Caribbean Community
Climate Change Centre

SUPPORT FOR CONDUCTING AIR-BORNE LIGHT DETECTION AND RANGING SURVEYS AND TRAINING

PROJECT BRIEF

BACKGROUND

Challenges

The region has made major efforts to build climate resilience across the several vulnerable socio-economic sectors that are required to inform decision making on adaptation and for establishing a safer environment for its citizens. This included the undertaking of a range of vulnerability assessments and climate impact studies and using the outputs of these to inform appropriate response actions that would lessen the impact of climate risk on critical sectors such as tourism, agriculture, health, water, and infrastructure. However, these efforts have been seriously hampered by the dearth of essential data sets that are necessary for understanding and successfully addressing these issues. Challenges, such as the sustainable management of coastal areas in which most infrastructural development occurs, are exacerbated by the existent threats posed by climate change. Despite the availability of global geospatial data, which provide countries access to relevant data sets, the Caribbean has not been able to access nor generate the relevant data due to a lack of resources and technical capacity.

Solution

Early in its work, the Centre identified LiDAR technology as critical in fulfilling its regional mandate of building the information base for decision making on Adaptation in the Caribbean. Access to survey data generated by a LiDAR system would allow for the development of accurate flood risks maps for Caribbean countries, identification of methods to optimise water usage in the agriculture sector and increase production, generation of critical data to inform land use planning, determination of changes of elevation after seismic events, identification of areas prone to landslides, determination of high risk areas for human habitation, monitoring of the extent and health of critical ecosystems (forests, wetlands, mangroves), and the monitoring of forest deforestation and degradation. Armed with this information, Caribbean countries would be better placed to build climate resilience across the region.

In 2017, the Centre, through financial support from USAID, under the recently completed Climate Change Adaptation Programme (CCAP), acquired an airborne Light Detecting And Ranging (LiDAR) facility to augment the region's access to data to inform climate resilience building efforts. The Centre also entered a partnership with a private sector firm, Maya Airlines, which provided the aircraft on which the LiDAR system was mounted.

MODULES

01 Introduction to Remote Sensing, Surveying and Mapping

02 Applications of High Resolution geo-spatial data

03 Benefits of Remote Sensing Technologies

04 Data Acquisition

05 Data Processing Generating Point Clouds

06 Working with Point Clouds in Specialized Software

07 Cloud Processing and Advancements in Technology

08 Description of 5C's LiDAR Operations

09 Contracting Procurement

PROJECT OVERVIEW

The Caribbean Development Bank (CDB) has provided the Centre with a grant to be utilised to raise the awareness of CDB Borrowing Member Countries to the versatility and applications of LiDAR technology and to the ready access LiDAR services through the Centre, and to build the capacity to utilise the outputs to support regional efforts for building climate resilient societies.

As part of the CDB programme, resources have been allocated to provide countries from across the region with training in the use of LiDAR technology. The course consists of nine modules and focuses on the understanding of the use and application of the information derived from LiDAR surveys. The latter is particularly important in building climate resilient societies in the Caribbean e.g coastal protection from floods.

The other part of the CDB programme provides resources to carry out limited LiDAR surveys in member countries. The main objective of this exercise is to make CDB Borrowing Member Countries aware of the capacity of the Centre to provide these services in the future.

Ten countries (Ten Participating Countries) have agreed to participate in this part of the programme and each country has identified an Area Of Interest (AOI) which will be surveyed under the programme. The country surveys are scheduled to commence shortly.