

ABSTRACT

Dust mitigation in road construction is a significant mitigation measure that is required to promote sustainability in the road construction sector. This has largely been ignored in South Africa where it is treated as an insignificant part in the road construction sector. In South Africa there has not been a comprehensive study of the application of dust mitigation strategies to determine the impact of the applied methods in relation to the pillars of sustainability. Therefore this study is set out to address this knowledge gap by evaluating the dust mitigation strategies currently applied in the road construction industry, determining their levels of implementation and evaluating their impacts on the sustainability pillars. This study applied the concept of sustainable development to the issue of dust mitigation in road construction in South Africa. The methodology applied in this research is a mixed one that combines inductive and deductive reasoning approaches, utilizes a survey of respondents in the construction industry, and archival research that draws on data contained in Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports of road construction projects that have been implemented around Johannesburg and Pretoria, in a cross-sectional time horizon. A combination of qualitative and quantitative analyses of the data gathered provided insights into the various dust mitigation measures in road construction, and the perceptions of professionals in road construction industry in relation to legislation on the air quality standard of the National Environmental Management Act (NEMA).

Generally, it was found that the water suppression method is the most widely adopted dust mitigation strategy that is practiced in South Africa for road construction projects. However, this finding is at variance with the types of dust mitigation strategies proposed in the reviewed reports of Environmental Impact Assessments and Environmental Management Plans of road construction projects. This implies considerable under-utilization of the wide array of dust mitigation approaches that are available. It also implies an inadequate and minimalist approach to dust mitigation in SA. Furthermore, there is an over reliance on water, which is highly unsustainable in a water scarce country like South Africa.

Keywords: Dust, Dust mitigation, Road construction, Sustainable development