

# An Introduction to **CCORAL**: Caribbean Climate Online Risk and Adaptation Tool

*“The CCORAL Tool should be recognized as an important contribution to the suite of mechanisms geared towards improving the capacity of the Caribbean Community to address the development challenges associated with climate variability and climate change.”*

**Irwin Larocque**  
Secretary General, CARICOM

*“[CCORAL will] help... communities and nations adapt... to the impending impacts of climate change, minimising the risk to human lives and property.”*

**Dr Rajendra K Pachauri**  
Chairman of the Intergovernmental Panel on Climate Change (IPCC)

*“I think (CCORAL is) an excellent tool. One word to describe it is timely... It is a tool that...can be utilised by different sectors – tourism, fisheries, agriculture, water”*

**Ms Rachel Allen**  
Senior Climate Change Advisor to the Minister of Water, Land, Environment and Climate Change in Jamaica



Caribbean Community  
Climate Change Centre



Climate & Development  
Knowledge Network

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Summer 2013

## KEY MESSAGES

- **What is CCORAL?**

CCORAL (pronounced ‘sea-coral’) is an online support system for climate resilient decision making, uniquely developed for use in the Caribbean. It will facilitate users in taking appropriate action in response to a variable and changing climate, apply a risk management approach in decision making and ultimately deliver climate resilient development. CCORAL integrates climate resilience into day-to-day Caribbean decision-making processes and activities, and helps users prioritise their efforts given limited time and resources.

- **Who is CCORAL for?**

Caribbean government Ministries and agencies (particularly Ministries of Finance and Planning); Caribbean Community (CARICOM) regional agencies; NGOs and civil society organisations; universities and research institutions; private sector inclusive of the construction, business and financial services sectors; development partners and others.

CCORAL is open access and designed for users of all skill levels. CCORAL is unique in enabling those who may have little or no formal expertise to make climate resilient decisions, whilst also providing detailed resources for those who are familiar with the processes involved.

- **Developing CCORAL**

CCORAL was developed by the Caribbean Community Climate Change Centre (CCCCC) with technical support from Acclimatise. CCORAL is based on extensive consultation across the Caribbean, notably in the four pilot countries of Barbados, Belize, Jamaica and Suriname. CCORAL was developed with financial support from the Climate & Development Knowledge Network (CDKN).

- **Next steps**

Building CCORAL was the first step. The CCCCC and its partners are now preparing extensive CCORAL training and rollout across the Caribbean. CCORAL is a living tool and will be updated and developed as lessons are learned through the experience of using it.

## INTRODUCTION

*CCORAL delivers on one of the twelve priority challenges identified in 'Delivering Transformational Change, 2011-21'<sup>1</sup>, the CARICOM Implementation Plan (IP) for achieving goals set out in 'Climate Change and the Caribbean: Regional Framework for Achieving Development Resilient to Climate Change' (RF)<sup>2</sup>. Further information on both the IP and the RF can be found on the CCCCC website and in a previous CDKN Knowledge Brief<sup>3</sup>.*

The Caribbean region's efforts to promote sustainable development and achieve the Millennium Development Goals are under severe threat from the devastating effects of increasing climate variability, climate change and sea level rise. The increasing intensity of extreme weather events causes severe damage to the region's economic, environmental and social systems. Expected losses from wind, storm surge and inland flooding currently stand between 1% and 6%<sup>4</sup> of national GDP annually, while in any particular year losses can be far greater.

An economic analysis of the costs of a changing climate projected that the Caribbean's annual cost of inaction could total USD \$10.7 billion annually by 2025, USD \$22 billion by 2050 and USD \$46 billion by 2100. The net effect of costs on this scale is equivalent to causing a perpetual economic recession in each of the CARICOM Member States<sup>5</sup>. This presents a major economic challenge in the context of low growth, high indebtedness, and severe existing stresses to social and environmental systems across the region. These costs are an underestimate of the real costs as they fail to take into account all sectors and secondary, tertiary and compound impacts.

***"CCORAL is a practical approach to cost-effective climate-resilient investment"***

**Dr. Kenrick Leslie, CBE**

Executive Director, Caribbean Community Climate Change Centre

Given the cross-sectoral and significant nature of the climate challenge, CARICOM Heads of Government have formalised their commitment to mainstream climate adaptation strategies into the national development agendas of their countries. They have recognised that building climate resilience needs to become an integral part of each country's development and growth planning, rather than being treated as an additional area for action. CCORAL has been developed to integrate climate resilience into Caribbean decision-making processes and activities, including into legislation, national plans, strategies, policies, programmes, projects and budgets.

***"It is imperative that we do not perpetuate inaction (on climate change) and proceed to be proactive".***

**Dr Warren Smith**

President of the Caribbean Development Bank

## BACKGROUND

In July 2009, the Liliendaal Declaration on Climate Change and Development was issued by the 13th Meeting of the Conference of CARICOM Heads of Government<sup>6</sup>. This Declaration provided a vision for transformational change in the region in response to the challenges of a changing climate. It articulated commitments, endorsements and specific declarations on actions needed to affect change. Following from this, and at the request of the CARICOM Heads of State, the CCCCC prepared and published the RF. In order to guide and help operationalise country commitments under the RF the Heads of State requested CCCCC to develop the IP which was subsequently endorsed by the CARICOM Heads of Government in March 2012.

<sup>1</sup>Caribbean Community Climate Change Centre (2011): [Delivering transformational change 2011-21: Implementing the CARICOM 'Regional Framework for Achieving Development Resilient to Climate Change'](#), Caribbean Community Climate Change Centre, Belmopan, Belize.

<sup>2</sup>Caribbean Community Climate Change Centre (2009): [Climate Change and the Caribbean: A Regional Framework for Achieving Development Resilient to Climate Change \(2009-2015\)](#), Caribbean Community Climate Change Centre, Belmopan, Belize.

<sup>3</sup>[http://cdkn.org/resource/delivering-transformational-change-a-plan-to-achieve-development-resilient-to-climate-change-in-the-caribbean/?loclang=en\\_gb](http://cdkn.org/resource/delivering-transformational-change-a-plan-to-achieve-development-resilient-to-climate-change-in-the-caribbean/?loclang=en_gb).

<sup>4</sup>CCRIF (2010) *Enhancing the climate risk and adaptation fact base for the Caribbean*. CCRIF, Cayman Islands.

<sup>5</sup>Caribbean Community Climate Change Centre (2011): [Delivering transformational change 2011-21: Implementing the CARICOM 'Regional Framework for Achieving Development Resilient to Climate Change'](#), Caribbean Community Climate Change Centre, Belmopan, Belize. *These estimates are based on three categories - increased hurricane damage, loss of tourism revenue, and infrastructure damage, and on 2004 GDP figures.*

<sup>6</sup>[http://www.caricom.org/jsp/communications/meetings\\_statements/liliendaal\\_declaration\\_climate\\_change\\_development.jsp](http://www.caricom.org/jsp/communications/meetings_statements/liliendaal_declaration_climate_change_development.jsp).

Based on a comprehensive consultation process, 12 priority challenges and actions were identified in the IP to ensure delivery of the RF. One priority action was to develop a climate risk management ethic in decision making, i.e. to ensure use of risk management processes and tools, manage climate uncertainties, and integrate climate change into decision making. CCORAL has been developed to meet this need. The rationale behind the need for a risk management approach to decision making has been considered in a previous CDKN Knowledge Brief prepared by Acclimatise<sup>7</sup>.

*CCORAL helps decision makers see their responsibilities, processes and activities through a 'climate' or 'climate change' lens.*

## WHAT IS CCORAL?

CCORAL is an online support system for climate resilient decision-making. It helps users:

- work within their own organisational decision making processes;
- quickly screen and prioritise their activities;
- understand climate influence and management options at each stage of their activity;
- apply a climate risk management process;
- find appropriate tools in the CCORAL toolbox; and
- learn more about next steps, further information, etc.

As shown in Figure 1, CCORAL has a number of components which can be applied depending on a user's needs and experience.

The screening exercise allows users to rapidly assess in less than 5 minutes if their activity (e.g. policy, strategy, plan, budget) is climate influenced and a priority for further assessment. This reduces the burden on the user and provides an early exit point for those activities which are not high priority, recognising the reality of organisational capacity constraints across the Caribbean. The screening exercise also fulfils another important objective, in that over time it is designed to enable those with little or no experience in building climate resilience to gain confidence in their ability to quickly identify and challenge decisions.

Component	Description
Enter CCORAL: select country/entire region 2 minutes	Information and links to data relevant to your country of interest and the Caribbean.
Screening exercise 5 minutes	Quick identification of whether your activity is climate- influenced, and a priority for further assessment.
Understanding climate influence on decisions: Expert (E) 15 minutes	<input type="checkbox"/> Legislation <input type="checkbox"/> National planning <input type="checkbox"/> Strategy or policy <input type="checkbox"/> Programme or project
Understanding climate influence on decisions: Non-Expert (NE) 1 hour	<input type="checkbox"/> Budget prep /evaluation. Guidance on how and why climate is relevant and can be integrated into the decisions organisations make. Information tailored to the experience of the user.
End-to-end climate risk management processes 15 minutes	Guidance on undertaking a complete climate risk management process.
Toolbox: 70+ CRM tools 20 minutes	A searchable toolbox to find the most appropriate tools to support your project and experience.

**Figure 1: CCORAL components, including a brief description and indicative completion time for each<sup>8</sup>.**

The high level guidance component helps decision makers, particularly those in government, to understand climate impacts and resilience in the context of their activity and decision making process, helping them see normal activities through a 'climate' or 'climate change' lens.

Applying a climate risk management process or one of the CCORAL tools will assist users in identifying concrete actions that minimise climate related loss, take advantage of opportunities and foster climate resilient development. It is also possible to consider avoided losses. The CCORAL toolbox currently contains a resource database of over 70 tools which can be searched according to functionality, sector, target audience and language. All tools included have been selected for their relevance to the Caribbean region, tagged according to their strengths (e.g. accessible to non-experts, user-friendly, etc.), and case studies of their application have been provided where possible.

<sup>7</sup>[http://cdkn.org/resource/a-risk-management-approach-to-decision-making-in-the-caribbean/?loclang=en\\_gb](http://cdkn.org/resource/a-risk-management-approach-to-decision-making-in-the-caribbean/?loclang=en_gb).

<sup>8</sup> Indicative times relate to the time it takes to work through the CCORAL site. They do not include time required to apply external tools which are linked to in CCORAL (e.g. those in the toolbox).

Additionally, by using CCORAL, decision makers are able to demonstrate to funders, investors and development partners that climate resilience has been considered and integrated into relevant activities.

CCORAL takes a pragmatic approach recognising that resilience building will only be delivered by government officials and Ministers integrating climate considerations into the wider economic, social and environmental challenges they are already facing. This means that climate risk management guidance must fit within the decision making processes they are familiar with and use on a daily basis. CCORAL promotes the use of the most appropriate and relevant tools and techniques to fit the context of Caribbean decision making and the user's capacity and level of expertise.

CCORAL also provides the option to save output reports recording a user's progress and results. These reports provide valuable aids to communication with colleagues, and in defining terms of reference/ project scope for the procurement of external technical support.



**Address by CCCCC Executive Director Dr. Kenrick Leslie at CCORAL launch, July 2013**

CCORAL has been designed to create discussion and collaboration between experts and non-experts and challenge perceived wisdom as they work toward making climate resilient decisions.

## WHO IS CCORAL FOR?

CCORAL is open access, hosted and managed by the CCCCC on its regional climate change clearing house platform<sup>9</sup>. It is available for use by any organisation in

<sup>9</sup> Access to CCORAL is available at <http://ccoral.caribbeanclimate.bz/> and [http://caribbeanclimate.bz/index.php?Itemid=166&option=com\\_wrapper&view=wrapper](http://caribbeanclimate.bz/index.php?Itemid=166&option=com_wrapper&view=wrapper).

the Caribbean to help them build climate resilience into their decision-making. Potential users include Caribbean government Ministries and agencies (particularly Ministries of Finance and Planning); CARICOM regional agencies; NGOs and civil society organisations; universities and research institutions; the private sector, inclusive of the construction, business and financial services sectors; development partners and others.

Users enter CCORAL through one of 16 'homepages' one for each of the 15 CARICOM member country and a regional homepage. This allows the user to access country specific information.

While CCORAL has been developed for a broad audience, the screening and high level guidance were prepared particularly with government users in mind, notably those involved in national development planning and finance. The reason for this is very clear as highlighted in the IP - it is in these Ministries where national actions on climate resilience (and sustainable development) will be delivered. As such, specific guidance is provided for the following types of activities using standard approaches to decision making tested with the pilot countries:

- Legislation
- National planning
- Strategy and/or policy
- Programme and/or project
- Budget preparation/ evaluation.

*By integrating into normal decision making, CCORAL engenders a standard risk management ethic across the organisations and countries that use it.*

## PRACTICAL APPLICATION OF CCORAL

CCORAL's ability to connect normal decision making processes with relevant climate information and tools is a vital asset to many kinds of users in a number of different contexts. Below are some examples of when and how CCORAL can be applied:

### Screening and climate proofing transport infrastructure

A line ministry responsible for transport infrastructure is undertaking its multi-annual planning exercise during which it will decide which projects are priorities for the next five years. The ministry can run all proposed projects through the CCORAL screening exercise to identify those

requiring in-depth climate risk assessment and management. Ministry staff can read through and apply the high level guidance in CCORAL to understand how and at what stages in their ministry's project appraisal process climate variability and change may affect their high priority projects. This will for example help Ministry staff understand the relevance of climate change across the whole project development cycle, or within specific elements such as demand forecasts, procurement and future operational and maintenance plans. CCORAL can also be used to assist in the evaluation of tender submissions to ensure that infrastructure projects have been designed to meet future needs within the context of a changing climate.

Where projects merit further assessment, staff can then use CCORAL to identify a comprehensive climate risk management process to apply (either internally or by external consultants), and/or select other climate risk management tools (e.g. a tool for economic assessment). CCORAL can also be used to locate climate-related resources relevant to the transport sector/country in question.

### Preparing climate resilient budgets

CCORAL can be used by finance ministry officials during annual reviews of government departmental budgets. The CCORAL screening exercise can be used to identify budget lines that are climate influenced and a high priority for further climate risk assessment. Further discussions with the relevant budget owner could then be held and consideration given to future budgetary pressures resulting in potential increases in operational expenditure needs arising from increased maintenance costs (e.g. flood damage to highways). Actions to address climate vulnerabilities and risks and minimise future operational spend can then be developed. This enables finance ministry staff to take informed decisions understanding the long term financial consequences.



CCORAL consultations in Jamaica

CCORAL provides a complementary framework that adds a climate risk dimension to standard decision-making activities. Although it cannot provide an answer to every question, and modelling and data analysis functionality have not been included<sup>10</sup>, it does provide users with the ability to identify which questions to ask. They are then in a position to understand how and when to integrate climate considerations into their decision making process and source guidance on how to find answers. CCORAL enables organisations and particularly government technocrats and Ministers to make informed climate resilient decisions minimising the risk of maladaptation. This then provides a risk management structure to the design and appraisal of options and preferred solutions specific to their own context.

Neither does it offer answers to every question. Rather, CCORAL helps users identify which questions to ask and offers a process for how to begin to find answers suited to their activity. Similarly, CCORAL will not generate a specific climate adaptation response. It provides the structure and resources users need to prepare a response tailored to their situation.

### NEXT STEPS

Building CCORAL was the first step. The CCCCC and its partners are now preparing extensive CCORAL training and rollout across the Caribbean. Actions include:

**CCORAL training:** Building capacity for government decision makers and non-government personnel on the application of CCORAL – summer/autumn 2013. Insights from this process will guide on-going improvements to CCORAL.

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<sup>10</sup> Data analysis can be undertaken however by applying tools hosted in the CCORAL toolbox.

*“Mr. Speaker, I want to advise every person here today, that before the end of the year, we will be commencing with the training of all Ministers and Heads of Agencies in using (CCORAL)”.*

Honourable Robert Pickersgill, MP  
Minister of Water, Land, Environment and Climate Change, Jamaica

**CCORAL pilot applications:** Demonstrating the utility of CCORAL through pilot applications of the tool across a range of Caribbean countries and sectors.

**Removing barriers to uptake:** Pilot country participants involved in CCORAL’s development gave a clear message: the biggest driver (or barrier) to using CCORAL in decision making will be a positive (negative) mandate from Ministers, policy makers, politicians and senior government officials. A positive mandate will only be secured if the economic, social, environmental and political, consequences of current climate variability and climate change are understood and acted upon as an integral element of national development programming.

**Monitoring and evaluation (M&E):** CCORAL’s M&E plan will guide the CCCCC in monitoring and evaluating CCORAL’s application and uptake, and feed into its ongoing development and successful delivery of climate resilient development. Information collected will also feed into the overarching reporting on CARICOM’s Implementation Plan for Climate Resilient Development and period reviews.

**CCORAL is available at:**

<http://ccoral.caribbeanclimate.bz/>.

Click on Tools at <http://caribbeanclimate.bz>