

Turning metrics into reputation: Islamic green economy practices in sharia hotels

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Abstract

This study examines how Islamic Green Economy principles are put into practice in sharia-compliant hotels in Yogyakarta, using a penta-helix lens that brings together government, business actors, academics, media, and the community. A thematic analysis of semi-structured interviews identifies five interconnected domains: policy support and incentive gaps; operational readiness and capacity building; sharia–green alignment and assurance; market pull and reputation; and community–media engagement. While government initiatives exist (training, fiscal facilitation, and public campaigns), hotels still face unclear access pathways, limited technical know-how, and high upfront costs. Progress tends to accelerate when hotels start with low-cost operational improvements, establish baseline indicators for energy, water, and waste, and institutionalize staff training. To make sustainability claims verifiable, the study proposes a simple early-stage set of key performance indicators and a logic model linking inputs, activities, outputs, outcomes, and impacts. The analysis concludes that performance-based incentives, routine audits, and data-driven communication must move in tandem so operational gains translate into reputation and market preference, while safeguarding sharia values and environmental stewardship.

Keywords: Islamic Green Economy, Sharia Hotel, Penta-Helix, Sustainability Indicators, Performance-Based Incentives.

Abstrak

Penelitian ini menelaah bagaimana prinsip Ekonomi Hijau Islami dioperasionalkan pada hotel syariah di Yogyakarta melalui perspektif penta-helix yang melibatkan pemerintah, pelaku usaha, akademisi, media, dan komunitas. Analisis tematik atas wawancara semi-terstruktur mengidentifikasi lima ranah yang saling terhubung: dukungan kebijakan dan kesenjangan insentif, kesiapan operasional dan penguatan kapasitas, penyelarasan syariah–hijau dan penjaminan, tarikan pasar dan reputasi, serta keterlibatan komunitas–media. Inisiatif pemerintah telah tersedia (pelatihan, fasilitasi fiskal, dan kampanye publik), namun hotel menghadapi jalur akses yang belum jelas, pemahaman teknis yang terbatas, dan biaya awal yang tinggi. Kemajuan terjadi ketika hotel memulai dari perbaikan operasional berbiaya rendah, menetapkan indikator dasar energi, air, dan limbah, serta melembagakan pelatihan staf. Untuk membuat klaim dapat diverifikasi, studi ini mengusulkan seperangkat indikator kinerja utama yang sederhana pada tahap awal dan model logika yang menautkan masukan, kegiatan, keluaran, hasil, dan dampak. Analisis menyimpulkan bahwa insentif berbasis kinerja, audit rutin, dan komunikasi berbasis data perlu berjalan serentak agar keuntungan operasional berubah menjadi reputasi dan preferensi pasar, sambil menjaga nilai syariah dan kelestarian lingkungan.

Kata kunci: Ekonomi Hijau Islami, Hotel Syariah, Penta-Helix, Indikator Keberlanjutan, Insentif Berbasis Kinerja

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1. Introduction

Tourism is increasingly scrutinized for its environmental externalities while remaining central to local economic development, with global tourism's carbon footprint rising from 3.9 to 4.5 GtCO₂e between 2009 and 2013—around 8% of worldwide greenhouse-gas emissions—mainly attributable to accommodation, transport, shopping, and food (Lenzen et al., 2018; Gössling & Peeters, 2015; Sun et al., 2022). This intensifies the demand for the hospitality sector, especially hotels, to improve resource efficiency and disclose reliable sustainability performance data, given that strained energy and water resources in emerging destinations make responsible consumption and credible reporting more critical than ever (Jones et al., 2016; Zografakis et al., 2020; Hu et al., 2021). At the same time, global investment in building energy efficiency has surged to over USD 250 billion in 2022, signaling broader market trends, yet remains insufficient to realize net-zero pathways and support the scaling of advanced, low-impact operations (International Energy Agency, 2022; Ürge-Vorsatz et al., 2020). In this context, energy and water efficiency gains—supported through transparent metrics, external certification schemes such as GSTC or LEED, and digital management systems—are not only environmental imperatives but also essential risk mitigation strategies for volatile utility costs, supply instability, and reputational risk, all while boosting resilience and operational savings (Font et al., 2017; Shin et al., 2018; Wang et al., 2022; García-Pozo et al., 2016; Zhang et al., 2020).

Alongside mounting environmental concerns, Muslim-friendly (halal) travel has expanded rapidly from a niche to a sizable and increasingly sophisticated market segment, with industry assessments consistently valuing the halal tourism market at about USD 256.5 billion in 2023 and projecting growth to nearly USD 410.9 billion by 2032—driven by sustained demand for travel experiences aligned with Islamic values yet responsive to contemporary service quality expectations (Market Research Future, 2023; FutureDataStats, 2023; UNCTAD, 2024; Chantarungsri, 2024). The Global Muslim Travel Index (GMTI) and CrescentRating have documented resilient market growth and introduced responsible tourism frameworks that explicitly link faith-based experiences to sustainability practices, calling for service integration such as halal food, prayer facilities, environmentally aware design, and ethical standards (CrescentRating & Mastercard, 2023; Chantarungsri, 2024). For destinations with strong cultural-religious assets—such as Yogyakarta—this convergence of ethics-driven demand and sustainability accountability represents significant opportunities for economic and social development through organized, inclusive halal tourism, but also presents operational and policy challenges such as fragmented frameworks, certification costs, and the demand for harmonization across diverse stakeholders (Nurozi, 2021).

Policy debates in Indonesia illustrate the intricate complexity surrounding halal tourism, with recent analyses showing that the policy's legal framing, stakeholder alignment, and communication remain uneven across regions, impacting its legitimacy and sustainability (Dzukroni & Aniq, 2023; Priyatmoko & Maulana, 2022). Comparative studies mapping Indonesia against Malaysia further reveal that long-term success depends on multi-stakeholder support and the clarity of operational regulatory

guidance, not simply branding initiatives (Saviera et al., 2024; Vargas-Sánchez & Moral, 2020). In this environment, hotels are challenged to credibly deliver both environmental performance and consistent sharia-compliant service, avoiding the pitfalls of parallel, fragmented systems that elevate operational costs and create confusion among staff and guests (Zarkasyi et al., 2022). Empirical research consistently recommends stakeholder engagement models, effective regulatory frameworks, and practical capacity-building to integrate environmental and sharia requirements without compromising efficiency and market clarity (Rosalina et al., 2023).

Internationally, the Global Sustainable Tourism Council (GSTC) articulates comprehensive criteria serving as a global scaffold for hotel sustainability initiatives—encompassing sustainable management, community benefit, cultural heritage, and environmental stewardship (GSTC, 2019). Operationalizing these criteria depends on robust, quantifiable indicators such as energy use per occupied room, water consumption per guest-night, and rates of waste separation, which together underpin effective monitoring, internal audits, and transparent, credible communication with stakeholders ((Eltoum et al., 2024; Míguez et al., 2023; Siteminder, 2024). Yet, market adoption depends as much on demand-side behavioral drivers as on supply-side implementation; empirical research finds that consumer intention to select green hotels is shaped by attitudes, perceived behavioral control, subjective norms, and the trustworthiness of sustainability claims, indicating that clear data-backed narratives and independently verified practices play a critical role in translating operational improvements into brand preference, reputation, and even willingness to pay (Han et al., 2010; Wang et al., 2024; Shrivastava & Gautam, 2024; Ajzen, 2019).

Coordinating these technical and social dimensions in hospitality sustainability typically demands robust cross-sector collaboration, with Mode 3/quadruple-helix scholarship—and its extension to penta-helix models—emphasizing the synergistic co-evolution of government, industry, academia, civil society, and increasingly, media/culture as amplification agents to co-create actionable, context-specific solutions (Carayannis & Campbell, 2009; 2012; Sumarto et al., 2020; Megawati et al., 2024; Harb, 2014; Pandjaitan et al., 2023). In Muslim-majority contexts, this coalition is especially pertinent: governments craft regulatory incentives and harmonize reporting; industry stakeholders operationalize SOPs and collect data; academics design indicators and validate methodologies; community and faith organizations translate sustainability into daily, value-driven action; while media and digital platforms curate and disseminate verified stories to diminish information asymmetries (Pandjaitan et al., 2023; Sumarto et al., 2020). Without such robust, integrative governance, policy and operational realities may drift apart, amplifying the risk of greenwashing and leaving values-driven market segments unmet, while research repeatedly finds multi-actor partnerships as a decisive enabler for legitimacy, innovation, and implementation across sustainable tourism initiatives (Carayannis & Campbell, 2012; Megawati et al., 2024).

Against this backdrop, the present study examines the operationalization of Islamic Green Economy (IGE) principles in sharia hotels in Yogyakarta through a penta-helix

perspective. Tourism's environmental footprint and the pressure for credible measurement have been widely documented (Lenzen et al., 2018), and hotel-level sustainability frameworks increasingly emphasize auditable management practices and reporting routines (GSTC, 2019). At the same time, Muslim-friendly travel continues to grow and is increasingly accompanied by expectations for responsible practices (CrescentRating & Mastercard, 2023). Within hospitality, prior research suggests that guest responses to green initiatives are shaped by behavioral mechanisms such as attitudes and perceived control (Han et al., 2010), while effective implementation often depends on operational routines and staged improvements rather than immediate capital expenditure (Bohdanowicz, 2006; Chan, 2009).

Drawing on semi-structured interviews with key actors—government, hotel management, academia, media, and community representatives—the study uses thematic analysis to identify implementation bottlenecks and governance needs. Importantly, this study does not measure market preference directly; instead, it explains how penta-helix actors perceived the pathway through which audited metrics and transparent communication could function as reputation signals in this context. This positioning is consistent with collaboration-oriented innovation and governance perspectives that emphasize cross-actor co-production of actionable knowledge (Carayannis et al., 2012; Carayannis & Campbell, 2009). Building on these insights, the paper offers two practical outputs: (1) a compact early-stage KPI set integrating environmental indicators with sharia-service assurance to improve audibility and comparability, and (2) a logic model specifying an implementation pathway and monitoring-and-evaluation feedback loop, clarifying roles across the penta-helix.

In doing so, the paper addresses a critical gap between policy narratives and frontline execution. While sustainability and halal-tourism discourses are well developed at the conceptual and branding levels, fewer studies detail how hotels build capability, sequence low-cost improvements, and communicate audited results that matter for both regulators and guests. By grounding the analysis in Yogyakarta and engaging multiple stakeholders, the study clarifies how performance-based incentives, staff training and internal audits, and data-first communication are perceived—by the actors involved—to mutually reinforce one another and strengthen the credibility of IGE claims. The goal is to inform local policy and industry practice with a pragmatic roadmap for integrating sharia values and environmental stewardship, thereby supporting credible positioning and legitimacy for values-driven segments.

2. Literature Review

Islamic Green Economy and Value–Performance Integration

The Islamic green economy (IGE) frames economic activity as stewardship (khalīfah) that blends environmental performance with sharia-compliant conduct in production and consumption. While conceptual discussions are established in Islamic ethics and jurisprudence, operational guidance for service sectors—especially hospitality—often lacks auditable indicators that link values to daily routines (Auda, 2008). In Muslim-majority destinations, hotels must therefore integrate halal assurance (e.g., food &

beverage, privacy, ethical employment) with resource-efficiency targets to avoid parallel systems that increase costs and weaken accountability.

Sustainable Hotel Operations and Measurable Indicators

Recent estimates indicate sustained growth across Islamic economy sectors, including travel and hospitality (DinarStandard, 2023). The hospitality literature identifies energy, water, and solid waste as the most tractable environmental levers at property level, with early gains achievable through low-cost operational improvements and staff routines before capital-intensive retrofits (Bohdanowicz, 2006; Chan, 2009). Best-practice programs converge on intensity-based metrics that normalize demand fluctuations (e.g., kWh per occupied room; liters per guest-night; fraction of waste sorted/recycled) and are tracked over time for benchmarking. Evidence from Asian hotel stocks indicates wide performance variance and sizable low-cost efficiency opportunities, underscoring the importance of benchmarking and basic operational controls (Deng & Burnett, 2000; Priyadarsini et al., 2009). Methodological consistency matters: what gets measured becomes the basis for business cases, internal learning, and external credibility.

Market Dynamics of Muslim-Friendly Tourism

Global evidence shows sustained growth in Muslim-friendly (halal) travel, accompanied by expectations that value-congruent services also be responsible and transparent (CrescentRating & Mastercard, 2023). Consumer-behavior research indicates that attitude, subjective norms, and perceived behavioral control shape intention to choose green hotels (Han et al., 2010). Translating this to halal hospitality implies that data-first storytelling (simple, verified metrics) can strengthen choice and willingness-to-pay among segments that value both ethical and environmental quality. This behavioral pathway is consistent with the Theory of Planned Behavior, which links attitudes, subjective norms, and perceived behavioral control to intention and action (Ajzen, 1991).

Governance Frameworks and Collaborative Implementation

The Global Sustainable Tourism Council (GSTC) criteria synthesize governance, community, cultural, and environmental pillars for hotels and can be adapted as a scaffold for indicator design and third-party assurance (GSTC, 2019). Yet implementation depends on place-based collaboration. The quadruple/penta-helix perspective highlights joint knowledge production among government, industry, academia, and civil society, with media/culture as amplifiers that accelerate social learning and reduce information asymmetry (Carayannis & Campbell, 2009, 2012). In practice, this means: public policy aligns performance-based incentives and reporting templates; hotels institutionalize SOPs and metering; academia codesigns KPIs and audits; communities translate values into habits; media curate verifiable narratives.

Synthesis and Gap

Prior work has advanced what to measure and why collaboration is needed, but less is known about how sharia hotels in specific destinations sequence low-cost steps, build staff capability, and communicate audited results that satisfy both regulators and

guests. Addressing this gap requires an integrated, auditable KPI set and an implementation logic model that connect policy instruments, hotel operations, and public communication—tested against multi-actor perspectives in a real destination.

3. Research Method

Design, Setting and Participants

A qualitative, exploratory design was adopted to understand how IGE principles were operationalized in sharia hotels at destination level. The study used semi-structured interviews and reflexive thematic analysis to surface shared mechanisms and bottlenecks across stakeholder groups (Braun & Clarke, 2006; 2019).

The study focused on Yogyakarta Special Region, Indonesia, a cultural–religious destination with active Muslim-friendly hospitality. Purposive sampling captured the penta-helix ecosystem: government (G1) from tourism/environment-related offices, business/hotel (B1) at managerial level, academia (A1) with expertise in sustainability/Islamic economics, media (M1) covering tourism/business beats, and community (C1) from a relevant civil-society organization. The study focused on Yogyakarta Special Region, Indonesia, a cultural–religious destination with active Muslim-friendly hospitality. Purposive sampling captured the penta-helix ecosystem: government (G1) from tourism/environment-related offices, business/hotel (B1) at managerial level, academia (A1) with expertise in sustainability/Islamic economics, media (M1) covering tourism/business beats, and community (C1) from a relevant civil-society organization (Table 1). This composition prioritized information power rather than numeric representativeness, consistent with focused, mechanism-seeking qualitative designs in which conceptually targeted, information-rich participants can be sufficient (Hennink et al., 2017).

To mitigate the risks associated with having a single informant per helix, we applied cross-actor triangulation by examining convergence and divergence across helix roles, using consistent prompts and an explicit audit trail for coding and theme development. Importantly, the study does not claim population representativeness; instead, it offers an analytically grounded account of actor-perceived mechanisms and practical implementation pathways that can inform future testing with broader samples. Future research should evaluate the generalizability of these mechanisms using multi-site sampling and larger stakeholder sets within each helix.

Data collection

An interview guide (Table 2) covered: (i) perceived opportunities and policy instruments for IGE, (ii) hotel-level practices and capability building, (iii) sharia–green alignment and assurance (audits, KPIs), (iv) market/reputation dynamics, and (v) roles of community/media. Interviews were conducted in Indonesian with context-sensitive probes, audio-recorded (with consent), and transcribed verbatim. Field notes captured process observations (e.g., how informants justified priorities) to support analytic memos.

Table 1. Participants and Study Context

Code	Penta-Helix Role	Organization Type	Position	Primary Role in the IGE Ecosystem	Relevant Experience	Interview Duration
G1	Government	Regional tourism/environment office	Head of program division	Policy design, incentives, cross-agency coordination	>10 years in regional planning	62 minutes
B1	Business/Hotel	Sharia hotel management (3–4 stars)	General Manager	Implementing green–sharia SOPs, KPI reporting	8 years in hospitality	74 minutes
A1	Academia	Local university (Islamic economics/sustainability)	Lecturer/Researcher	Indicator & audit design, technical advisory	Publications on IGE	68 minutes
M1	Media	Business/tourism desk	Editor/Senior journalist	Dissemination, fact-checking, agenda-setting	12 years journalism	55 minutes
C1	Community	NGO/community (environment–sharia)	Program coordinator	Behavior change education, social learning	7 years advocacy	57 minutes

Table 2. Semi-Structured Interview Guide

Domain	Core Question	Probes/Follow-ups	Requested Artefacts/Examples
Policy & Incentives	How is IGE positioned in your sector/region's agenda?	Mechanisms, requirements, entry points, budget continuity	Circulars/guidelines, program examples
Hotel Operations	Which steps were most feasible and effective first?	Quick wins, SOP changes, staff training, behavioral barriers	SOPs, checklists, training logs
KPIs & Audits	Which indicators are realistic at the early stage?	Definitions, units, data sources, audit frequency, targets	Internal reports, KPI templates
Market & Reputation	How do guests respond to green–sharia practices?	Channels, data-first storytelling, greenwashing risks	Promotional materials, KPI dashboards
Community & Media Roles	What support from community/media works best?	Collaboration model, fact-checking, public education	Posters, campaign materials
Closing	Top three implementation priorities for the next 12 months?	Resources, partners, key risks	—

Analysis

We used reflexive thematic analysis (Braun & Clarke, 2006; 2019):

1. Familiarization with transcripts and notes;
2. Initial coding (semantic and latent), inductive with deductive sensitizers (e.g., GSTC pillars, hotel environmental metrics);
3. Theme development/review to ensure internal coherence and distinction;
4. Theme naming and definition;

5. Analytic narration with evidential quotes labeled by actor codes (e.g., “B1”).

Coding was performed in a spreadsheet environment with audit trails (date, coder memo, decision logs). We privileged meaning saturation—the point at which further data added nuance but not new thematic dimensions (Hennink et al., 2017). Cross-checks ensured that each theme contained at least one direct quote from two different helix roles where possible.

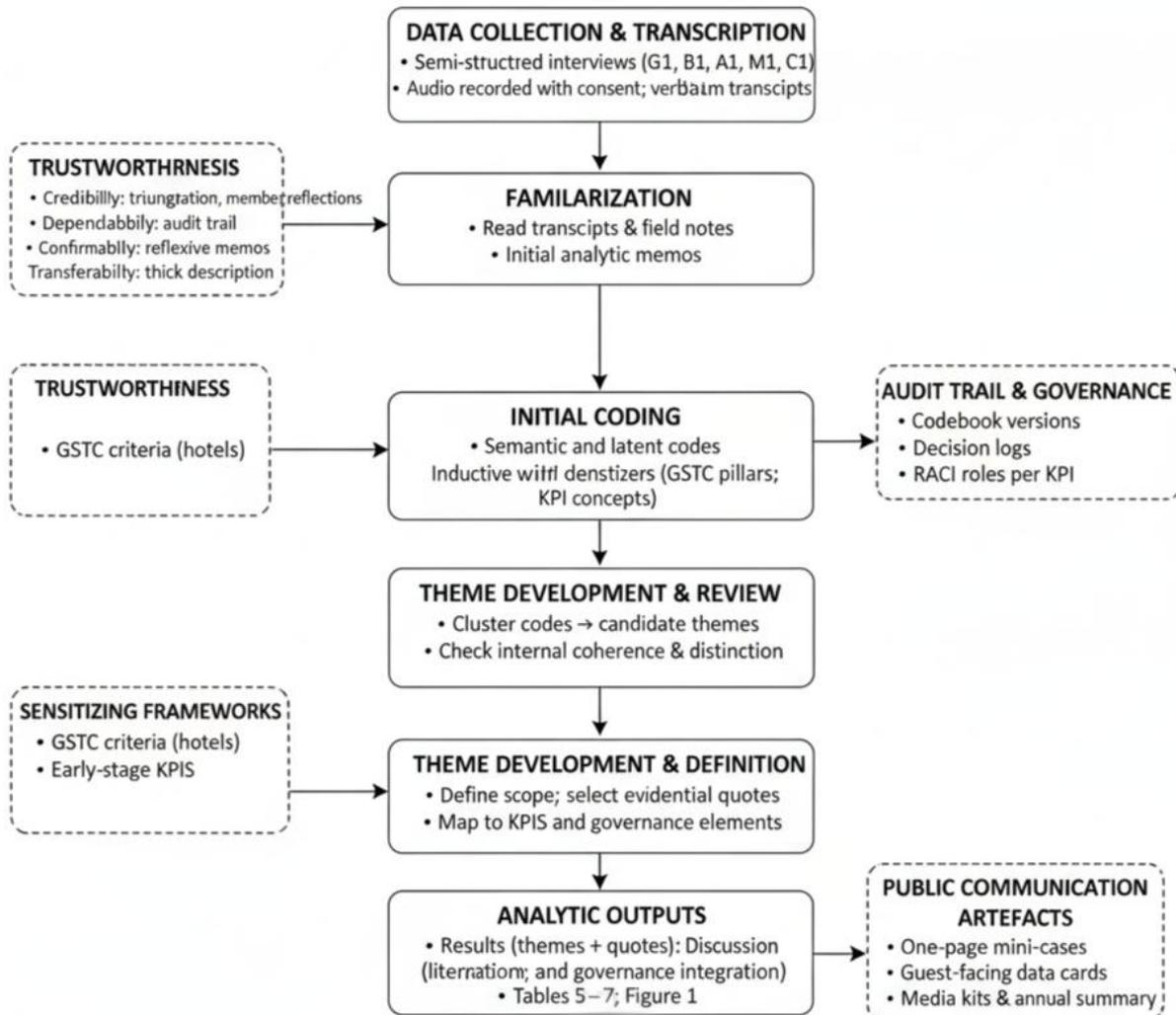


Figure 1. Analytic Workflow – From Codes, Themes, And Outputs

Trustworthiness

1. Credibility: triangulation across helix actors; peer debriefing on code definitions; and member reflections via anonymized theme summaries for two informants.
2. Dependability: an audit trail documented coding decisions and changes.
3. Confirmability: reflexive memos captured researcher assumptions and mitigations.
4. Transferability: thick description of setting and mechanisms is provided, with KPI definitions to aid adaptation.

Ethics

Procedures followed social-research ethics: informed consent (purpose, voluntariness, withdrawal rights), confidentiality (pseudonymous codes: G1, B1, A1, M1, C1), and secure storage of recordings/transcripts. No personally identifiable information is

reported. If required, the study can be aligned with institutional ethical clearance practices.

Rigor and Replicability Details

1. Indicator definitions: early-stage KPIs emphasized kWh/occupied room, L/guest-night, % waste sorted/recycled, sharia-service audit score, and training hours per staff—all computable from routine hotel records.
2. Audit cycle: quarterly for environmental metrics; semi-annual for sharia audit and training hours; annual public summary aligned with GSTC Industry Criteria for Hotels. Where organizational systems permit, hotels may embed this indicator cycle within an environmental management system consistent with ISO 14001:2015 to structure planning, implementation, monitoring, and continual improvement (ISO, 2015).
3. Data structure for replication: codebook (construct, operational definition, example quote), KPI template, and RACI matrix for helix roles accompany the results. To enhance comparability and external credibility across properties and destinations, the annual public summary can be aligned with the GRI Universal Standards, while keeping technical detail manageable for operators (GRI, 2021).

Table 3. KPI Definitions—Indicator, Unit, Data Source, Frequency, Target

Dimension	Indicator (KPI)	Operational Definition	Unit	Data Source	Frequency	Year-1 Target (illustrative)
Energy	Energy intensity	Total electricity consumption divided by occupied rooms	kWh/occupied room	Utility bills; PMS (occupied rooms)	Quarterly	↓ 10–12% from baseline
Water	Water intensity	Total potable water volume divided by guest-nights	L/guest-night	Main water meter; PMS (guest-nights)	Quarterly	↓ 8–10% from baseline
Waste	Sorted/recycled waste	Share of total waste that is sorted/treated	%	Housekeeping logs; transfer/processing receipts	Quarterly	≥ 50% sorted/treated
Sharia Compliance	Service compliance score	Composite audit score (rooms, F&B, facilities, ethical HR)	Score 0–100	Internal/external audit checklists	Semi-annual	≥ 90/100
Governance	Training hours & reporting	Training hours per staff/year; sustainability report issued	Hours; Yes/No	HRD training logs; public report	Semi-annual (training); Annual (report)	≥ 8 hours/staff/year; Report issued

Note: Baseline is established in the first quarter of monitoring; targets can be size- and seasonality-adjusted.

Table 4. Penta-Helix RACI Matrix by KPI

KPI	Responsible (R)	Accountable (A)	Consulted (C)	Informed (I)
Energy intensity (kWh/occupied room)	B1 – Engineering/ Housekeeping teams	B1 – General Manager/ Owner	A1 (methodology, benchmarking), G1 (targets/ incentives)	M1, C1, guests/ public
Water intensity (L/guest-night)	B1 – Housekeeping/ F&B	B1 – General Manager/ Owner	A1 (water efficiency), G1 (local policy)	M1, C1, suppliers
Sorted waste (%)	B1 – Housekeeping	B1 – General Manager/ Owner	C1 (separation education), G1 (processor network)	M1, guests, community
Sharia-service audit score	B1 – QA/ Compliance	B1 – General Manager/ Owner	A1 (instrument design), G1 (coaching)	M1 (when published), C1
Training hours & report	B1 – HRD/QA	B1 – General Manager/ Owner	A1 (curriculum), G1 (regional training programs)	M1, C1, public

4. Results and Discussion

4.1. Results

Overview of Emergent Themes

The analysis of semi-structured interviews with government (G1), hotel management (B1), academia (A1), media (M1), and community (C1) generated five interlinked themes: (i) policy support and incentive gaps, (ii) operational readiness and capability building, (iii) sharia–green alignment and assurance, (iv) market pull and reputation, and (v) community and media as change multipliers. Participant composition and roles are summarized in Table 1, the interview guide in Table 2, and the indicator and governance scaffolds in Tables 3–4 (see Section 3). What follows presents each theme with concise evidential quotes (translated where needed) and clarifies how they connect to the indicator framework and the destination-wide logic model.

Theme 1 — Policy Support and Incentive Gaps

Across interviews, respondents perceived strong rhetorical support for Islamic Green Economy (IGE) in hospitality but uneven operationalization of that support. G1 described the intention clearly: *“We want hotels to move beyond slogans; the support pathway must be operational and measurable.”* B1 echoed this from the implementer’s side: *“We need a roadmap that tells us which indicators to track, who verifies them, and how those results unlock fiscal or technical assistance.”* The media perspective tied credibility to verifiability: *“Numbers and verification make stories credible; general slogans do not,”* (M1).

Three recurrent gaps emerged. First, access pathway opacity: hotels were unsure about application windows, documentation, and verification responsibilities. Second, weak coupling between support and performance: trainings and campaigns were appreciated, yet hotels did not always see how such activities would translate into performance-linked benefits or risk-sharing for early investments. Third, inter-agency discontinuity: respondents associated delays with budget cycles and varying practices across offices.

Table 5. Thematic Summary with Exemplar Quotes, Related KPIs, And Suggested Actions

Theme	Salient Codes	Exemplar quotes (informant code)	Related KPIs / Instruments	Suggested actions
Policy support & incentive gaps	policy intent; access pathway; performance linkage	<i>"The support pathway must be operational and measurable."</i> (G1) · <i>"We need a roadmap: what to track, who verifies, and how it unlocks support."</i> (B1) · <i>"Numbers and verification make stories credible."</i> (M1)	Early-stage KPI set; one-stop pathway; reporting template	Tie fiscal/technical support to KPI milestones; publish step-by-step access guide; standardize verification roles
Operational readiness & capability	quick wins; baseline; training; internal audit	<i>"We started with quick wins so staff could see measurable changes."</i> (B1) · <i>"Without a learning loop, performance becomes inconsistent."</i> (A1) · <i>"Short checklists and demos beat long seminars."</i> (C1)	Energy, water, waste intensities; training hours; internal audit log	Institute shift-friendly training and quarterly internal audits; stage retrofits after behavioral gains stabilize
Sharia–green alignment & assurance	single system; verifiability; staff comprehension	<i>"IGE binds ethical and environmental expectations into daily choices."</i> (A1) · <i>"Staff understand the indicators, and guests can read them."</i> (B1) · <i>"We support audits if indicators are clear."</i> (G1)	Integrated KPI set incl. sharia-service score; semi-annual audit	Operate one assurance cycle (environment + sharia + training + annual summary); use a concise "data card"
Market pull & reputation	verified claims; readability; risk of greenwashing	<i>"For some segments it's a real differentiator."</i> (B1) · <i>"Simple, verified metrics make pieces readable and trustworthy."</i> (M1)	Quarterly mini-case; intensity graphs; year-on-year comparisons	Communicate with one graph + two sentences; avoid claim inflation; contextualize for seasonality/occupancy
Community & media as multipliers	co-education; norm cues; amplification	<i>"Short checklists and role-play stick better than lectures."</i> (C1) · <i>"Be proactive and bring the numbers."</i> (M1)	Audit-informed campaign kit; guest prompts; signage	Co-produce audit-informed campaigns; place positive norm cues; maintain light fact-checking routines

These gaps informed two design choices used throughout this paper: (a) a compact set of auditable, early-stage KPIs with clear units and frequencies (Table 3), and (b) a simple logic model that specifies how inputs (e.g., incentives, training) flow into activities, outputs, outcomes, and longer-term impact, with a monitoring-and-evaluation feedback loop (Figure 2). In short, Theme 1 indicates what to link (incentives ↔ KPIs) and how to link (through a transparent pathway). Importantly, Figure 2 is presented as an actor-perceived signaling pathway; it does not constitute a measured causal chain from metrics to market preference.

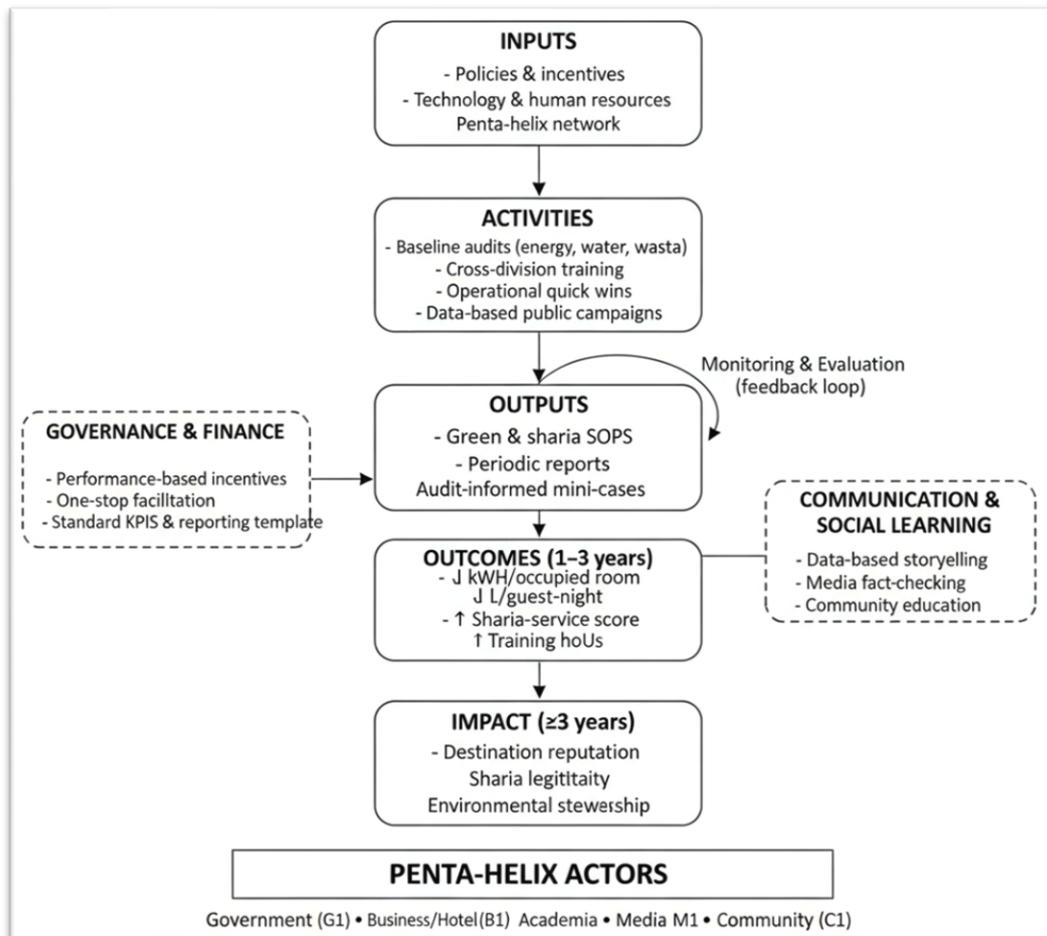


Figure 2. Logic Model of Ige Implementation as An Actor-Perceived Signaling Pathway in Sharia Hotels.

Theme 2 — Operational Readiness and Capability Building

Hotels commonly started with low-cost, high-visibility changes that produced immediate baselines before any capital-intensive retrofits. As B1 explained, “We started with quick wins—HVAC fine-tuning, low-flow fixtures, waste separation, and greener procurement—so staff could see measurable changes quickly.” These actions yielded concrete baselines: kWh per occupied room, liters per guest-night, and sorted/treated waste share (see Table 3 for definitions and frequencies).

However, two capability bottlenecks surfaced. First, behavioral resistance to SOP changes: some staff initially perceived resource-saving routines as potentially compromising service comfort or adding workload. Second, data literacy: teams

required support to interpret intensity-based indicators under fluctuating occupancy, seasonality, and special events. A1 emphasized the role of repetition and structure: *“Without a learning loop—training, action, audit, feedback—performance will be inconsistent regardless of equipment.”* C1 highlighted hands-on micro-coaching as a bridge from intention to habit: *“Short checklists and quick demonstrations work better than long seminars; small, consistent behaviors move the numbers.”*

Table 6. Operational quick wins and enablers

Operational change	Expected effect on KPI (direction)	Required SOP / training	Typical barriers	Mitigation / coach notes	Link to incentive or audit
HVAC set-point discipline (e.g., 24 °C) & scheduling	↓ Energy intensity (kWh/occupied room)	Front-office & engineering checklist; shift reminders	Comfort expectations; override by staff/guests	Explain comfort–health rationale; weekly spot checks; signage in BOH	Counted in quarterly energy audit; eligible for metering co-financing
LED relamping in high-use areas	↓ Energy intensity	Maintenance plan; lamp inventory log	Upfront purchase; variant specs	Start with corridors/BOH; bulk procurement	Verification via utility trend + purchase log
Low-flow fixtures & leak checks	↓ Water intensity (L/guest-night)	Housekeeping routine test; monthly leak walk	Perceived housekeeping burden	5-minute shift drill; color-coded tag system	Quarterly water audit checklist
Waste-bin zoning & staff sorting drill	↑ Sorted/treated waste share (%)	Sorting SOP; color coding; daily spot check	Cross-contamination; vendor inconsistency	Clear bin placement; vendor MoU; photo log	Verified by housekeeping log + processor receipts
Green procurement for amenities	↓ Waste; reputational gain	Purchase policy; vendor screening	Price sensitivity; stockouts	Pilot with 1–2 items; communicate to guests	Reviewed in semi-annual audit (documentation)
Shift-friendly micro-training (≤15 min)	↑ Training hours; ↑ compliance	Micro-modules; peer demo	Time pressure; staff turnover	Rotate micro-topics; track attendance	Logged for governance KPI; sampled in audit
Guest norm cues (towel/linen, AC use)	↓ Energy & water intensities	Front-of-house script; signage	Fear of guest pushback	Positive framing with data; opt-out option	Mention in annual public summary

Respondents converged on the importance of routine internal audits and shift-friendly training. The cadence proposed in Table 3—quarterly for environmental metrics; semi-annual for sharia-service compliance and training hours; and an annual public summary—was viewed as doable and communicable. A related operational

choice was to sequence retrofits only after behavioral gains stabilized, so savings could be observed, attributed, and reinvested.

Theme 3 — Sharia–green Alignment and Assurance

Participants repeatedly cautioned against treating halal assurance and environmental management as separate, parallel checklists. A1 captured the integration imperative: *“IGE binds ethical and environmental expectations into daily choices—from electricity and water to staff dignity, privacy, and food assurance.”* B1 favored communicable indicators: *“Staff understand them, and guests can read them.”* G1 confirmed a willingness to back baseline audits and periodic evaluations *“as long as indicators are clear and verifiable.”*

The early-stage KPI set (Table 3) operationalizes that integration. The sharia-service compliance score is a composite audit score derived from a structured checklist, placed alongside environmental metrics to create one assurance cycle rather than two disjointed regimes. Quarterly environmental readings capture operational discipline; the semi-annual sharia audit keeps the ethical service aspects visible; training hours per staff per year act as a capability proxy; and a short annual report translates performance into an external narrative.

In this study, the score was constructed by aggregating item-level assessments across core service domains typically audited in sharia-compliant hospitality (e.g., rooms and guest privacy, food and beverage handling, facilities and amenities, and ethical service conduct/HR-related practices). Each item was rated using a simple ordinal scale and summed (or averaged) into a 0–100 score to support internal tracking and communication. Importantly, this instrument is not intended to replace existing standards; it is designed to be compatible and modular, so items can be mapped to a hotel’s prevailing sharia audit scheme and aligned with widely used sustainability governance frameworks (e.g., GSTC-oriented management routines) while keeping reporting feasible for operators at the early stage.

Respondents supported this single assurance language for two reasons. First, it reduces staff confusion and training fatigue that often accompany overlapping standards. Second, it anchors external communication: hotels can publish one concise data card that guests and media can understand quickly (e.g., *“–11% electricity/occupied room; +18pp sorted waste; sharia-service 92/100; 10 hours of staff training per person this year”*).

Theme 4 — Market Pull and Reputation

Informants perceived values-driven demand for credible green–sharia offerings and described reputational benefits as arising from verifiable, easy-to-interpret information. B1 noted, *“Customer response has been positive; for some segments it’s a real differentiator.”* M1 confirmed rising editorial traction when simple, verified metrics accompany stories: *“Year-on-year electricity per occupied room or liters per guest-night—numbers like these make pieces both readable and trustworthy.”* M1 also warned that claim inflation undermines reputational gains: *“Audited numbers reduce the risk of greenwashing and help readers understand seasonal effects like peak*

occupancy.” This editorial emphasis aligns with warnings that unverifiable environmental claims erode trust—a classic ‘greenwashing’ risk (Delmas & Burbano, 2011).

Table 7. Integrated assurance cycle (metrics, cadence, responsibilities, verification, and artefacts)

Operational change	Expected effect on KPI (direction)	Required SOP / training	Typical barriers	Mitigation / coach notes	Link to incentive or audit
HVAC set-point discipline (e.g., 24 °C) & scheduling	↓ Energy intensity (kWh/occupied room)	Front-office & engineering checklist; shift reminders	Comfort expectations; override by staff/guests	Explain comfort–health rationale; weekly spot checks; signage in BOH	Counted in quarterly energy audit; eligible for metering co-financing
LED relamping in high-use areas	↓ Energy intensity	Maintenance plan; lamp inventory log	Upfront purchase; variant specs	Start with corridors/BOH; bulk procurement	Verification via utility trend + purchase log
Low-flow fixtures & leak checks	↓ Water intensity (L/guest-night)	Housekeeping routine test; monthly leak walk	Perceived housekeeping burden	5-minute shift drill; color-coded tag system	Quarterly water audit checklist
Waste-bin zoning & staff sorting drill	↑ Sorted/treated waste share (%)	Sorting SOP; color coding; daily spot check	Cross-contamination; vendor inconsistency	Clear bin placement; vendor MoU; photo log	Verified by housekeeping log + processor receipts
Green procurement for amenities	↓ Waste; reputational gain	Purchase policy; vendor screening	Price sensitivity; stockouts	Pilot with 1–2 items; communicate to guests	Reviewed in semi-annual audit (documentation)
Shift-friendly micro-training (≤15 min)	↑ Training hours; ↑ compliance	Micro-modules; peer demo	Time pressure; staff turnover	Rotate micro-topics; track attendance	Logged for governance KPI; sampled in audit
Guest norms (towel/linen, AC use)	↓ Energy & water intensities	Front-of-house script; signage	Fear of guest pushback	Positive framing with data; opt-out option	Mention in annual public summary

These accounts suggest a perceived pathway linking operational discipline to reputational positioning through two mechanisms. First, trust: audited and contextualized data were seen as strengthening credibility and reducing skepticism among readers and potential guests. Second, interpretability: intensity-based metrics normalize occupancy fluctuations and were viewed as enabling consistent understanding across staff, managers, media, and the public. While informants

expected that regular, verifiable reporting could translate into favorable market responses among values-driven segments, the present study did not measure market preference, willingness to pay, ADR, or occupancy outcomes. Accordingly, any commercial implications are reported here as stakeholder perceptions and expectations rather than demonstrated effects.

To support consistent communication, respondents suggested a quarterly, one-page mini-case with three elements: headline metric shifts, a single before–after visualization, and a short narrative of what changed operationally (e.g., SOP revisions, staff training, procurement tweaks). Media valued such “audit-informed kits” because they shorten verification time while still allowing editorial independence, and because they provide a practical format for reporting performance without overclaiming.

Theme 5 — Community And Media As Change Multipliers

C1 described communities as co-educators that translate values into small, repeatable actions: *“Short checklists in staff areas and role-play demonstrations stick better than long lectures.”* Media functioned as amplifiers and fact-checkers, with M1 advising: *“Be proactive in sharing success and hurdles—and bring the numbers.”* G1 welcomed how such partnerships lighten agency workload while improving public understanding: *“When messages are aligned and indicators are the same, community and media lighten the government’s burden in public education.”*

These roles mattered not only for awareness but for norm formation. Hotels that visibly practiced sorting waste or controlling water/energy tended to see guest mimicry (e.g., correct waste bins, towel re-use), especially when cues were framed positively and connected to data: *“This floor reduced electricity by 9% last quarter—thank you for keeping AC at 24°C.”* Such positively framed prompts mirror norm-based interventions shown to increase pro-environmental actions among hotel guests (Goldstein et al., 2008). In essence, community and media helped convert back-of-house discipline into front-of-house norms.

Cross-Theme Mechanisms and Synthesis

Integrating the five themes yields four mechanisms (already previewed) that explain movement from commitment to outcomes:

1. Credible incentives → staged retrofits → efficiency gains. When support is explicitly tethered to KPI targets and accessed through a clear pathway, hotels rationalize phased investments and lock in utility savings.
2. Capability building → behavioral compliance → consistent performance. Short, routine training + internal audits stabilize intensity metrics—making changes resilient to occupancy swings.
3. Data-first storytelling → market pull → reinvestment. Visible, verified metrics nurture trust and can unlock pricing/occupancy premiums, portions of which are re-channeled to further improvements.
4. Community–media collaboration → norm diffusion → guest/staff behaviors. Audit-informed campaigns close knowledge–action gaps and normalize desirable practices.

These mechanisms are wired together in Figure 1, which provides a destination-level logic model with feedback loops and role clarity (see Table 4 for the RACI mapping).

4.2. Discussion

From Policy Narratives to Performance-Linked Instruments

Theme 1 underscored the risk of policy–practice decoupling: robust goals yet opaque procedures and weak performance coupling. By anchoring support to a small, auditable KPI set (Table 3) and by publishing a one-stop pathway (baseline audit → target setting → verification → benefit), agencies can lower transaction costs and reinforce legitimacy. In Indonesia’s halal-tourism discourse, scholars have noted uneven legal framing and stakeholder coordination; a performance-linked approach can stabilize implementation while respecting regional autonomy. The logic model (Figure 1) helps communicate this sequencing to both officials and operators, thereby reducing ambiguity.

Operational Capability Before Capital Expenditure

The results reaffirm the hospitality literature that early gains flow from behavior and controls before capex. In our setting, hotels that installed simple routines (e.g., set-point discipline, on/off scheduling, leak checks, waste-bin zoning) reported immediate baselines and visible improvements, which then justified staged retrofits. This sequencing de-risks investment by demonstrating staff ownership and by generating cash-flow relief to co-finance upgrades. It also protects reputational promises: hotels disclose what changed operationally alongside the numbers, which improves public comprehension and prevents the “numbers without narrative” pitfall.

Sharia–Green Integration as One Assurance Cycle

Operating one integrated cycle (environmental metrics + sharia-service audit + training hours + annual summary) helps personnel avoid checklist fatigue and improves internal learning. It also gives media and guests a coherent data card rather than scattered claims. The quarterly and semi-annual cadence balances timeliness with feasibility for midsize properties. In our interviews, G1’s conditional support—“*as long as indicators are clear and verifiable*”—signals that verification is the bargaining chip: the simpler and cleaner the metrics, the more likely agencies and the public will trust claims.

Translating Performance into Reputation and Demand

Hotels often ask when environmental discipline translates into commercial outcomes. While this phase of the study did not test causality, respondents’ experiences and prior evidence suggest a credible pathway: routine discipline improves indicators; audit-informed stories (not just slogans) cultivate trust; trusted stories attract values-congruent segments; over time, this can support occupancy/ADR premiums; and those premiums can finance further improvements. The key design principle is interpretability: intensity metrics normalized by room nights or guest nights, paired with a one-graph visualization and a two-sentence operational narrative, proved both digestible and persuasive for non-technical audiences.

Collaborative Governance and The Penta-Helix

A destination-level view clarifies who does what. Government aligns instruments and templates (Theme 1), hotels institutionalize SOPs and metering (Theme 2), academia provides indicator design and evaluation (Theme 3), community translates values into habits (Theme 5), and media scales learning with scrutiny (Themes 4–5). The RACI mapping (Table 4) and logic model (Figure 1) make these roles executable rather than rhetorical. When the five helices coordinate on the same indicators and artefacts, coordination costs drop and peer-learning accelerates (e.g., hotels sharing audit-informed one-pagers at quarterly forums).

Practical Implications

The findings suggest several destination-level implications. First, public agencies can reduce policy–practice decoupling by publishing a single, stepwise access pathway that links baseline audits to target setting, verification, and the release of fiscal or technical support. When benefits are explicitly tethered to the compact KPI set and monitoring cadence defined earlier (see Table 3), hotels gain clarity on what to measure, how often, and which documents will be reviewed. A centralized template for quarterly summaries would also streamline administrative work and make cross-property comparisons feasible without imposing heavy reporting burdens.

For hotel operators, the results underscore the value of sequencing behavioral improvements before capital expenditure. Establishing baselines through quick wins, internal audits, and shift-friendly micro-training stabilizes intensity metrics across occupancy swings; only then do staged retrofits become both justifiable and traceable in terms of savings. Communicating performance in a data-first but concise manner—one simple graph accompanied by a brief operational narrative—helps staff understand why procedures matter and allows guests to interpret numbers without technical background. This approach also mitigates reputational risk by avoiding claim inflation and by contextualizing seasonal variation (see Table 6 for a consolidated view of operational enablers).

Civil society and media play complementary roles in diffusing norms from the back-of-house to guest-facing spaces. Audit-informed campaigns, co-produced with community organizations, convert indicators into everyday cues that shape staff and guest behavior, while light-touch fact checking by journalists protects trust without over-burdening hotels. In aggregate, these practices align with the integrated assurance cycle proposed in this study, in which environmental metrics, sharia-service audits, and training hours feed into an annual public summary that is intelligible to non-experts (see Table 7 and Figure 1).

Practical Implications

This study contributes by explaining how penta-helix actors interpret sustainability measurement, verification, and communication as a pathway for strengthening credibility and reputational positioning in sharia hotel contexts. The paper offers a compact early-stage KPI set that integrates environmental metrics with sharia-service assurance, a feasible monitoring cadence, and a logic model that clarifies roles and

feedback loops across stakeholders. Together, these outputs position metrics as credible reputation signals while leaving the magnitude of market effects to be established through future mixed-methods testing.

The study is not without limitations. This qualitative study explains how penta-helix actors perceived that audited metrics and transparent communication can function as reputation signals in sharia hotel contexts. It does not measure market preference; therefore, market outcomes are discussed as perceived or expected effects reported by informants. It relied on a mechanism-seeking qualitative design with a small, information-rich sample; therefore, the results illuminate processes rather than provide statistical generalization. Moreover, this phase did not collect longitudinal utility-billing or booking data, so it cannot estimate the magnitude of financial effects (e.g., occupancy or ADR premia) associated with verified performance. These constraints do not undermine the core claims but delimit the scope of inference to how implementation can be organized and learned.

Future research should extend the analysis through mixed-methods designs that pair thematic insights with before–after metering and transaction-level performance data. Instrumenting a subset of hotels to track utility intensity alongside controlled changes in operational routines would help establish causal pathways from capability building to measured savings. In parallel, experiments in data-first communication—for instance, A/B tests of guest-facing dashboards or media kits—could assess whether verified indicators influence booking behavior and price realization. Such evidence would refine performance-linked incentive schemes and further institutionalize the assurance cycle outlined in this paper.

5. Conclusion

This study examined how Islamic Green Economy (IGE) principles were operationalized in sharia hotels in Yogyakarta through a penta-helix lens. Five themes emerged: (i) strong policy intent coupled with unclear access pathways and weak performance linkage; (ii) the primacy of operational capability—quick wins, shift-friendly training, and internal audits—before capital expenditure; (iii) the need to integrate sharia-service assurance with environmental management into one auditable cycle; (iv) the role of data-first communication in converting operational gains into reputation and values-driven demand; and (v) the multiplier effects of community and media in diffusing norms.

The paper contributes a compact early-stage KPI set (energy and water intensities, sorted/treated waste share, sharia-service compliance score, and training hours/reporting), a monitoring cadence that hotels can sustain (quarterly/semi-annual/annual), and a logic model that clarifies roles and feedback loops across the penta-helix. Together, these elements translate broad policy narratives into executable routines that are measurable, verifiable, and communicable.

Practically, destinations can tie fiscal and technical support to KPI milestones and provide a one-stop pathway from baseline audits to verification and benefits. Hotels

can stabilize performance by sequencing behavioral improvements before retrofits and by reporting intensity-based metrics with brief operational narratives. Community and media partners can co-produce audit-informed campaigns that normalize desired behaviors among staff and guests while reducing greenwashing risks.

Two insights follow. First, integration matters: running one assurance cycle for sharia and environmental performance reduces checklist fatigue, improves learning, and strengthens legitimacy with regulators and guests. Second, communication is governance: simple, verified numbers—paired with context—are not merely promotional assets but mechanisms that coordinate expectations across actors. Future work should test, with mixed methods, whether verified performance measurably influences booking behavior and price premia, and should evaluate the cost-effectiveness of incentive designs that are explicitly performance-linked.

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