RAINFALL IDF CURVES

A STRATEGIC TOOL FOR RESILIENT DEVELOPMENT

FROM POLICY TO PRACTICE: STRENGTHENING INFRASTRUCTURE & COMMUNITIES

In the face of climate change, the Caribbean's infrastructure and communities are under increasing threat from impacts due to extreme rainfall and flooding. Rainfall Intensity-Duration-Frequency (IDF) curves offer a proven, data-driven tool to inform smarter decisions, safeguard investments, and build climate resilience.

WHAT ARE IDF CURVES?

Rainfall IDF curves are statistical tools that estimate:

- How much rain is expected
- How long the rain lasts
- How likely it is to occur

For policymakers, rainfall IDF curves translate science into actionable numbers to support planning, regulation, and investment.

WHY RAINFALL IDF CURVES MATTER FOR POLICY

Within many Caribbean countries IDF curves are outdated or non-existent. Without reliable data, building codes, drainage designs, and land-use regulations may underestimate risk, leading to increases in damage and loss. By integrating updated IDF data into decision-making, authorities can:

- Strengthen building codes and land-use regulations
- Guide climate-resilient infrastructure planning
- Reduce public spending on disaster recovery
- Support compliance with international climate adaptation commitments

HOW TO USE IDF CURVES IN POLICY

IDF curves are most valuable when actively applied to decision-making processes across sectors. Here are key ways policymakers can put them into action:

- Update building codes to consider current and projected rainfall risks
- Incorporate curves into land-use planning to guide high-risk development in flood-prone areas
- Inform infrastructure investment decisions by assessing flood risk before construction
- Support disaster preparedness planning with reliable rainfall information

THE PROJECT

The Caribbean Institute for Meteorology and Hydrology (CIMH) has been engaged by the Caribbean Development Bank (CDB), to develop new IDF curves for all CDB Borrowing Member Countries (BMCs). Using satellite-based rainfall data, ground-based rainfall records, and climate information, these curves will:

- Incorporate future climate change projections
- Provide country-specific, accessible datasets
- Enable evidence-based policymaking

STRATEGIC BENEFITS FOR DECISION-MAKERS

"Every US$1 invested in risk reduction and prevention can save up to US$15 in post-disaster recovery." — United Nations Office for Disaster Risk Reduction(UNDRR) Updated rainfall IDF curves help ensure infrastructure is designed to withstand future conditions, protecting lives, livelihoods, and national budgets.

Key Benefits

- Prevent over or under-designed infrastructure
- Strengthen compliance with resilience standards
- Enhance public trust by prioritising safety
- Improve coordination across ministries and sectors

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