

## **ABSTRACT**

Transport infrastructures enhance movement of goods and services and as such promote the production processes in any economy. Additionally, they are developed in space and time and as a result they tend to affect and be affected by other systems. As such, it is required that infrastructural developments are undertaken with due consideration for the abutting natural and manmade features.

The purpose of this study therefore was to use engineering perspective to assess the magnitude of the environmental problems caused by the Standard Gauge Railway (SGR) project from syokimau to Athi river station and hence model engineering aided solutions to the problems. People may know the impacts the SGR has or can have on these two stations. However, there is no research that has been done to unearth the magnitude of these impacts. It can thus be argued that this is a knowledge gap that needs to be filled. Furthermore, a deeper understanding of these impacts will open up a door for the formulation of the most appropriate solutions for the identified problems.

Relevant spatial and non-spatial data, based on the objectives, were collected for processing and analysis using engineering technologies to assess the environmental footprints between these two stations. The layers were overlaid to identify the most impacted areas and spatial statistical methods used to predict the expected continued impact over 5 years and 10 years.

The results successfully demonstrated how the Standard Gauge Railway (SGR) has caused negative environmental impacts on these two stations.

In conclusion, the displacement of people due to the SGR construction and operation will displace many more people. SGR particularly affects the people of these two towns negatively. Some of the recommendations of the study are wet-spraying of cement and wet drilling to reduce dust emissions during the construction.