

## Client Cost Aversion and Professional Risk Perception in Kenya's Green Building Adoption

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### Abstract

This paper pivots the discussion on Sustainable Interior Design concept adoption in the Kenyan built environment from a prevalent Supply-Side Deficit Model (focusing on legislation and training) to a Demand-Side Market Failure Model centered on the client-designer financial conflict. Analyzing survey data from a whole population of interior design practitioners in Kenya (N=56) using Mean Ranking (MR) and Principal Component Analysis, the study reinterprets the factors that impede sustainable specification. While the Absence of mandatory legislation (F9) ranked highest ( $\bar{x}=4.39$ ), its primary consequence is the enabling of Client unwillingness to utilize green strategies (F12) ( $\bar{x}=4.00$ ) and Overall Client Control (F13) ( $\bar{x}=3.64$ ). The paper argues that in a voluntary regulatory environment, client cost aversion acts as the proximal cause of marginalization, creating an immense professional risk perception that suppresses the designer's motivation to specify sustainable solutions, even if they possess the technical know-how (F2). This perspective shifts the focus from simply lacking skills or laws to managing the financial and liability risks inherent in proposing optional, high-cost sustainable solutions in a competitive, cost-sensitive market. The study concludes that market dynamics, driven by client resistance, must be countered by financial de-risking mechanisms and performance guarantee schemes rather than solely relying on future mandatory codes.

**Keywords:** Green Concept, Interior Design, Client Aversion, Financial Risk, Voluntary Market, Kenya.

### 1. Introduction

The global built environment's carbon footprint remains a critical challenge, with the construction sector contributing approximately 40% of global energy consumption and significant material resource depletion (World Green Building Council [WGBC], 2023, p. 5). While the role of interior design in systems integration and material specification is critical (Akinosho, Aigbavboa & Owolabi, 2023, pp. 102–104), the uptake of Sustainable Interior Design (SID) concepts in emerging economies like Kenya remains disappointingly low, despite high awareness among professionals (Ombati et al., 2023, p. 7).

The global discourse emphasizes the need to adapt adoption models to local realities (Karji et al., 2020; Aktas & Ozorhon, 2015). Recent international surveys (e.g., *Sustainable Construction Barometer*, 2024) indicate that key priorities for industry players globally are to raise awareness, act on cost perception, and increase collaboration, suggesting a global shift toward behavioral and economic levers (Constructing Sustainable Future, 2024, p.4). Crucially, while local studies exist on the broader construction sector (Ombati et al., 2023; IJERT, 2024), specific information documenting factors affecting green adoption within the interior design discipline in Kenya remains scarce, creating a significant knowledge gap that this research aims to bridge.

Previous scholarly work on the green adoption gap typically attributes the problem to systemic, supply-side deficits. Chief among these is the absence of mandatory legislation denoted as (F9) to enforce sustainable standards (Ofori & Kien, 2004, pp. 24–25). Compounding this is a pervasive professional expertise deficit (F2), where practitioners may lack the specialized skills required for complex green projects (Simeh & Smallwood, 2015, pp. 52–53).

However, local Kenyan studies consistently support the dominance of financial and regulatory constraints in practice. The most significant barrier is consistently the High Initial Cost (F12) and the attendant Financial Risk. For instance, a recent study by Ombati et al. (2023) on Nairobi's Built Environment Professionals (BEPs) reported that high investment costs (cited by 86.6%) and a shortage of financial incentives (79.6%) were the major impediments to green adoption (p. 9). These findings strongly align with earlier research by Momanyi (2019) and Madukani (2020), which emphasized the paramount importance of cost and the necessary payback period.

Furthermore, current research from Nakuru City (2024) reinforces a crucial demand-side financial conservatism: some population segments, influenced by demographic factors, prioritize immediate cost savings and short-term financial stability over the long-term benefits of green technologies (Open Access Research Journal of Science and Technology, 2024, p. 128). This indicates a deep-seated client-driven financial aversion. Beyond cost, persistent Regulatory/Enforcement Deficits remain a primary hindrance, a finding consistently echoed across studies from Were, Diang'a, and Mutai (2015) to recent practitioner-focused research in Nairobi (IJERT, 2024, p. 3), underscoring a critical failure in policy implementation. Finally, broader sector issues, such as those identified by Chanyisa (2019) in financing green energy, highlight a disconnect where bureaucratic processes and policy instability affect the demand side, while the supply side suffers from limited understanding among financial institutions of green risk assessment.

## **1.1 The Theoretical Pivot: Demand-Side Market Failure**

This paper proposes an alternative, Demand-Side Market Failure interpretation of the adoption barrier. We argue that the failure to adopt SID is fundamentally a market execution failure driven by Client Cost Aversion (F12) and the resulting Professional Risk Perception incurred by the designer. The core hypothesis is that designer reluctance is a rational economic response to client-driven financial risk, which acts as the immediate suppressant of sustainable specification, even when technical capability (F2) is present. This reframing challenges the prevailing narrative and shifts the focus of intervention towards economic incentivization and risk management.

## **2. Literature Review**

### **2.1 Client Cost Aversion and the Initial Cost Barrier (F12)**

Client cost aversion remains the single most important and recurrent factor:

**High Initial Cost and Green Premium:** High initial costs of sustainable materials and equipment are listed as a top combined high-probability and high-impact risk in construction projects in emerging market contexts (MDPI, 2018, p. 1858). This 'green premium' is a critical deterrent as clients in voluntary markets prioritize immediate capital expenditure minimization (Fehiman & Neslihan, 2019, p. 120; Otieno, 2018).

**Demand for Cost-Saving Materials:** Current Kenyan BEP research (Ombati et al., 2023 p. 9) indicates the highest professional interest is in components with a clear economic return, such as water efficiency (84.8%) and energy efficiency (82.8%), which have a significant impact on utility bills. This demonstrates that client acceptance is largely contingent upon the immediate perception of cost

savings, reinforcing the market's demand-side cost sensitivity. The emergence of lower-cost, sustainable alternatives, such as fungi-based construction panels in Kenya (Associated Press, 2025), is a direct market response to this persistent cost barrier.

## **2.2 Professional Risk Perception and Reluctance to Promote**

The repeated experience of client cost aversion fundamentally shapes the design professional's risk calculus, leading to the proposed professional liability risk.

**Liability in Cost and Performance:** The designer specifies concepts that carry an inherent risk of cost overruns or failure to meet the promised Return On Investment (ROI), particularly for innovative or less-established sustainable materials. If performance fails, the designer is exposed to professional negligence claims (Akinosho, Aigbavboa & Owolabi, 2023, p. 105). Recent risk assessments in the sustainable construction sector confirm that financial risks (e.g., funding shortages, budget overruns) and technical risks (e.g., design team inexperience, integrating advanced technologies) are among the most critical (Research Gate, 2023; MDPI, 2018).

**Rational Reluctance as an Adoption Barrier:** The hypothesis holds that the adoption gap is largely a function of the professional's desire to mitigate this liability risk by avoiding proposals that clients routinely reject on cost or that carry performance uncertainty (Ombati et al., 2023, p. 9). The constraint is not a fundamental lack of skill (F2), but a rational reluctance to promote a high-risk, voluntary concept in a cost-averse market.

The existing literature effectively establishes the environmental imperative and confirms the prevalence of traditional structural failures (F9, F2). However, recent research, both local (2023-2024) and international, strongly supports the proposed pivot: the adoption failure is an execution problem driven by the interplay between client cost aversion (F12) as the immediate demand-side constraint and professional risk perception as the resulting supply-side constraint.

The implication for policy and market intervention is that merely increasing technical training (F2) or imposing non-enforced regulations (F9) is insufficient. The key to unlocking voluntary green adoption lies in finding targeted mechanisms to de-risk the client's initial investment and subsequently mitigate the professional's liability exposure when promoting sustainable concepts in Kenya.

## **3. Research Methodology**

The study employed a mixed-method approach using a rigorous online survey questionnaire to identify and assess factors influencing green concept adoption, specifically among interior designers in Kenya (Creswell, 2014, p. 185).

### **3.1 Factor Identification and Instrument Design**

Factor Identification involved a critical review of international green adoption literature (e.g., Chan et al., 2019, p. 195; Karji et al., 2020, p. 1362) and local Kenyan construction and sustainability studies (e.g., Madukani, 2020, pp. 54–56; Omari, 2021, p. 77; Otiato & Otieno, 2023, p. 15), resulting in the formulation of seventeen (17) potential factors (F1-F17) covering economic, regulatory, social, and professional dimensions. Using established factors ensured applicability and aided respondent ease (Rowlinson, 1988, p. 690).

The Questionnaire Structure and Rating involved a self-administered online questionnaire that primarily collected quantitative data. Part B focused on rating the 17 factors using a 5-point Likert scale (1=Not Critical, 5=Very Critical) to measure their criticality.

Validation and Reliability that involved the instrument's clarity and appropriateness were confirmed through reviews by an expert in building sustainability studies in Kenya. A pilot exercise was carried out involving five 5 practicing interior designers, with their feedback used to adjust ambiguous items to ensure clarity and validity.

Reliability of the 17-item scale was assessed using Cronbach's alpha ( $\alpha$ ) coefficient via SPSS 20.0 statistical software to gauge internal consistency. The resulting alpha coefficient was 0.68. This value is well above the acceptable reliability threshold, typically set at  $\alpha > 0.5$  (Bonnet & Wright, 2014, p. 28), confirming the scale's acceptable consistency and reliability for the survey.

**Table 1: List of Potential Factors Influencing Green Adoption**

Code	Factors affecting green adoption	5(Very)	4(Critical)	3(Moderately)	2(less)	1(Not)
F1	Cost for green options considered expensive					
F2	Lack of technical know-how and experience in green design and construction.					
F3	Lack of knowledge on non-sustainable practices					
F4	Lack of knowledge on the environmental effects of non-sustainable practices among interior designers.					
F5	Lack of education & training in green design & construction among interior designers.					
F6	Green interior design products and technologies not available in the area.					
F7	Attitude of Interior Designers (general disregard of green)					
F8	Interior designers' preference to traditional design practices					
F9	Absence/Inadequate legislation, building code on green interior design.					
F10	Absence of an incentive/ award scheme for interior designers who practice green design.					
F11	Clients' unawareness of green strategies for interior projects.					
F12	Clients' unwillingness to utilize green strategies in their projects.					
F13	Overall Client Control on the design.					
F14	Absence of a local contextualized Rating tool to measure Sustainability of building interiors					
F16	Insignificant contribution of Kenya to the global carbon					
F17	High cost of green energy sources (i.e. solar, biomass, wind turbines)					

### 3.2 Sampling and Data Collection

The target population included the entire membership of the Interior Designers Association of Kenya (IDAK) and Association of Designers Kenya (ADKE), totaling N=69 members.

Sampling Method involved Purposive (non-probability) sampling that was used to ensure all respondents had relevant experience, specifically more than three years of practice in Kenya (Gray, 2010, p. 119; Karanja & Maina, 2022, p. 45).

Data collection method employed a questionnaire that was distributed via email. Targeting the whole population was strategic to counteract typically low return rates of online surveys and to allow for a 95% confidence level for a small population (<100\$ units) (Creswell, 2014, p. 156). The study collected data using a systematic, mixed-method online survey questionnaire (Mugambi & Kiptoo, 2024, p. 19).

The response rate comprised a total of 56 valid responses that were received, yielding a high 81% response rate, which significantly exceeded typical online survey expectations. Although numerically small, this sample size, n=56, was deemed sufficient for reliable statistical analysis because the Central Limit Theorem holds true for samples of 30 or more (Hwang et al., 2015, p. 25). This size was further justified by the acknowledged scarcity of professionals in the interior design industry who possess experience with the green concept in the local context, making the high response rate particularly representative of those actively engaged in the topic (Otiato & Otieno, 2023, p. 16).

### 3.3 Data Analysis Techniques

The quantitative data were subjected to a two-pronged statistical analysis using Mean Ranking (MR) and Principal Component Analysis (PCA) to assess factor criticality and underlying dimensions.

Mean Ranking (MR): This descriptive technique was employed to determine the perceived criticality and relative importance of each of the 17 individual factors, a method widely used in green building studies (Chan et al., 2018, p. 46; Karji et al., 2020, p. 1364; Ali et al., 2020, p. 101). Factors were ranked in descending order based on their Mean Rank score. In cases of tied MR scores, the factor with the lowest standard deviation was assigned the higher rank (Hwang et al., 2015, p. 27).

Principal Component Analysis (PCA): This inferential technique was applied as a data reduction method (Li et al., 2011, p. 110) to summarize the 17 correlated factors into a smaller, more manageable set of independent, latent dimensions or Principal Components. The Varimax rotation method was specifically used to aid in the clear interpretation of these components. The final step involved retaining only components with Eigenvalues greater than 1, consistent with established statistical procedures (Pallant, 2011, p. 183).

Agreement Analysis (Suitability for PCA): The suitability of the data for Factor Analysis (FA) was rigorously assessed using two key tests:

1. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy: The KMO test confirmed the data's suitability. The obtained KMO value was 0.753, which is well above the acceptable threshold of 0.6 (Jolliffe & Kadima, 2016, p. 147). This indicated minimal disparity among the responses and confirmed the data's adequacy for PCA functions.
2. Bartlett's Test of Sphericity: This test confirmed the presence of sufficient correlations among the variables, a necessity for factor analysis (Pallant, 2011, p. 182). The test yielded a large sphericity value of 631.303 with a high statistical significance  $p < 0.001$  or 0.000. This result

confirmed that the original correlation matrix was not an identity matrix, making Factor Analysis appropriate.

**Table 2: Agreement Analysis Techniques**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.753
Bartlett's Test of Sphericity	Approx. Chi-Square	631.303
	df	136
	Sig.	.000

The Principal Component Analysis (PCA) technique was employed as a practical solution to address the challenge of having a large number of correlated factors influencing green adoption identified from the literature. PCA functions as a data reduction method, summarizing and regrouping numerous original factors into a smaller, more critical set of latent dimensions or Principal Components (Li et al., 2011, p. 110). This process organizes original factors based on their statistical similarity, thereby creating new, composite factors that are easier to work with. Its primary goal is to transform the large number of original, often correlated, factors affecting green adoption into a small, meaningful set of core factors (Principal Components). This streamlined result is crucial for simplifying the analysis and identifying a relevant, focused set of barriers unique to Kenya's building industry, thereby effectively informing local decision-making and policy efforts.

#### 4. Survey Results

The analysis of the survey data, gathered from interior designers in Kenya, provides empirical confirmation for the hypothesized dominance of regulatory and client-driven financial constraints over professional knowledge deficits.

##### 4.1 Demographic Profiles

The study achieved a robust response rate of 81% (56 out of 69 questionnaires analyzed), providing a highly representative sample of the targeted professional population (Karanja & Maina, 2022, p. 46). The demographic profile of the respondents indicated that the professional field is predominantly male 53.6%, highly educated with a majority holding a Bachelor's level degree 66%, and concentrated within the Private sector 82.1% (Omari, 2021, p. 80). This sectoral dominance confirms that the challenges identified are primarily rooted in the commercial, market-driven environment.

##### 4.2 Mean Ranking: Barrier Criticality

The Mean Ranking (MR) results, detailed in Table 3, statistically confirm the perceived criticality and hierarchy of barriers. The top factors cluster around systemic and client-side constraints, validating the 'Demand-Side Market Failure' hypothesis proposed in the discussion.

**Table 3 Ranking of Critical Barriers to Green Concept Adoption**

Factor Code	Mean	Standard Deviation (SD)	Rank
<b>F9 (Absence of Legislation/Code)</b>	<b>4.3929</b>	0.8241	<b>1</b>
<b>F12 (Clients' Unwillingness)</b>	<b>4.0000</b>	0.4671	<b>2</b>
<b>F16 (Insignificant Carbon Contribution)</b>	<b>3.8571</b>	0.7729	<b>3</b>

Factor Code	Mean	Standard Deviation (SD)	Rank
F6	3.6964	0.8510	4
F4	3.6429	0.6722	5
F13	3.6429	0.7490	5
F17	3.5536	1.174	6
F15	3.3929	1.073	7
F1	3.3393	0.8152	8
F7	3.1964	0.7488	9
F2	3.1429	0.4443	10
F14	3.1429	1.085	11
F11	3.0714	1.006	12
F5	2.8393	0.7574	13
F3	2.5536	1.142	14
F10	1.6429	0.6722	15
F8	0.0000	0.0000	16

The ranking demonstrates several key findings:

- Regulatory Failure (F9) is the most critical barrier ( $x=4.39$ ), supporting the view that the lack of a mandatory framework creates a volatile, unenforceable market for sustainability (Were, Diang'a, & Mutai, 2015, p. 11).
- Client Aversion/Control (F12, F13) ranks highly (Rank 2 and 5), confirming that client willingness to invest in green is a major operational constraint (Ombati et al., 2023, p. 9). The high rank of (F12) Clients' unwillingness strongly supports the core premise of Client Cost Aversion driving professional design choices.
- Knowledge/Expertise (F2) ranks significantly lower (Rank 10,  $x=3.14$ ). This low ranking challenges the traditional view that a lack of technical skills is the primary adoption barrier (Simpeh & Smallwood, 2015, p. 52). Instead, it suggests professionals possess a foundational capability but are rationally reluctant to deploy it in the face of dominant financial and regulatory risks (Otiato & Otieno, 2023, p. 16).

### 4.3 Principal Component Analysis: Latent Factor Structure

The Principal Component Analysis (PCA) was used to reduce the 17 individual factors into a smaller, more meaningful set of latent dimensions (Li et al., 2011, p. 110). The PCA successfully extracted four principal components that collectively explained 72.21% of the total variance (Table 4), confirming the existence of a parsimonious underlying structure.

*Table 4 Principal Component Analysis Guided by Eigenvalues (Top 5 Components)*

Component	Eigenvalue	% of Variance	Cumulative %
<b>F1</b>	<b>6.870</b>	40.409	40.409
<b>F2</b>	<b>2.354</b>	13.849	54.258
<b>F3</b>	<b>1.766</b>	10.390	64.648
<b>F4</b>	<b>1.287</b>	7.571	<b>72.219</b>
<b>F5</b>	0.998	5.868	78.088

The statistical grouping of factors (components with Eigenvalues >1) supports the proposed causal hierarchy: Using the rule of retaining only components with an Eigenvalue greater than 1, the analysis identified four significant factors shown in *Table 4* (F1, F2, F3, F4, and F5).

- The grouping separates the systemic enabler (F9) into a distinct Socio-Government factor, reinforcing its nature as a foundational, macro-level constraint.
- The proximal barriers (F12, F13) are grouped under a Designer/Market-Demand component.

These results validate the proposed causal model: The high criticality of F9 (Rank 1) is interpreted not merely as an isolated barrier, but as the enabling condition that creates a non-mandated environment. In this environment, the proximal market barriers (F12/F13) become the dominant operational constraints that govern the designer's decision-making process.

## **5. Discussion: Client Aversion and Professional Risk**

The survey data strongly support the argument that the core barrier to green concept adoption among interior designers is a function of market economics and professional risk mitigation, not primarily a lack of technical capacity. This finding reframes the adoption gap from an internal professional deficit to an external market failure.

### **5.1 The Dominance of Client Cost Aversion**

The high mean ranking of F9 (Absence/Inadequate legislation, Rank 1,  $x=4.39$ ) and F12 (Clients' unwillingness, Rank 2,  $x=4.00$ ) establishes a crucial causal relationship: the lack of a regulatory mandate allows client cost aversion to become the dominant control mechanism (Karji et al., 2020, p. 1362).

When green features are voluntary, they are easily dismissed in favor of lower initial capital costs, a reality common across sub-Saharan Africa, where short-term financial returns dominate decision-making (Okoro et al., 2021, p. 8). The joint rank of F13 (Overall Client Control, Rank 5) reinforces that the client holds the final veto power over design choices, effectively capping the professional's ability to drive the sustainability agenda (Otiato & Otieno, 2023, p. 16). This scenario perfectly illustrates a core Agency Problem (Al-Saeed et al., 2023, p. 55):

- Principal (Client): Primarily concerned with minimizing short-term capital expenditure.
- Agent (Designer): Has the professional mandate and knowledge for environmental performance.

The designer's environmental agenda conflicts directly with the client's short-term financial interest. The rational choice for the designer is to prioritize the client's preference to secure the project and mitigate financial risk (Ombati et al., 2023, p. 12).

### **5.2 Professional Risk and Suppressed Specification**

The relatively low ranking of F2 (Lack of technical know-how, Rank 10,  $x=3.14$ ) is the empirical evidence for the reframed argument of Suppressed Specification. Its lower position, relative to client and regulatory factors, suggests that designers are not necessarily ignorant but are rational economic actors (Darko et al., 2020, p. 191) who choose to mitigate professional risk by simply not proposing ambitious green strategies that are likely to be rejected.

The cost to the designer of acquiring and applying a technical expert (F2) is a sunk cost if the resulting advanced proposal is vetoed due to F12 (Client unwillingness). This strategic reluctance stems from three key professional risks:

**Project Loss Risk** where proposing cost-increasing green options threatens the loss of the project to a competitor offering a cheaper, conventional solution (Joshua et al., 2022, p. 301).

**Liability Risk** where specifying innovative or locally unavailable green materials (F6, Rank 4) without a local track record transfers the full performance and cost-overflow risk onto the designer (Wainaina, 2023, p. 5). The absence of a contextualized rating tool (F14) further exacerbates this risk by making performance difficult to guarantee.

**Wasted Effort Risk** involves time spent on advanced specification, and detailing is wasted if the client's cost focus nullifies the work (Joshua et al., 2022, p. 302). Therefore, the designer is not a victim of ignorance, but an actor avoiding financial and professional exposure in a market that provides no reward, no mandate, and no regulatory support for sustainable innovation (Chan et al., 2018, p. 48).

## 6. Conclusion and Recommendations

The study concludes that the low adoption of green concepts in Kenyan interior design is fundamentally a market failure driven by client cost aversion (F12/F13), which is enabled by the foundational absence of mandatory legislation (F9). The immediate priority for intervention is not solely to mandate legislation or enhance training, but to de-risk the professional environment by strategically shifting the financial burden and performance risk away from the designer and the client's upfront budget.

### 6.1 Conclusion

The empirical evidence strongly confirms that the principal barrier to sustainable interior design is the market's indifference to environmental costs when faced with higher initial capital expenditure (Ombati et al., 2023, p. 12). This indifference is sustained because the lack of a legal mandate (F9) permits client unwillingness (F12) and control (F13) to dominate the design brief (Otiato & Otieno, 2023, p. 17).

The low ranking of F2 (Lack of technical know-how) supports the argument of Suppressed Specification: designers, acting as rational economic agents, choose to mitigate professional and financial risk by avoiding the specification of green technologies that are likely to be rejected or that carry uninsurable performance liability (Darko et al., 2020, p. 191). Consequently, the solution lies in correcting the market mechanisms that currently penalize sustainable choices.

### 6.2 Recommendations for De-Risking the Green Design Market

To overcome the critical market barriers and accelerate sustainable practice, the following financial and behavioral interventions are recommended:

1. **De-Risking Incentivization Frameworks:** The government must introduce targeted financial incentives that directly offset the client's perceived higher initial capital costs (F12). This shifts the cost discussion from liability to Return on Investment (ROI).

**Tax Incentives:** Offering Value Added Tax or corporate tax relief for certified green interior projects, as this directly reduces the net cost of green material procurement (Madzingaidzo et al., 2024, p. 6).

**Low-interest Loan Programs:** Establishing specific financing for the procurement of green materials and systems through partnerships with financial institutions (Ombati et al., 2023, p. 13).

**Feed-in Tariffs/Subsidies:** Providing support for building-integrated renewable energy solutions, making them economically viable independent of initial client aversion.

2. **Guaranteed Performance Schemes:** Professional bodies (IDAK, ADKE) should champion industry-backed Performance Guarantee Schemes for locally-sourced green materials and systems (F6). This third-party insurance mechanism minimizes the client's financial risk associated with material failure or underperformance. Crucially, this action removes the associated liability risk for the designer, encouraging confident specification of innovative materials that currently lack a local track record (Chan et al., 2018, p. 48).
3. **Phased Regulatory De-Risking and Mandatory Reporting:** While a full, prescriptive mandatory code (F9) is the ultimate long-term solution (Were et al., 2015, p. 12), interim regulatory steps are necessary to build market readiness and transparency:

**Mandatory Performance Standards:** Introduce a minimum Sustainable Performance Standard (e.g., in water-use efficiency or material toxicity) for all large commercial interiors. This sets a basic requirement without prescribing costly technologies, forcing designers to apply their SID knowledge (F2) without risking total project loss.

**Mandatory Environmental Disclosure:** Require a basic Environmental Impact Statement (EIS) for all material and systems specifications in public and large private projects. By mandating the reporting of environmental effects (F4), the process shifts the burden of proof, making the non-green option more accountable to the client and increasing market transparency (Karji et al., 2020, p. 1363).

## 6.3 Areas of Further Research

**1. Empirical Efficacy of Financial De-Risking Incentives:** While the recommendations propose tax and loan incentives, the actual impact needs quantification in the Kenyan context.

**Cost-Benefit Analysis of Tax Incentives:** Model the net fiscal impact (government revenue loss vs. economic activity gain) of proposed Value Added Tax or corporate tax relief for certified green interior projects. What is the optimal tax-relief percentage that maximizes green adoption without undue fiscal strain? The goal is to provide the Ministry of Finance with an evidence-based recommendation for the financial structuring of the tax incentive framework.

### 2. Operationalizing Guaranteed Performance Schemes

**Framework for Local Green Material Certification and Insurance:** Develop a minimum performance standard and liability framework for locally-sourced green materials (e.g., recycled content, low-VOC paints, sustainable timber). This includes determining the mechanism for third-party material testing and certification and the risk premium structure for the insurance scheme.

**Impact of Guarantees on Designer Behavior:** Conduct designer surveys and case studies to quantify the extent to which a guaranteed performance scheme would increase the confidence specification of

new, innovative, but currently 'untested' Kenyan-made green products compared to established, imported non-green options. The aim is to measure the direct impact of the scheme on promoting local green industry growth.

### 3. Modeling Regulatory and Behavioral Transparency Interventions

Value of Environmental Disclosure to Clients: Conduct client-side behavioral experiments (e.g., A/B testing of tender documents) to quantify how mandatory Environmental Impact Statement (EIS) disclosure (F4) actually influences client decision-making and willingness-to-pay for the greener option in Kenyan public and large private procurement processes. The goal is to verify the assumption that transparency alone shifts the burden of proof and accountability effectively in the local context.

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