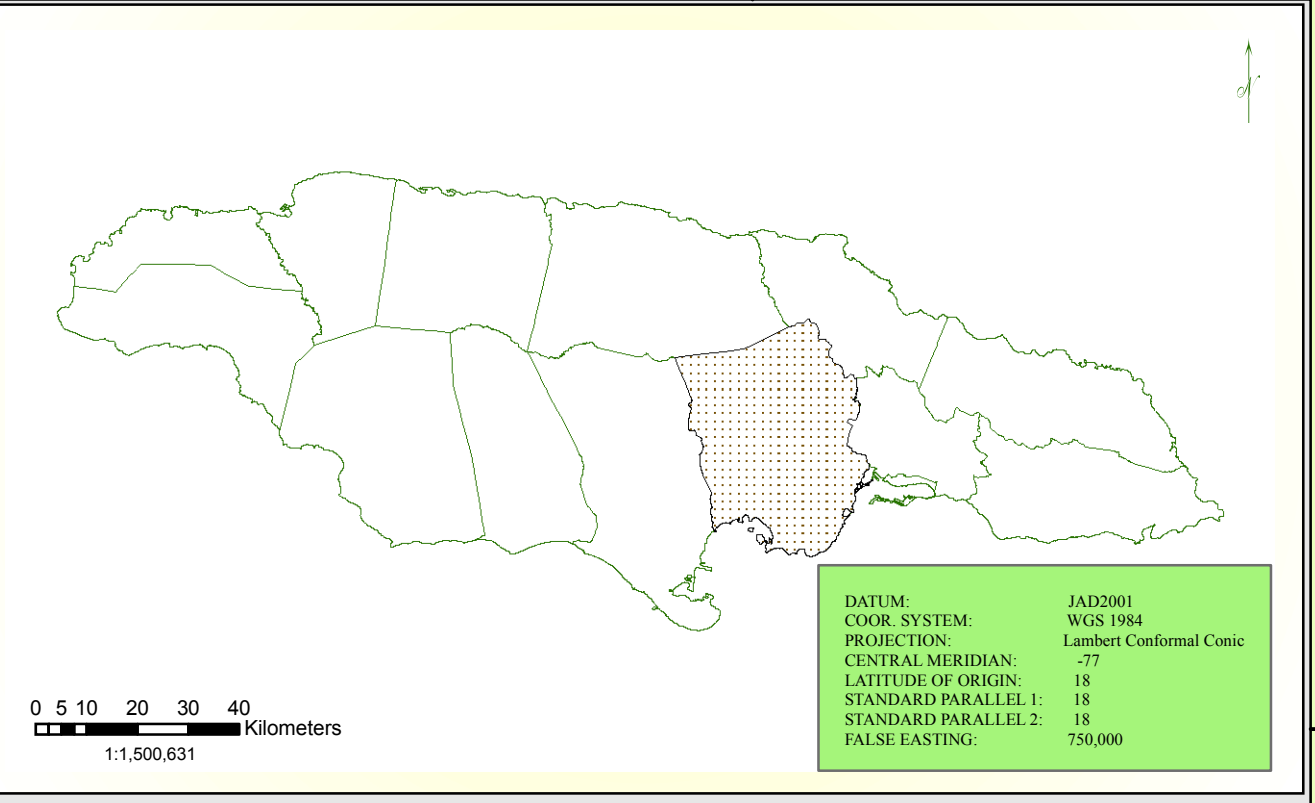
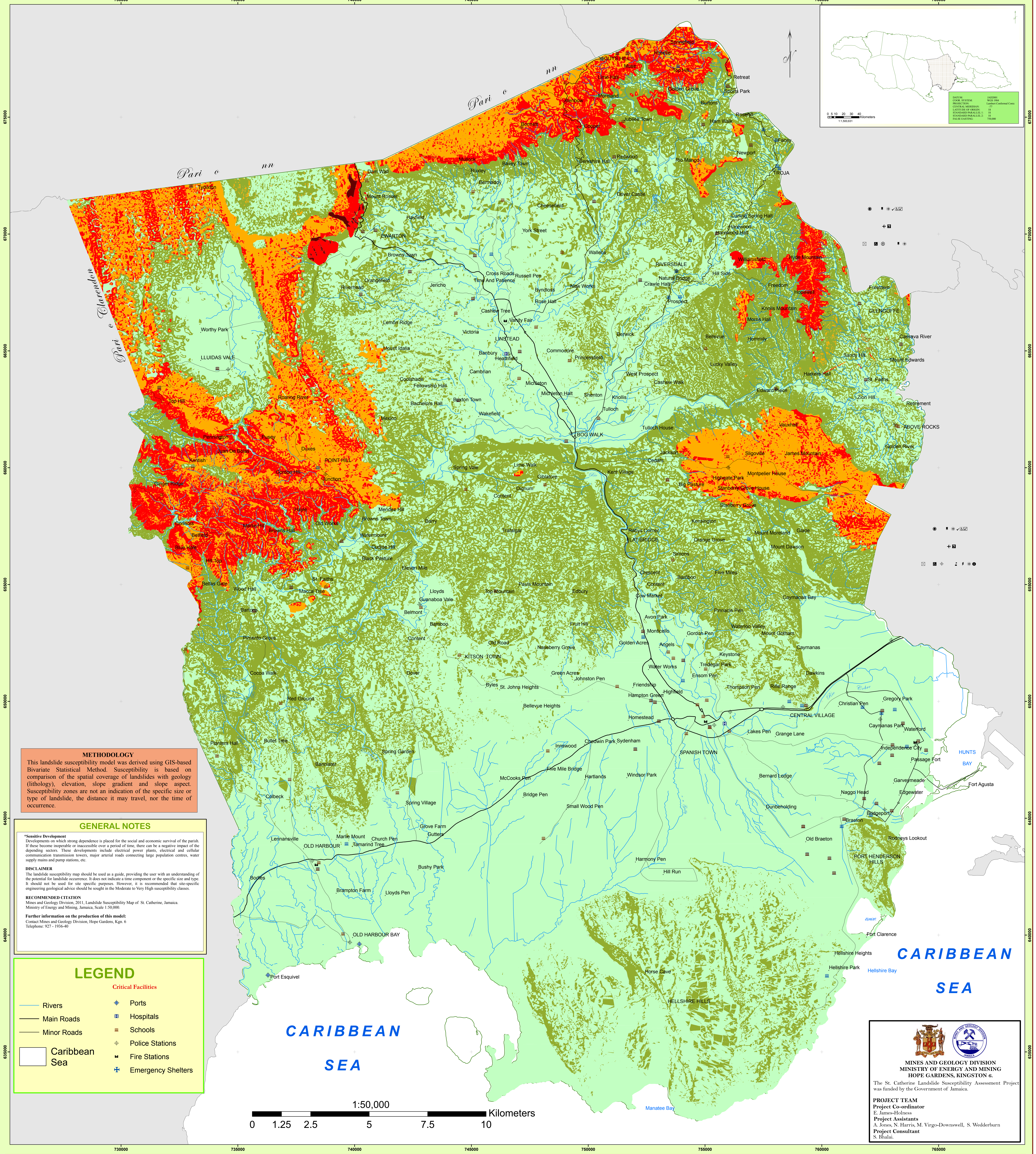


Landslide Susceptibility Map of St. Catherine, Jamaica



METHODOLOGY
This landslide susceptibility model was derived using GIS-based Bivariate Statistical Method. Susceptibility is based on comparison of the spatial coverage of landslides with geology (lithology), elevation, slope gradient and slope aspect. Susceptibility zones are not an indication of the specific size or type of landslide, the distance it may travel, nor the time of occurrence.

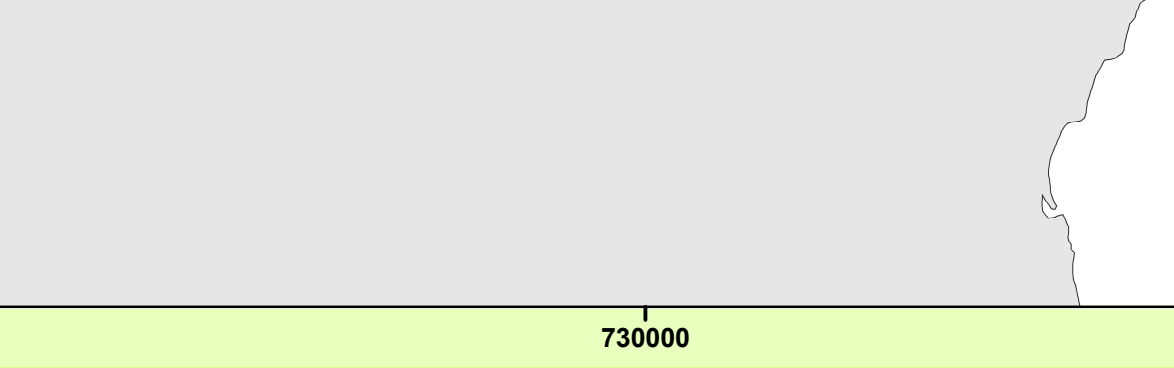
GENERAL NOTES
Sensitive Development
Developments on which strong dependence is placed for the social and economic survival of the parish. If these become inoperable or inaccessible over a period of time, there can be a negative impact on the depending sectors. These developments include electrical power plants, electrical and cellular communication transmission towers, major arterial roads connecting large population centres, water supply mains and pump stations, etc.

DISCLAIMER
The landslide susceptibility map should be used as a guide, providing the user with an understanding of the potential for landslide occurrence. It does not indicate a time component or the specific size and type. It should not be used for site specific purposes. However, it is recommended that site-specific engineering geological advice should be sought in the Moderate to Very High susceptibility classes.

RECOMMENDED CITATION
Mines and Geology Division, 2011, Landslide Susceptibility Map of St. Catherine, Jamaica. Ministry of Energy and Mining, Jamaica, Scale 1:50,000.

Further information on the production of this model:
Contact Mines and Geology Division, Hope Gardens, Kgn. 6
Telephone: 927-1036-00

- LEGEND**
- Rivers
 - Main Roads
 - Minor Roads
 - Caribbean Sea
 - + Critical Facilities
 - + Ports
 - + Hospitals
 - + Schools
 - + Police Stations
 - + Fire Stations
 - + Emergency Shelters



MINES AND GEOLOGY DIVISION
MINISTRY OF ENERGY AND MINING
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LANDSLIDE SUSCEPTIBILITY ZONES - GUIDELINES

<p>SUSCEPTIBILITY ZONES</p> <ul style="list-style-type: none"> ■ Negligible to Low ■ Moderate ■ Moderately High ■ High ■ Very High 	<p>NEGLECTIBLE TO LOW LANDSLIDE SUSCEPTIBILITY</p> <p>Forty percent (40%) of the parish is classified in this zone. This is due mainly to the fact that a large area (nearly 20% of the parish) is composed of low-lying flood plains and alluvial material deposited by the Rio Cobre and its tributaries. This encompasses those and other flat to gently-sloping areas showing the lowest influence of the predisposing factors for landslides. Landslides are almost absent in this zone except for rare over bank failure along steep-sided channels in alluvial deposits.</p> <p>Where this zone is adjacent to zones of higher landslide susceptibility, the direct influence of landslides may be experienced. Landslide material originating from sources within the relatively higher zones may be deposited within this zone of negligible to low landslide susceptibility e.g. debris flow deposit coming to rest on a flood plain. Secondary effects of landslides may also be experienced in this zone. For example, flooding could occur behind a barrier created by landslide deposits that has choked a fluvial channel (landslide dam) or partially blocked the flow causing a diversion of the stream.</p> <p>In regards to the landslide susceptibility, development should be encouraged in this zone. As pertaining to slope instability, detailed geotechnical assessment is generally not required. However, human influence can generate slope failures. Development should still proceed according to the applicable planning guidelines established for these areas.</p>	<p>MODERATE LANDSLIDE SUSCEPTIBILITY</p> <p>Thirty-one percent (31%) of the parish is classified in this zone. The predisposing factors for landslides begin to show influence. The Port Henderson and Hellshire Hills, except for small sections that are of a higher susceptibility, fall within this zone. Small landslides (along road cuts or fluvial channels) are expected to occur at anytime whereas larger landslides may occur occasionally, correlating with prolonged or intense rainfall and moderate to large earthquake events.</p> <p>Large- and small-scale developments can be promoted within this zone. However, large-scale development should proceed according to geological and geotechnical advice. This is important, especially if these large-scale developments are sensitive developments. All development should consider drainage control measures (e.g. control of roof runoff from buildings and drainage ditches in fields) and simple slope stabilization measures (properly supported cuts in slopes, contour farming on slopes, etc.).</p>	<p>MODERATELY HIGH LANDSLIDE SUSCEPTIBILITY</p> <p>Twenty-seven percent (27%) of the parish is classified in this zone. This zone is concentrated mainly in the northern half of the parish. Small landslides are dominant in this zone, but a high frequency of large landslides can be expected, correlating with prolonged or intense rainfall and moderate to large earthquake events.</p> <p>Both small- and large-scale development can be facilitated in this zone but is dependent on site-specific engineering geological studies which are highly recommended. The recommendations of the same should be strictly adhered. Sensitive developments should include a critical analysis, which includes a slope stability analysis. Suitable drainage and slope stabilization measures are highly recommended. Drainage control includes the capture, control and proper disposal of roof runoff from buildings on slopes. Proper and adequate road drainage should be installed during road construction. Agricultural activity, especially on clay-rich soils blanketing moderate to steep slopes should consider a network of drainage ditches. Slope stabilization and protection in agriculture includes contour farming practices, and the use of trees with highly dense root systems to encourage soil support. For structures, deep cuts in slopes should be retained and expert advice should be sought in regards to foundations design.</p>	<p>HIGH LANDSLIDE SUSCEPTIBILITY</p> <p>A small portion of the parish, less than two percent (2%) falls within this landslide susceptibility zone. Areas that fall within this zone are confined mainly to steeper slopes on which weathered and/or geologically weak material occur. Both small and large landslides are dominant in this zone and may occur frequently, correlating with prolonged or intense rainfall and moderate to large earthquake events.</p> <p>Large-scale development and major infrastructure works should be strongly discouraged. Installation of protective or stabilization works may prove uneconomical making projects unfeasible. Developments within this zone will require occasional intervention and it may prove economical to relocate when possible.</p> <p>Only essential developments, such as roadways, should occur if absolutely necessary. Detailed geotechnical investigation must be sought before proceeding.</p>	<p>VERY HIGH LANDSLIDE SUSCEPTIBILITY</p> <p>Less than one percent (1%) of the parish, approximately 9000 sq. km fall in this classification. These areas show the strongest influence of the predisposing factors of landslides. In St. Catherine these areas occur on faulted slopes that have generated or have the potential to generate large scaled landslides, as well as, landslides scarp slopes that have resulted from Mega Landslides such as those in the Mount Rosser/ Mount Dabba area.</p> <p>Catastrophic landslides are possible at all times, as such, development of these areas are not recommended.</p>
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