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IDENTIFICATION OF SPATIAL AND TEMPORAL VARIATIONS OF ROOFING MATERIALS TO REDUCE ASBESTOS USAGE IN SRI LANKA USING HOT SPOT ANALYSIS

Abstract:

According to the World Health Organization, Asbestos is one of the lung cancer causing hazardous materials in the world. By the end of 2018 October, 66 countries have taken steps to ban the Asbestos. Sri Lankan government made a policy decision to ban the Asbestos form 2018. However, this policy was suspended due to the difficulties in creating suitable alternative products at a reasonable price within a short span of time. Asbestos, Clay tile, Metal Sheet, Zinc Aluminum, and Concrete are the most common roofing materials in Sri Lanka. Clay tile usage is the most prominent roofing material and it is accountable for 48% followed by 35% of asbestos as primary roofing materials. This research aims to observe the spatial and temporal variations of Asbestos, Clay tile, and Zinc Aluminum using Geographic Information System (GIS 10.4.1) in Sri Lanka. Department of Census and Statistics data show, each roofing materials usage varies geographically and timely. Therefore, Hot spot analysis is conducted to identify the clustering patterns of Asbestos, Clay tile, and Zink Aluminum for 268 administrative divisions in the country. The clustering patterns illustrate the spatial and temporal variation of each roofing material. Asbestos and Clay tile Hot spot percentages have increased from 27.99 to 36.57 and 34.33 to 38.81 respectively, from 2001 to 2012.The findings highlight important areas to implement a long lasting national policy to limit Asbestos in the construction industry, while supporting the country's economy, national health, and selecting alternative roofing materials.

Keywords:

Asbestos, Clay tile, Zinc Aluminum, Clustering patterns, Hot spot analysis, Geographic Information System

JEL Classification: K32, L78, Q01