MERCURY

# GIS Application In Disaster Risk Reduction Training

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## Introduction:

Information and Communication Technologies ICTs have improved prospects for solving technical problems using Geographical Information Systems GIS for hazard mapping and modeling, the use of web-based data sources to facilitate research on disaster management, and the use of searchable databases for hazard information. Not all Caribbean countries, however, have been able to fully utilize these opportunities.

This course aims to impart practical skills on how to use GIS, to overcome the major challenges faced in all phases of disaster management.

## Targeted Groups:

The training is intended for:

- professionals working in development areas mostly in DRM-related fields.
- Managers of institutions and companies.
- Managers of crisis and risk management departments.
- Workers in the field of disaster and crisis management.
- Public relations and media workers because of their role in managing any crisis.
- Workers in the field of maintaining the security of institutions.
- Relief work crews.
- Those wishing to develop their capabilities in this field.

## Training Objectives:

By the end of this course the participants will be able to:

- Describe and utilize spatial data.
- Understand spatial data in the phases of pre-disaster, during disaster, and post-disaster.

## Targeted Competencies:

- Maintenance Planning Planners, Schedulers, Engineers, Leaders, and Managers
- Maintenance Engineers, Supervisors, Section Leaders, Team Leaders, and managers
- Reliability Engineers, Section Leaders, Team Leaders, and Managers
- Integrity Engineers, Section Leaders, Team Leaders, and Managers
- Operation Engineers, Section Leaders, Team Leaders, and Managers

## Course Content:

### Unit 1: Disaster Management Concepts and Institutional Framework:

- Basic GIS concepts and terminologies in disaster management.
- International and Regional Protocols and action plans relating to disaster risk management.
- Introduction to spatial information.

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## Unit 2: Introduction to Geoinformatics, GIS data sources, and data collection:

- Geographic Information System.
- Data sources for DRM.
- Data collection using Global Positioning Systems.
- Data collection using Mobile Data Collection ODK.
- Introducing GIS functions using QGIS.
- Preparation of Earthquake Hazard Map.

## Unit 3 Hazard, Vulnerability, and Risk Assessment with QGIS:

- Types and methods of risk assessment, risk evaluation, vulnerability analysis.
- Spatial data preparation and GIS integration techniques in Microsoft Excel
- Use of GIS in disaster preparedness planning.
- Elements at risk, hazard, and vulnerability assessment using GIS.
- GIS multi-criteria analysis in vulnerability assessment.

## Unit 4: Application of Risk Information for Risk Reduction Planning:

- Visualization of risk information Using QGIS.
- Risk mapping and database generation using QGIS.
- Exercise: Creating a risk map.

## Unit 5: Applications of Geoinformation:

- Disaster Scope, Examples & Advancements.
- Introduction to Quantum GIS open source.

## Unit 6: Global and National Initiatives:

- Overview of The Disaster Management Support Program.
- Key International and Regional Initiatives.
- Disaster Management Planning and Emergency Response Case Studies.

## Unit 7: Public Participatory GIS and Disaster Risk Management:

- Participatory GIS as a tool for DRM mapping.
- Use of Google Maps and Google Earth in DRM.
- Community crisis mapping.

## Unit 8: Public Participatory GIS and Disaster Risk Management:

- Flood inundation Mapping.
- Preliminary Flood Damage Assessment.