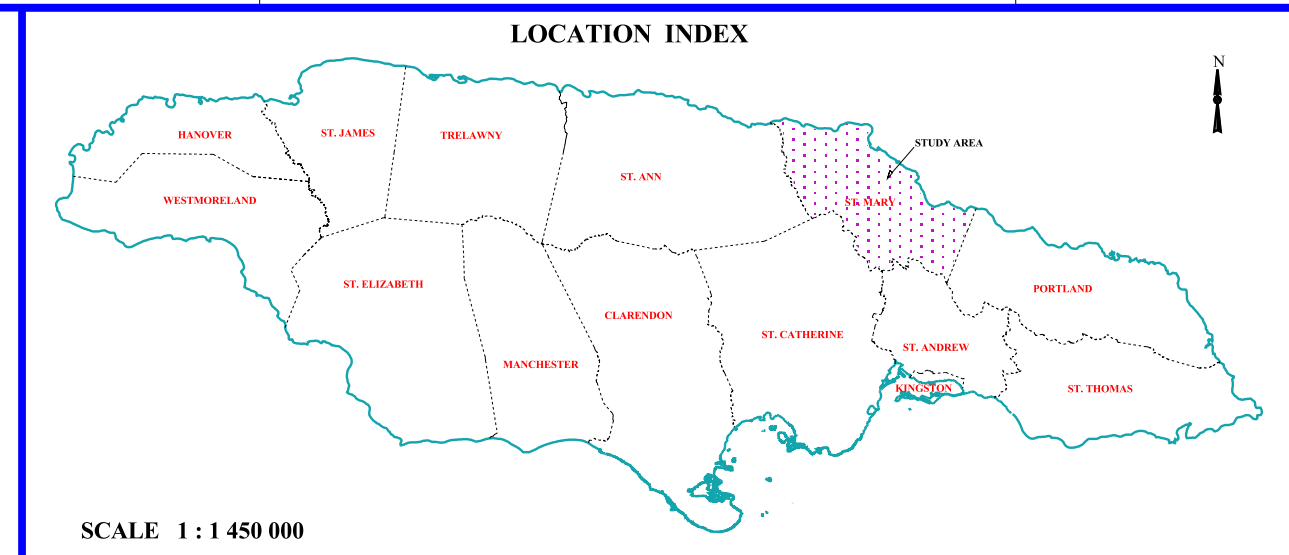
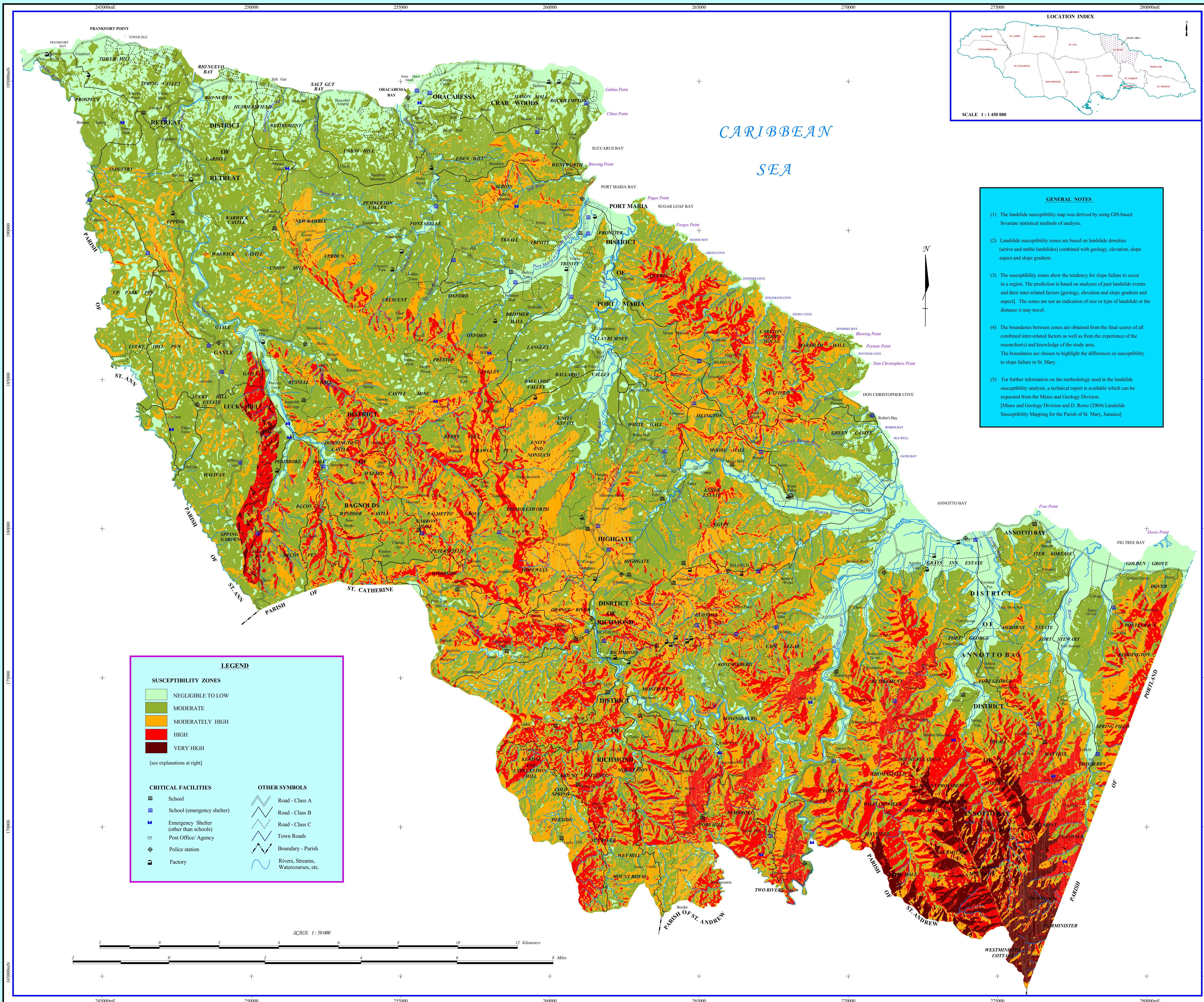


LANDSLIDE SUSCEPTIBILITY MAP OF ST. MARY, JAMAICA



GENERAL NOTES

- (1) The landslide susceptibility map was derived by using GIS-based bivariate statistical methods of analysis.
- (2) Landslide susceptibility zones are based on landslide densities (active and stable landslides) combined with geology, elevation, slope aspect and slope gradient.
- (3) The susceptibility zones show the tendency for slope failure to occur in a region. The prediction is based on analyses of past landslide events and their inter-related factors [geology, elevation and slope gradient and aspect]. The zones are not an indication of size or type of landslide or the distance it may travel.
- (4) The boundaries between zones are obtained from the final scores of all combined inter-related factors as well as from the experience of the researcher(s) and knowledge of the study area. The boundaries are chosen to highlight the differences in susceptibility to slope failure in St. Mary.
- (5) For further information on the methodology used in the landslide susceptibility analysis, a technical report is available which can be requested from the Mines and Geology Division. [Mines and Geology Division and D. Rowe (2004) Landslide Susceptibility Mapping for the Parish of St. Mary, Jamaica]

LEGEND

SUSCEPTIBILITY ZONES

- NEGLIGIBLE TO LOW
- MODERATE
- MODERATELY HIGH
- HIGH
- VERY HIGH

[see explanations at right]

CRITICAL FACILITIES

- School
- School (emergency shelter)
- Emergency Shelter (other than schools)
- Post Office/ Agency
- Police station
- Factory

OTHER SYMBOLS

- Road - Class A
- Road - Class B
- Road - Class C
- Town Roads
- Boundary - Parish
- Rivers, Streams, Watercourses, etc.

EXPLANATION OF LANDSLIDE SUSCEPTIBILITY ZONES

NEGLIGIBLE TO LOW LANDSLIDE SUSCEPTIBILITY

Landslides are rare to non-existent in this zone; however, secondary landslide induced flood risk (flooding caused by water backed up behind a landslide barrier or dam in a river channel or, by the sudden release of water downstream when dam is breached) is possible, particularly in river valleys during intense rainfall and earthquake events. Areas in this zone cover 15 percent of the parish and are mainly located in the small flood plains of river valleys in the north east and on the lower elevations along the north coast.

MODERATE LANDSLIDE SUSCEPTIBILITY

Small-scale landslides including road cut and gully bank failures are expected to occur at any time, while large-scale failures can occur occasionally after intense rainfall or earthquake events. Small and large-scale developments of all types can be encouraged in this zone, however geological and geotechnical advice must be sought for large and "sensitive" developments. Simple slope stabilization and drainage measures are minimum recommendations for development of all types, particularly in areas of high surface drainage containing "clay-rich rocks, or having moderate to thick soil cover above bedrock. Contour farming practices should be encouraged for large-scale agricultural activity, particularly on steeper slopes. This zone covers 46 percent of the study area and can be identified throughout the parish (except in the south and southeast) in areas having gentle to moderate slopes or occasionally on steeper competent rock slopes.

MODERATELY HIGH LANDSLIDE SUSCEPTIBILITY

Small scale landslide activity can occur at any time while there is likely to be more frequent moderate to large-scale slope failures in this zone especially following intense rainfall and earthquake events. Geological factors begin to play a major role in promoting landslides, particularly on moderate slopes. Large and small scale developments can occur, but must be accompanied by site-specific geological/geotechnical studies. Sensitive developments will require detailed and critical analysis (including slope stability analysis) in order to be recommended. Proper drainage and erosion control and slope stabilization measures are strongly recommended for all types of structural and infrastructural works and large-scale agricultural development. With respect to the latter, measures should include proper contour farming practices. Roof runoff from buildings located on moderate to steep hillside, especially in clay-rich rocks must be controlled to minimize failures during high precipitation. Approximately 24 percent of the study area falls in this zone.

HIGH LANDSLIDE SUSCEPTIBILITY

Significant landslide activity is possible at all times following intense rainfall and earthquake events. All types of developments for landslide activity are present in this zone. All major infrastructure works should be avoided. In instances where small communities exist, there will be high exposure to landslide hazards and some interventions will be necessary from time to time. This zone covers 13 percent of the parish and is concentrated in the very steep hilly terrain in the south, with minor coverage in the centre and north of the parish.

VERY HIGH LANDSLIDE SUSCEPTIBILITY

Catastrophic landslides are possible at all times. All types of developments should be avoided. Communities located in this zone should be strongly encouraged to relocate. Approximately 2 percent of the study area falls within this zone.

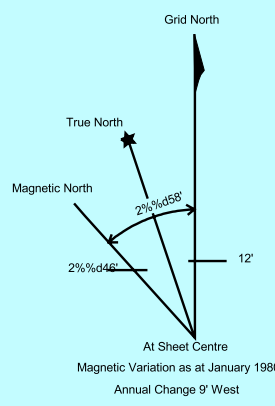
Sensitive Developments: Any development that can have some major negative impact on the social and economic conditions of the parish if it becomes inoperable or inaccessible over a given period of time. Examples include Electrical Power Plants, Electrical Transmission and Cellular Telephone Towers, major arterial roads connecting large population centres etc.

Clay-rich Rocks: This is a group of detrital sedimentary rocks, commonly clays, shales, mud rocks, siltstones and possibly marls. The rocks are generally weak and impermeable and often weather (naturally decompose) rapidly to form clay soil. These rocks and associated clay soils are widely distributed in the centre and the north-eastern section of the parish and host some of the largest population centres in the study area and contain fertile agricultural land.

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DISCLAIMER

This map is not recommended to be used for site-specific purposes, but is intended as a guide to assist in physical development and natural hazard mitigation as well as the planning of civil engineering works. For site-specific studies, further geological/geotechnical advice should be sought particularly in the "moderate" to "very high" landslide susceptibility zones



GRID: Jamaica Metre Grid (JAD 69)
 PROJECTION: Lambert Conformal Orthographic with one Standard Parallel
 SPHEROID: Clarke 1866
 UNIT OF MEASUREMENT: Metre
 MERIDIAN OF ORIGIN: 77° West of Greenwich
 LATITUDE OF ORIGIN: 18° North
 FALSE EASTING: 250 000 m
 FALSE NORTHING: 150 000 m

UNEP
 ODP
 UNDP

UNITED NATIONS DEVELOPMENT PROGRAMME
 OFFICE OF DISASTER PREPAREDNESS AND EMERGENCY MANAGEMENT
 MINES AND GEOLOGY DIVISION

DATE: May 2004. MAP No: 2

Map prepared by Mines and Geology Division for the Office of Disaster Preparedness and Emergency Management under the United Nations Development Programme funded 'Support to Community-based Disaster Management' project.