

Barrett, Laura. Vegetative debris loading as a critical risk factor for riverine damage to infrastructure: A case study of the July 2008 flood event in the Western Cape (BSc Honours thesis in Disaster Risk Science, 2008)

Since 2003, documented accounts of severe weather events in the Western Cape have been associated with damage to infrastructure running into millions of rands. Flooding has destroyed culverts, pipelines, bridges and roads, while the indirect impacts have not been calculated. In the context of the climate change risk profile for the Western Cape, severe weather events, such as those associated with flood-losses, are expected to increase in the near future. Anecdotal reports from municipal engineers, local residents and environmental managers identify vegetative debris loading as a significant cause of public infrastructure loss, figuring prominently in post-event analysis reports. This study investigates the riverine flooding that occurred in the Citrusdal area during July 2008, examining the relationship between vegetative debris and infrastructural failure. During exposure to severe weather, the complex interactions between the natural and the built environments are exacerbated. The study questions the robustness of infrastructure in several weather-exposed sites in the study area, applying Pelling's model of environmental vulnerability to explain the accumulation of conditions of vulnerability. The impacts of the vegetation on the flood-exposed infrastructure are shown to produce a set of causal pathways that can be mitigated through effective management and investment in order to reduce future impacts.