



Sustainable Environment and the built Space: Integrating Ecology, Planning and Human Well-being

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**CLIMATE-RESPONSIVE PLANNING AND DESIGN OF A SUSTAINABLE AMPHIBIOUS
HOUSING SCHEME FOR FLOOD RESILIENCE IN ANAMBRA STATE, NIGERIA**

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Abstract

Climate change has significantly increased the frequency, intensity, and duration of flooding events across riverine communities in Nigeria, particularly within the Lower Niger Basin where settlements in Anambra State experience recurrent seasonal inundation. Conventional flood management approaches, including embankments, temporal housing, elevated structures, and relocation strategies, have often proven inadequate in addressing the long-term challenges of climate-induced flooding and governance/policy failure in disaster management and public infrastructure provision while preserving community livelihoods and cultural identity. This study explores the concept of “living with water” through the climate-responsive planning and design of a sustainable amphibious housing scheme as an adaptive strategy for enhancing flood resilience in Anambra State, Nigeria. The research examines the relationship between climate risk, settlement vulnerability, and housing resilience in flood-prone environments, with a focus on developing an architectural and planning framework that can accommodate periodic flooding. A mixed-methods study involving literature review, case study analysis, environmental assessment, and climate-responsive design principles was conducted to evaluate the suitability of amphibious housing for riverine settlements. The study proposes a sustainable housing scheme that integrates buoyant foundation technology, water-sensitive site planning, renewable energy systems, resilient infrastructure, and environmentally responsive design strategies. Findings indicate that amphibious housing provides a viable adaptation mechanism that minimises flood-related losses, enhances community resilience, supports environmental sustainability, and promotes the continued occupation of ancestral lands without compromising safety and functionality. The study concludes that integrating climate-responsive planning with amphibious architectural solutions offers a practical pathway toward sustainable flood adaptation in vulnerable riverine communities. It further contributes to the growing discourse on resilient housing and climate adaptation by providing a context-specific framework for flood-prone settlements in Anambra State and other regions facing similar hydrological and climatic challenges.

Keywords: Amphibious Housing; Climate Change Adaptation; Climate-Responsive Design; Flood Resilience; Sustainable Housing; Riverine Communities