

An optimised model for the regulatory management of human-induced health and safety risks associated with hazardous facilities in South Africa

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Abstract

The society we live in is becoming more complex by the day as a result of a multitude of factors, such as economic development, wars, terrorist attacks, technological innovation and societal demands for wealth creation. Human populations are rapidly growing to extremes, where the sustainable utilisation of natural and man-made resources is stretched to the limit. The regulation of major hazard installations near densely populated areas in South Africa and worldwide has consequently become critical.

South African legislation on the health and safety of people in and around hazardous facilities does not cover an exogenous, outward-focused approach by which communities around the hazardous installation are assessed to determine their vulnerability to a major disastrous incident. This legislation is largely based on legislation developed in the United Kingdom under the guidance of their Health and Safety Executive (HSE), and is fragmented and spread across several government departments

An optimised model was developed in this study for the regulatory management of human-induced health and safety risks associated with hazardous facilities in South Africa. The model is based on a systems approach, with three open and interactive domains or spheres where the hazardous facility has an influence: environment, community and the hazardous facility itself. The model further contains the concept of disaster vulnerability, not only as regards the employees at the hazardous facility and the communities around the facility, but also the organisation that houses the hazardous facility. The concepts of the social and economic sustainability of communities at and around the hazardous facility are also introduced in the model, as well as the sustainability of the organisation and business continuity, as critical parts of the regulatory management process.

The model has been verified against 21 critical success factors for effective legislation in health and safety, three relevant case studies from South Africa, India and England, the South African disaster regulatory framework as well as 14 local Acts and Regulations relevant to the governance of the health and safety of people.