Eco-Friendly Cement Production Technologies in Senegalese Coastal Regions: Economic Growth and Carbon Footprint Impacts Comparative Analysis

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Abstract

Eco-friendly cement production technologies have emerged as a critical area of research in sustainable construction practices, particularly in coastal regions where climate change impacts are significant. A comprehensive literature review was conducted to identify existing eco-friendly cement production technologies suitable for Senegal's coastal conditions. A comparative analysis framework was developed to evaluate these technologies based on cost-effectiveness, carbon footprint reduction, and socio-economic impacts. The study revealed that the adoption of low-carbon cement production technologies could reduce CO2 emissions by up to 30% compared to traditional methods. Economic growth in coastal regions through such technologies was observed to increase employment opportunities and stimulate local economies. This research highlights the potential for eco-friendly cement production technologies to contribute significantly to both environmental sustainability and economic development in Senegalese coastal communities. Policy makers are recommended to support the implementation of these technologies through financial incentives, regulatory frameworks, and capacity building programmes. Additionally, further R&D efforts are encouraged to enhance the efficiency and affordability of eco-friendly cement production.

Keywords: *African geography, Coastal regions, Sustainable development, Carbon footprint, Life cycle assessment, Techno-economic analysis, Green cement technology*

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