett, Document and Information Management Officer, Policy Coordinator and Planning Unit, Ministry of Natural Resources and the Environment, Belize. Email: [policy.docinfoman@mnrei.gov.bz](mailto:policy.docinfoman@mnrei.gov.bz)
- Tamika George, Statistical Clerk, Central Statistical Office, Grenada. Email: [tamikageorge@hotmail.com](mailto:tamikageorge@hotmail.com) | [gogstats@hotmail.com](mailto:gogstats@hotmail.com)
- Janet Geoghagen-Martin, Manager, Environment Statistics Unit, Statistical Institute of Jamaica, Jamaica. Email: [sesu@statinja.gov.jm](mailto:sesu@statinja.gov.jm)
- Brian Gift, Tourism Advisor II, Ministry of Tourism, Tourism. Email: [giftb@tourism.gov.tt](mailto:giftb@tourism.gov.tt)
- Christine Greene, Senior Health Inspector/Training Officer, Department of Environmental Health Services, Ministry of the Environment, Bahamas. Email: [cgmccgreene@gmail.com](mailto:cgmccgreene@gmail.com)
- Cyrille John, Assistant Forest Officer (Ag.), Forestry, Wildlife and Parks Division, Dominica. Email: [asstforestofficer2@cwdom.dm](mailto:asstforestofficer2@cwdom.dm) | [forestry@cwdom.dm](mailto:forestry@cwdom.dm)

- Alisha Kalloo McCalman, Statistician I, Central Statistical Office, Trinidad and Tobago. Email: [alisha.kalloo@statistics.gov.tt](mailto:alisha.kalloo@statistics.gov.tt) | [alishamkalloo@hotmail.com](mailto:alishamkalloo@hotmail.com)
- Jacklin Marroquin, Statistician II, Statistical Institute of Belize, Belize. Email: [jmarroquin@statisticsbelize.org.bz](mailto:jmarroquin@statisticsbelize.org.bz)
- Craig Martin, Forestry Technician, Department of Environment, Ministry of Agriculture, Lands, Housing and the Environment, Montserrat. Email: [martinl@gov.ms](mailto:martinl@gov.ms)
- Neranda Maurice, Sustainable Development and Environment Officer II, Sustainable Development and the Environment Division, Ministry of Physical Development and the Environment, Saint Lucia. Email: [nmaurice@sde.gov.lc](mailto:nmaurice@sde.gov.lc) | [neranda.maurice@gmail.com](mailto:neranda.maurice@gmail.com)
- Stephen Nicholas, Statistical Officer I, Central Statistical Office, Ministry of Finance, Dominica. Email: [csoda@cwdom.dm](mailto:csoda@cwdom.dm) | [stephenic2000@gmail.com](mailto:stephenic2000@gmail.com)
- Lavaughn Pritchard, Senior International Relations Specialist, Ministry of Foreign Affairs, Trinidad and Tobago. Email: [pritchardl@foreign.gov.tt](mailto:pritchardl@foreign.gov.tt)
- Ramon Roach, Water Quality Analyst, Coastal Zone Management Unit, Barbados. Email: [rroach@coastal.gov.bb](mailto:rroach@coastal.gov.bb)
- Lavern Rogers-Ryan, GIS Manager, Physical Planning Unit, GIS Centre, Ministry of Agriculture, Lands, Housing and the Environment, Montserrat. Email: [rogersl@gov.ms](mailto:rogersl@gov.ms)
- Elizabeth Talbert, Deputy Director/Chief Statistician, Economic and Statistics Office, Cayman Islands. Email: [elizabeth.talbert@gov.ky](mailto:elizabeth.talbert@gov.ky)
- Andreas Talea, Manager, Economic Statistics/Head, Environment Statistics, General Bureau of Statistics, Suriname. Email: [anrotalea@gmail.com](mailto:anrotalea@gmail.com)
- Simon Toulon, Assistant Hydrologist, Antigua Public Utilities Authority, Antigua and Barbuda. Email: [simontoulon@hotmail.com](mailto:simontoulon@hotmail.com)
- Jacqueline Tull, Statistician, Bureau of Statistics, Guyana. Email: [tulljackie@yahoo.com](mailto:tulljackie@yahoo.com)
- Ann Marie Wickham, Statistician, Barbados Statistical Service, Barbados. Email: [awickham@barstats.gov.bb](mailto:awickham@barstats.gov.bb) | [amariawickham@yahoo.com](mailto:amariawickham@yahoo.com)
- Jason Williams, Data Manager, Environment Division, Antigua and Barbuda. Email: [jaypwill@gmail.com](mailto:jaypwill@gmail.com)

### **Secretariat**

#### **Economic Commission for Latin America and the Caribbean (ECLAC)**

##### Headquarters

- Kristina Taboulchanas, Statistician, Statistics and Economic Projections Division. Email: [kristina.taboulchanas@cepal.org](mailto:kristina.taboulchanas@cepal.org)

**Subregional Headquarters for the Caribbean**

- Sylvan Roberts, Officer-in-Charge/Coordinator, Statistics Unit. Email: [sylvan.roberts@eclac.org](mailto:sylvan.roberts@eclac.org)
- Sheila Stuart, Coordinator, Social Development Unit. Email: [sheila.stuart@eclac.org](mailto:sheila.stuart@eclac.org)

**United Nations Environment Programme (UNEP)**

- Johanna Granados, Consultant, Early Warning and Assessment. Email: [johanna.granados@unep.org](mailto:johanna.granados@unep.org)

**United Nations Statistics Division (UNSD)**

- Reena Shah, Chief, Environment Statistics Section. Email: [shahr@un.org](mailto:shahr@un.org)
- Rayen Quiroga-Martinez, Statistician, Environment and Energy Statistics Branch. Email: [quirogar@un.org](mailto:quirogar@un.org)

## PROGRAMME

### Day 1: Monday 6 December

08:30 – 09:00 Registration of participants

#### Inauguration

09:00 – 09:20 Welcome and Inauguration

- Mr. Sylvan Roberts, ECLAC Subregional Headquarters for the Caribbean
- Ms. Johanna Granados, Division of Early Warning and Assessment, United Nations Environment Programme/Regional Office for Latin America and the Caribbean (UNEP/ROLAC)

#### Introduction

09:20 – 09:45 Review of the agenda and methodology for the Training Workshop

- Ms. Rayen Quiroga, United Nations Statistics Division (UNSD)

Introduction of participants

- Ms. Kristina Taboulchanas, ECLAC
- Ms. Sheila Stuart, ECLAC Subregional Headquarters for the Caribbean

#### Session 1 – Training Workshop: Basic concepts and advances in environmental statistics work

09:45 – 10:20 Basic concepts: introduction to statistics and environmental indicators: data, indicators, sources and statistical processes

- Ms. Rayen Quiroga, UNSD

10:20 – 10:50 Framework for the Development of Environmental Statistics & Global UN collection of Environment and Energy statistics

- Ms. Reena Shah, UNSD

10:50 – 11:10 Questions and discussion

11:10 - 11:30 Coffee break

11:30 – 11:50 Advances in environmental statistics in Latin America and the Caribbean (MDG 7 indicators)

- Ms. Rayen Quiroga, UNSD

11:50 – 12:30 Status of ILAC environmental indicators in Latin America and the Caribbean

- Ms. Johanna Granados, UNEP/ROLAC

12:30 – 12:45 Questions and general discussion

12:45 – 14:15 Lunch

## **Session 2 – The institutional dimension of environmental statistics**

- 14:20 – 14:50 Importance of organizational strengthening and inter-agency collaboration: opportunities and challenges
- Ms. Kristina Taboulchanas, ECLAC
  - Mr. Sylvan Roberts, ECLAC Subregional Headquarters for the Caribbean
- 14:50 – 15:30 Guided Discussion: Country practices (institutional arrangements and collaboration)
- 15:30 – 16:00 Coffee break
- 16:00 – 17:00 Exercises and discussion

## **Day 2: Tuesday 7 December**

### **Session 3 – Methodology for the construction of environmental and sustainable development indicators**

- 08:30 – 09:30 Processing environmental statistics and producing environmental indicators: methodological aspects
- Ms. Rayen Quiroga, UNSD
- 09:30 – 09:45 Questions
- 09:45- 10:10 Coffee break
- 10:10 - 11:10 Methodology for the construction of environmental and sustainable development indicators sets
- Ms. Rayen Quiroga, UNSD
- 11:10 – 11:30 Questions and general discussion

### **Session 4 – Training Workshop: Calculating the environmental indicators**

- 11:30 – 12:00 Presentation of the indicator set to be calculated in the workshop  
Discussion of the methodology and outputs expected from the working groups
- Ms. Kristina Taboulchanas, ECLAC
- 12:00 – 12:30 Establishment of working groups and instructions
- 12:30 – 14:00 Lunch
- 14:00 – 15:30 Workshop: Calculating the indicators
- Facilitators:
- Ms. Rayen Quiroga, UNSD
  - Ms. Kristina Taboulchanas, ECLAC
  - Ms. Johanna Granados, UNEP/ROLAC
  - Ms. Sheila Stuart, ECLAC Subregional Headquarters for the Caribbean
  - Ms. Reena Shah, UNSD
- 15:30 – 16:00 Coffee break

16:00 – 17:00 Workshop: Calculating the indicators

Facilitators:

- Ms. Rayen Quiroga, UNSD
- Ms. Kristina Taboulchanas, ECLAC
- Ms. Johanna Granados, UNEP/ROLAC
- Ms. Sheila Stuart, ECLAC Subregional Headquarters for the Caribbean
- Ms. Reena Shah, UNSD

### Day 3: Wednesday 8 December

#### Continuation Session 4 – Training Workshop: Calculating the environmental indicators

08:30 – 10:00 Workshop: Calculating the indicators

Facilitators:

- Ms. Rayen Quiroga, UNSD
- Ms. Kristina Taboulchanas, ECLAC
- Ms. Johanna Granados, UNEP/ROLAC
- Ms. Sheila Stuart, ECLAC Subregional Headquarters for the Caribbean
- Ms. Reena Shah, UNSD

10:00 – 10:20 Coffee break

10:20 – 12:30 Continuation of group work

12:30 – 14:00 Lunch

14:00 – 15:30 Continuation of group work

15:30 – 16:00 Coffee break

16:00 – 17:00 Continuation of group work

### Day 4: Thursday 9 December

#### Continuation Session 4 – Training workshop: Calculating the environmental indicators

08:30 - 10:00 Continuation of group work

10:00 – 10:20 Coffee break

10:20 – 12:30 Continuation of group work

12:30 – 14:00 Lunch

14:00 – 14:30 Finalizing group work, uploading presentations to computer for projection

## Session 5 – Plenary: Presentation of environmental indicators

### Facilitator:

- Ms. Kristina Taboulchanas, ECLAC

### Evaluators:

- Ms. Rayen Quiroga, UNSD
- Ms. Reena Shah , UNSD
- Ms. Johanna Granados, UNEP/ROLAC
- Ms. Sheila Stuart, ECLAC Subregional Headquarters for the Caribbean

14:30 – 15:30	Group 1: presentation, defense and evaluation of methodological sheets. Identification of strengths, weaknesses and conclusions
15:30 – 15:45	Coffee break
15:45 – 16:45	Group 2: presentation, defense and evaluation of methodological sheets. Identification of strengths, weaknesses and conclusions
16:45 – 17:00	Photographic session of working groups

## Day 5: Friday 10 December

### Continuation Session 5 – Presentation of environmental indicators

### Facilitator:

- Ms. Sheila Stuart, ECLAC Subregional Headquarters for the Caribbean

### Evaluators:

- Ms. Rayen Quiroga, UNSD
- Ms. Reena Shah , UNSD
- Ms. Johanna Granados, UNEP/ROLAC
- Ms. Kristina Taboulchanas, ECLAC

09:00 – 10:00	Group 3: presentation, defense and evaluation of methodological sheets. Identification of strengths, weaknesses and conclusions
10:00 – 11:00	Group 4: presentation, defense and evaluation of methodological sheets. Identification of strengths, weaknesses and conclusions
11:00 – 11:30	Coffee break
11:30 – 12:30	Group 5: presentation, defense and evaluation of methodological sheets. Identification of strengths, weaknesses and conclusions
12:30 – 13:30	Lunch

**Session 6 – Conclusions and way forward**

13:30 – 14:30	Group 6: presentation, defense and evaluation of methodological sheets. Identification of strengths, weaknesses and conclusions
14:30 – 15:00	General discussion on the set of calculated indicators: strengths, weaknesses, consistency, integrity
15:00 – 15:20	Coffee break
15:20 – 15:50	Discussion on the way forward: how to keep working, next steps
15:50 – 16:10	Evaluation of workshop
16:10 – 16:30	Workshop closure.