

POLICY BRIEF

Improving Climate Risk Resilience through National Data Management in the Dominican Republic



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This Policy Brief was prepared by the Global Water Partnership-Caribbean (GWP-C) as part of the consultancy titled: Technical analysis focused on flood risk assessment and threat of landslides in the Dominican Republic, to inform the second submission of Nationally Determined Contributions (NDCs). The Policy Brief is authored by Dr. Ronald Roopnarine and Dr. Gaius Eudoxie.



Moca

Summary

Recent hydrometeorological disaster risk assessments performed in the Dominican Republic, support the critical role of data collection and management in achieving the National Development Strategy 2030, particularly objectives under strategic axis four, which aims to create “A society with a culture of sustainable production and consumption, which manages risks and the protection of the environment and natural resources with equity and efficiency and promotes adequate adaptation to climate change.”

The following policy brief should complement other similar and related works to solidify the position that environmental data collection including climatic data and subsequent analysis and management, is critical to the Dominican Republic’s developmental agenda.

Rainfall Projections and Water-Hazard Risk Analysis



Cayo Levantado

Geographic location and complexed topography expose the Dominican Republic to a variety of natural hazards, including hydrometeorological and geophysical. Scientific evidence for rapid warming of the climate system is unequivocal. A changing climate leads to changes in the frequency, intensity, spatial extent, duration and timing of weather and climate extremes, and can result in unprecedented extremes (Seneviratne et al., 2012).

Understanding how these are projected to change on a local scale under future climate scenarios is important in guiding land use and policy. Flooding and landslides are two of the most prominent hazards affecting the Dominican Republic (Dunn 2008, as cited by World Bank 2010).

These are particularly prevalent during the rainy season (June to November). Apart from the geophysical features, vulnerability is further related to climate change, weak building codes, health status and other socio-economic factors. Spatial assessment and monitoring of occurrences of these hazards are critical to predicting their future occurrences and risk to the population and environment.

The United Nations Framework Convention on Climate Change (UNFCCC), the 2030 Agenda for Sustainable Development, and the Sendai Framework for Disaster Risk Reduction 2015 – 2030, all have their respective global processes and platforms, and monitoring and reporting mechanisms. These provide entry points for dialogue and action to make best use of Integrated Water Resources Management (IWRM) in increasing ambition to advance countries' commitments on climate action, sustainable development, and disaster risk reduction. They provide principles upon which national policies and strategic visions can be developed and opportunities to partner with the international community.

Rainfall Projections and Water-Hazard Risk Analysis

National Determined Contributions (NDCs) are a powerful framework for laying out priorities for national climate action, with the potential to guide priorities such as building climate resilience and climate-resilient infrastructure. They can be developed into country-level strategies and/or approaches for mobilising finance for climate resilient infrastructure programmes and projects and for enhancing the necessary policy and regulatory frameworks. A common thread between this international commitment and the goal of sustainable development is the need for accurate and reliable data and information to guide decision-making. Efforts at local, national and international levels are pertinent to success and avenues including engagement of developmental partners are useful.

The current analysis focused on the use of national data for examining and extrapolating rainfall scenarios from a baseline period of 1971 - 2000 over three epochs: 2030s, 2050s and 2070s. Further, the projected rainfall scenarios were used to predict the susceptibility and risk of floods and landslides. The spatial and quantitative outputs provide reliable data that can be used nationally and internationally.

Outputs of Rainfall, Landslide and Floods Risk Assessments

- Projections vary across the country, however, a robust signal is a shift in the seasonal cycle of rainfall, the intensity, the percentage contribution of intense rainfall to total amounts and spatial distribution.
- Increases in rainfall intensity, as well as the percentage contribution of intense rainfall has been projected. The largest changes in most cases are projected to have occurred between the baseline period and the 2030s, with the trajectory of these shifts either continuing or reversing by the 2070s.
- There is an increased risk of landslides in future scenarios when compared to the baseline.
- The results indicated that changes in risk are spread across epochs and as such, no one epoch can be isolated as having the most discernible change from the baseline.
- The upper Yaque del Norte watershed, Santiago and Santo Domingo were consistently placed in the “Very High” risk class across all Representative Concentration Pathways (RCPs) and epochs.
- Landslide risk assessment placed more landmass in the “High” and “Very High” classes when compared to flooding which showed limited divergence from the baseline in the wet season and a reduction of risk in the dry season.
- There is a general indication that the flood risk levels will decrease in the dry seasons for future scenarios and remain relatively constant for the wet season.
- The results indicated that the largest changes in most cases would have occurred by the 2030s and 2050s in comparison to the baseline period, with the projections of these shifts either continuing or reversing by the 2070s.

Recommendations

- 1 The national assessment identified limitations in data availability, quality, continuity, and management and highlights the needs for institutional harmonization and mechanisms to improve data collection, storage and availability.
- 2 The national assessment is compatible with and complementary to similar programmes under the United Nations Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD) including the Land Degradation Neutrality Target Setting Process (LDN-TSP).
- 3 Land use particularly built development is an important trigger affecting the severity of risk outcomes. A sustainable approach is advocated, with attention given to land use policy.
- 4 Capacity building and training in data analytics and geospatial analysis will complement national development efforts. There is a role for partnership and engagement of developmental agencies.
- 5 Increase analytical resolution is warranted to validate action areas but requires local data sets. This is particularly relevant regarding local/ provincial governance and will allow connections with the population.
- 6 This assessment represents a paradigm shift for the implementation of the UNFCCC at the country level. The national competent authority would therefore be expected to improve their monitoring of climatic and hydrological resources through both qualitative and quantitative means and to regulate physical development and their associated activities in alignment with the revised NDC, the Strategic Plan for Climate Change 2011 - 2030 and the Initiative for the Transparency of Climate Action for Adaptation and Mitigation (ICAT-A).

Policy Options

- 1 Enhance partnerships with national, regional and international stakeholders to facilitate periodic professional capacity building in data analytics and geospatial analysis.
- 2 Consider options to ensure sustainability in national monitoring and data collection towards future reporting and national development requirements. This can be achieved through the NDC as a development tool to coordinate and harmonise climate and disaster related data monitoring. This option is implicit in the Initiative for the Transparency of Climate Action for Adaptation and Mitigation (ICAT-A) and must be seen as an important policy objective.
- 3 Improve data storage, access and management through a central repository and information system for all environmental data leading to linkages between international conventions that share developmental indicators and improving efficiency of data use.

References

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