Theme 3: Physical sciences, engineering and technology for sustainable development

Prioritizing energy saving and pollution reduction in food transportation system: adaptation of containment measures

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Abstract
Food transport refrigeration is a critical link in maintaining unbroken cold chain from the food producer to retail vendors in the best environmentally manner. The entire value chain has been burdened in recent times considering the high thermal load and energy consumption required to sustain the shelf life of fresh fruits. A lot of approaches have been adopted in food industries to preserve fresh food amid environmental concerns. As global temperature rises due to climate change, sustainable measure has to be devised on how to stem the rising energy demand to save the food industry from impending collapse. In this paper, existing measures of mitigating energy demand in these industries would be x-rayed, most importantly, the insulated panel of refrigerated vehicles. This panel is reportedly depreciated over time due to variation in ambient temperature. Part of the approach would be, to determine thermal conductivity values of some of these panels, adapting extremely temperature variation in the foreseeable future, in order to achieve a precision in the overall material selection suitable for heat transfer as it relates to this industry.
Keywords: Cold chain, Insulated panel, Material, Thermal conductivity