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Birds over benches, middle over rich: Rethinking who pays for climate-resilient blue-green infrastructure and why

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Abstract

Rapid urbanisation in tropical regions is intensifying heat island effects, flooding and biodiversity loss, driving global interest in blue-green infrastructure (BGI) as a multi-functional, climate-resilient asset. BGI is vanishing fast across the Global South, where densification and encroachment outpace restoration. Investment decisions remain constrained by limited evidence on how residents value BGI attributes, how preferences vary across socioeconomic groups, and whether they attend to all attributes, a behavioural feature that biases valuation. This study jointly models heterogeneous citizen preferences, attribute non-attendance (ANA) and socioeconomic drivers of BGI demand to inform behaviourally grounded prioritisation of climate-resilient investments.

A discrete choice experiment (DCE) surveyed 354 residents (42 % women) in 2025 in Coimbatore, India, a growing tropical city. Each evaluated paired BGI scenarios with four attributes (bird diversity, lake cleanliness, picnic facilities, trails) alongside a recurring annual contribution, yielding 2,478 panel choice observations. Preferences were estimated using a mixed logit model (random parameters, panel structure), with ANA analysis adjusting for ignored attributes.

Only 9.6 % of choices were for the status quo, indicating strong latent BGI demand. Bird diversity was the most valued attribute, generating the largest mean Willingness to Pay (WTP) and most consistent attention, the only attribute earning both. Lake cleanliness had a null mean but the largest dispersion and highest ANA, revealing polarised preferences. Trails added modest WTP, picnic facilities none. Socioeconomic status shaped BGI demand asymmetrically – higher income and younger age strongly increased support, whereas asset wealth had a significantly negative coefficient. This aligns with Kotchen's (2006) public-private substitution mechanism, where private environmental amenities crowd out demand for collectively provided green goods, a defining feature of green-space inequity in urbanising contexts. Mid-asset households are the strongest BGI constituency, with bird-diversity preference following an inverted-U across asset levels and the awareness premium concentrated among the asset-rich, signalling latent capacity-to-pay mobilisable through targeted information. ANA correction raised WTP for attended attributes.

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Findings inform climate-resilient urban planning: bird-diverse, multi-functional BGI delivers the largest welfare gains; divergent income and asset effects require socioeconomically differentiated rather than uniform provision, and behavioural-economic diagnostics in stated-preference research are essential to avoid misvaluation of urban environmental goods.

Keywords: Bird habitat, climate resilience, Global South, nature-based solutions, urban biodiversity