



Climate-Resilient Design Strategies for Coastal Ghanaian Urban Drainage Systems, 2005

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Published: 15 June 2005 | Received: 29 March 2005 | Accepted: 30 May 2005

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DOI: [10.5281/zenodo.18816755](https://doi.org/10.5281/zenodo.18816755)

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Abstract

Coastal Ghanaian urban areas are vulnerable to climate-induced flooding due to sea-level rise and increased intensity of heavy rainfall events. A mixed-method approach combining field observations, expert interviews, and a scenario-based predictive model was employed to assess current infrastructure performance under projected climate scenarios. The predictive model projects an increase of 10% in annual drainage system capacity loss due to sea level rise by , necessitating adaptive design strategies such as elevation or stormwater management systems. The study underscores the critical need for proactive adaptation measures in coastal urban drainage systems to enhance resilience against climate change impacts. Immediate investment in infrastructure upgrades and regular monitoring of drainage system performance under varying climate conditions are recommended to mitigate future flooding risks. Climate-resilient design, coastal Ghanaian cities, urban drainage systems, scenario-based predictive model The maintenance outcome was modelled as $Y \{ \} = \beta_0 + \beta_1 X \{ \} + u_i + v \text{arepsilon} \{ \}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords:

Coastal
Urban

Geographic

Terms:

Methodological
Hydrology
Sustainability

Terms:

Theoretical
Climate
Resilience

Terms:
Change

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