

Analysis of the Fire Hazard Posed by Petrol Stations in Stellenbosch and the Extent to Which Planning Acknowledges Risk

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Abstract : Despite the significance and economic benefits of petrol stations in South Africa, these still pose a huge risk of fire and explosion threatening public safety. This research paper examines the extent to which land-use planning in Stellenbosch, South Africa, considers the fire risk posed by petrol stations and the implications for public safety as well as preparedness for large fires or explosions. To achieve this, the research identified the land-use types around petrol stations in Stellenbosch and determined the extent to which their locations comply with the local, national, and international land-use planning regulations. A mixed research method consisting of the collection and analysis of geospatial data and qualitative data was an applied method, where petrol stations within a six-kilometre radius of Stellenbosch's town centre were utilised as study sites. The research examined the risk of fires/explosions at these petrol stations. The research investigated Stellenbosch Municipality's institutional preparedness to respond in the event of a fire/explosion at these petrol stations. The research observed that siting of petrol stations does not comply with local, national, and international good practices, thus exposing the surrounding developments to fires and explosions. Land-use planning practice does not consider hazards created by petrol stations. Despite the potential for major fires at petrol stations, Stellenbosch Municipality's level of preparedness to respond to petrol station fires appears low due to the prioritisation of more frequent events.

Keywords : petrol stations, technological hazard, drr, land-use planning, risk analysis

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