

LANDSLIDE DAMS ALONG THE RIO GRANDE IN PORTLAND, JAMAICA

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ABSTRACT

Landslide Dams Along the Rio Grande in Portland, Jamaica

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Landslide Dams combine two geological hazards into one destructive event. When a landslide dam occurs it begins with a landslide. On blocking the river flooding occurs upstream. If the dam breaches there would also be flooding downstream. The parish of Portland is well known for the high levels of rainfall that occur there. Due to the geology that makes up the mountains in the parish, Portland is also prone to a high incidence of landslides. These two factors make Portland, and particularly the Rio Grande prone to landslide dam formation.

From this research four landslide dams have been identified on the Rio Grande. Only the Millbank landslide has been documented historically, occurring on 25th November, 1937. It lasted approximately three years. For the other three landslide dams there are no historical records to give a time of these events or their effects. The other three occurred at Burlington, Unity Valley (the lower valley), and Jupiter fording (the upper valley, near Millbank). The Jupiter landslide displaced the largest amount of material, 15.3 million m³ and the Burlington landslide the smallest, 3.2 million m³. The Millbank landslide, which had two landslides within days of each other displaced 4.3 million m³ which was much smaller than the Unity landslide with 12.5 million m³.

Landslide dams along the Rio Grande all occurred in limestone. Three of the landslides probably occurred due to failure of weak rock material while the remaining one appears to be the result of seismic activity. Though non limestone material has blocked other rivers in Portland the Rio Grande appears to be the only river affected by limestone landslides. This is due to the Rio Grande's ability to move a large volume of material when the flow is high. Landslide dams occurring in Portland on the Rio Grande would result in extensive property damage to residential, agricultural and public facilities due mainly to flooding.

Keywords: Dionne Richards; landslide dams; Portland; Rio Grande