

Green Intellectual Capital and Sustainable Performance among Public Sector Employees: A Cross-Sectional Correlational Study

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ABSTRACT: Although numerous studies have examined the relationship between Green Intellectual Capital and Sustainable Performance, limited evidence is available in the Pakistani public sector. Therefore, the present study aimed to address this gap by adopting a cross-sectional correlational research design and a purposive sampling technique to recruit public sector employees from various organizations in Lahore and Faisalabad, Pakistan. Participants were required to be at least 19 years old, possess a minimum qualification of Intermediate, and have at least one year of work experience. Initially, 300 employees were approached, of whom 260 completed the questionnaires, yielding a response rate of 86.7%. The study utilized two standardized instruments: the Green Intellectual Capital Scale and the Sustainable Performance Scale. The results revealed a significant positive relationship between Green Intellectual Capital and Sustainable Performance. Furthermore, Green Intellectual Capital significantly and positively predicted Sustainable Performance among public sector employees. The findings highlight the importance of Green Intellectual Capital in enhancing Sustainable Performance within public sector organizations

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Introduction

In the contemporary era, public sector organizations are required to maintain a balance among economic efficiency, environmental responsibility, and accountability as they are expected to deliver high-quality public services (Queralt-Bassa et al., 2026; Shahid et al., 2025; Shahid et al., 2026; Shava et al., 2025; Velsberg et al., 2020). Therefore, sustainability is considered a strategic priority instead of just an environmental concern, requiring organizations to develop internal capabilities that facilitate long-term sustainability (Alkaraan et al., 2024; Bari et al., 2022; Ketata et al., 2015; Papagiannakis et al., 2013).

Green Intellectual Capital (GIC) has become an important intangible organizational resource that fosters sustainable organizational practices and improves long-term performance (Arun, 2026; Ibrahim et al., 2026; Naeem et al., 2026; Shahbaz & Malik, 2025). Organizations invest in employees' environmental knowledge to achieve their sustainability objectives (Ahmad et al., 2023; Alharethi et al., 2026; Alqatan et al., 2025; Fadillah et al., 2026).

Sustainable performance can be defined as the organizational capacity to achieve long-term economic, social, and environmental objectives while maintaining operational functionality and delivering value to stakeholders in a timely manner (Abdelrahman et al., 2026; Gaybullaev & Strode, 2026; Javed et al., 2025; Larabi, 2025). In public sector organizations, sustainable performance is not limited to financial efficiency but also encloses responsible resource usage, service quality, accountability, transparency, and environmental stewardship (Bayong et al., 2026; Connolly et al., 2013; Dempere et al., 2024; Wolf et al., 2011). Public organizations with sustainable performance are better equipped to enhance institutional effectiveness, elevate public trust, and align with the national sustainable development objectives (Abhayawansa et al., 2021; Adiele & Gbekee-Kalagbor, 2025; Agyemang & Ansah, 2026; Enticott & Walker, 2008).

Empirical evidence suggests that Green Intellectual Capital contributes to sustainable performance. Green intellectual capital contributes to sustainable performance by facilitating employees' environmental credentials such as knowledge, organizational operations, and collaborative relationships that align with environmentally responsible and accountable decision-making (Adnan et al., 2025; Baquero, 2024; Hasanein et al., 2026; Kianto et al., 2023; Xie et al., 2026). When public sector employees possess green competencies and organizations establish environmentally supportive structures and stakeholder partnerships, they become more capable of implementing sustainable practices, improving operational efficiency, reducing environmental impacts, and achieving long-term organizational sustainability (Ispiryanyan et al., 2024; Johnston & Fenwick, 2025; Rasheed et al., 2025; Yoo, 2024).

This study is grounded in the Natural Resource-Based View (NRBV), which posits that organizations gain competitive advantage by leveraging valuable environmental resources and capabilities (Hart, 1995; Makhoul et al., 2021). Aligned with the NRBV, Green Intellectual Capital is a valuable strategic resource for achieving sustainable performance and organizational sustainability. Guided by this framework, this study examines the relationship between Green Intellectual Capital and sustainable performance among public sector employees in Pakistan to address the gap in the literature.

Hypotheses

H1: There is a significant positive relationship between Green Intellectual Capital and Sustainable Performance among public sector employees in Pakistan.

H2: Green Intellectual Capital significantly and positively predicts Sustainable Performance among public sector employees in Pakistan.

Methodology

The study adopted a cross-sectional correlational research design to examine the relationship between Green Intellectual Capital and Sustainable Performance at a single point in time. A purposive sampling technique was employed to recruit public sector employees who met the study's inclusion criteria and possessed relevant experience to provide meaningful information regarding the study variables.

Inclusion and Exclusion Criteria

The inclusion criteria required participants to be at least 19 years of age, possess at least an Intermediate qualification, and have a minimum of one year of work experience in the public sector.

Participants' Characteristics

Initially, 300 public sector employees from Lahore and Faisalabad, Pakistan, were approached. Of these, 260 completed the questionnaires, yielding a response rate of 86.7%, while the remaining participants withdrew from the study. The final sample had a mean age of 32.50 years (SD = 11.32). The sample comprised 161 men (61.9%) and 99 women (38.1%). Regarding educational qualifications, 98 (37.7%) participants had completed Intermediate education, 69 (26.5%) held a Bachelor's degree, 60 (23.1%) held a Master's degree, and 33 (12.7%) had a Ph.D. In terms of work experience, 128 (49.2%) participants had 1–3 years of experience, 78 (30.0%) had 4–7 years, 44 (16.9%) had 8–11 years, and 10 (3.8%) had 11–15 years of experience. Participants were recruited from Government Hospitals (n = 41, 15.8%), Public Universities (n = 34, 13.1%), Government Schools and Colleges (n = 21, 8.1%), Municipal Administration Departments (n = 24, 9.2%), Irrigation Departments (n = 33, 12.7%), Revenue Departments (n = 48, 18.5%), and Forestry Departments (n = 59, 22.7%). Regarding the study location, 185 (71.2%) participants were recruited from Lahore, whereas 75 (28.8%) were recruited from Faisalabad.

Study Measures

Green Intellectual Capital was measured using the 13-item *Green Intellectual Capital Scale* developed by Buhaya and Metwally (2024). The scale uses a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The original study reported excellent internal consistency, with a Cronbach's alpha of .93 (Buhaya & Metwally, 2024). In the present study, the scale demonstrated good internal consistency (Cronbach's $\alpha = .86$).

Sustainable Performance was measured using the 29-item *Sustainable Performance Scale* developed by Ibrahim et al. (2020). The scale uses a 6-point Likert scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). The original study reported an internal consistency of Cronbach's $\alpha = .89$. In the present study, the scale demonstrated good internal consistency (Cronbach's $\alpha = .85$).

Ethical Considerations and Procedure

Ethical Considerations and Procedure. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. public sector employees from various organizations in Lahore and Faisalabad, Pakistan were approached and provided with an informed consent form, a demographic questionnaire, and the study measures. Before participation, the objectives of the study, the voluntary nature of participation, the confidentiality of responses, and the participants' right to withdraw from the study at any time without penalty were clearly explained. Written informed consent was obtained from all participants prior to data collection. After data collection, the responses were coded and entered into IBM SPSS Statistics (Version 27) for data screening and statistical analyses.

Results

Table 1

Correlational Matrix of Study Variables (N = 260)

Variables	Green Intellectual Capital	Sustainable Performance
Green Intellectual Capital	-	.71***
Sustainable Performance		-

Note: *** $p < .001$,

Table 1 indicates a significant positive relationship between Green Intellectual Capital and Sustainable Performance ($r = .71, p < .001$).

Table 2

Predicting Sustainable Performance from Green Intellectual Capital ($N = 260$)

Variable	B	SE	β	t	P	LLCI	ULCI
Constant	41.15	3.20		12.83	<.001	34.84	47.47
Green IC	1.22	.07	.71	16.27	<.001	1.07	1.37

Note. *** $p < .001$, IC = Intellectual Capital, $R^2 = .50, F = 264.88$

Table 2 shows that Green Intellectual Capital significantly and positively predicted Sustainable Performance ($\beta = .71, p < .001$). The model explained 50% of the variance in Sustainable Performance ($R^2 = .50, F = 264.88$).

Discussion

The present study aimed to assess the association between Green Intellectual Capital and sustainable performance among employees of public sector organizations in Pakistan to address the gap in the indigenous literature.

The first hypothesis of the study is supported as the correlational findings reported a statistically positive and significant relationship between green intellectual capital and sustainable performance. This means that as Green Intellectual Capital increases, Sustainable Performance also increases in the public sector organizations in Pakistan. The study findings are supported by the prior literature indicating that green intellectual capital serves as an important as well as strategic organizational component that enhances not only social and economic organizational practices but also environmental practices, which ultimately results in organizational success in attaining its objectives and improving productivity (Alnaim & Metwally, 2024; Asiaei et al., 2022; Ispiryany et al., 2024; Mohua & Yusoff, 2023).

The second hypothesis of the study is also supported by the finding of the study as the Green Intellectual Capital significantly and positively predicted Sustainable Performance among public sector employees in Pakistan. The findings suggest that organizations enhancing the knowledge and skills of employees regarding the environment help improve Sustainable Performance by strengthening environmentally responsible organizational practices. Furthermore, green organizational systems are more likely to be accommodated with resources that lead to higher economic, social, and environmental performance. These findings are consistent with the Natural Resource-Based View (NRBV), which proposes that valuable organizational resources, such as employees' environmental knowledge, green organizational systems, and environmentally oriented stakeholder relationships, provide a strategic advantage that enhances sustainable performance (Hart, 1995; Makhlou et al., 2021). The findings are supported with the exist western studies that reveal that green intellectual capital is a significant predicting factor for sustainable performance among employees (Asiaei et al., 2022; Nikolaou et al., 2024). Despite economic and infrastructural resources in Pakistan, the organizational are gradually incorporating sustainability to enhance long-term sustainable performance (Ali et al., 2025; Naeem et al., 2026).

Conclusions

The study addressed the gap in the indigenous literature by assessing the relationship between green intellectual capital and sustainable performance among public sector employees in the Pakistani cultural context. The

correlational analysis of the study indicated a significant association between study variables, whereas the regression analysis revealed a significant positive effect of Green Intellectual Capital on Sustainable Performance by green intellectual capital. The study highlights the importance of green intellectual capital for employees' sustainable performance.

Implications

The findings indicate that organizations have to invest in their employee's knowledge related to the environment to enhance Sustainable Performance through environmental knowledge, green management practices, and employee training. Furthermore, organizational upper management as well as policymakers should take initiatives for green management practices and environmental training to come up with long-term sustainable support. The government needs to take proactive steps for the public corporate sectors.

Limitations and Suggestions for Future

The present study adopted a cross-sectional correlational study design, which only allows assessing variables among participants at a single point in time; future studies need to utilize the longitudinal study design for assessing variables over a longer period of time to observe if the changes are taking place with respect to time passing or not. Future studies also need to include the Urdu-adapted questionnaire, as not every public sector employee, despite graduation, may be fully aware of the questionnaire's items; therefore, may not come up with appropriate responses, leading to weakening of the study's result. Future studies are suggested to include demographics like rank or job title of employees too.

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