

Traditional Knowledge and Modern Green Technologies: Pathways for SME Sustainability in Kathmandu, Nepal

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Abstract

Background: Nepal's rapid socio-economic transformation intersects with its rich cultural heritage, where traditional business practices, rooted in community values and social networks, form the backbone of its SME sector. Understanding the interaction between these indigenous cultural practices and the emerging principles of the green economy is crucial for sustainable development.

Objectives: This study aimed to (1) assess cultural business practices and perceptions of the green economy within Nepalese SMEs, and (2) examine the relationship between these cultural practices and green economic principles.

Methods: A quantitative, descriptive-correlational research design was employed. Data were collected via a structured questionnaire from 219 owners and managers of SMEs in the Kathmandu Metropolitan area, especially among Newars. Analysis utilized descriptive statistics and Kendall's tau-b correlation.

Findings: Respondents expressed neutral perceptions (Mean=2.99) on whether traditional business practices are inherently sustainable. However, cultural values like community sharing

and frugality were seen to support green principles (Mean=3.21). A significant concern was that modern trends are erasing traditional eco-friendly practices (51.6% agreed). There was strong optimism that cultural industries can drive the green economy (58% agreed) and that blending traditional knowledge with modern technology can boost the economy (66.7% agreed). A major challenge identified was accessing green financing (52.1% agreed). Critically, a statistically significant, moderate positive correlation was found between cultural business practices and the green economy ($\tau_b = .450, p < .01$).

Conclusion: The findings indicate that Nepal's traditional cultural business practices and values are perceived to be aligned with and supportive of green economic principles. Cultural industries are seen as a potential driver for a sustainable economy.

Implication: Policymakers and business development agencies should leverage compatible cultural values to promote green economy initiatives. Strategies should focus on integrating traditional knowledge with modern technology and, crucially, addressing the barriers to green financing and certifications for SMEs.

Keywords: Green Economy, Cultural Business Practices, SMEs, Sustainability, Nepal.

Introduction

Nepal, being culturally rich and diverse in heritage, is also undergoing rapid socio-economic transformation as it sets off on new development pathways. Its corporate culture rests on indigenous practices, community values, and religion, which are factors shaping how people engage in commerce and sustainability. Policymakers, entrepreneurs, and researchers need to understand how these forces of culture interact with the new green economy paradigm. Nepalese cultural business practices are often guided by tight social relationships, personal networks, and tradition (Upadhyay & Gurung, 2020). Family businesses, local cooperatives, and small and medium enterprises (SMEs) form the backbone of Nepali business. They tend to operate on a foundation of trust-based exchange and social norms, which can facilitate as well as inhibit innovation and sustainability practices.

On the other hand, the green economy founded on sustainable development, low-carbon development, and resource efficiency is a recent but fast-evolving trend in Nepal. Green growth strategies have been incorporated into various national plans, such as the 15th Periodic Plan and Nationally Determined Contributions (NDCs) of the Paris Agreement (National Planning Commission [NPC], 2020). Green economic development is powered by renewable energy initiatives, nature tourism, organic farming, and environmentally friendly urban planning (Shrestha, 2021).

Transition to the green economy, however, requires a shift in the perception, attitudes, and behavior of individuals at all levels in society. The interaction of traditional business cultural norms and modern sustainability initiatives tends to bring mixed responses. While some adopt green practices due to their compatibility with indigenous knowledge and nature harmony, others may perceive environmental policies as confusing or impracticable owing to low awareness, financial constraints, or a deficiency of technical skills (Bhattarai & Pant, 2022).

Moreover, Nepal's unique socio-cultural context its ethnic diversity, rural-urban divide, and robust local institutions of governance also significantly plays in shaping citizens' thought and adoption of green business. It has been found that cultural fit and stakeholder involvement are essential to guarantee green economy initiatives in developing countries like Nepal have a successful implementation (Adhikari, 2019).

Objectives of Study

To assess Cultural Business Practices and Green Economic in SME's,

To examine the relationship between Cultural Business Practices and Green Economic in SME's.

Research Methodology

This study adopted a descriptive and correlational research design within a quantitative research approach. The primary aim was to examine the perceptions of small and medium-sized enterprises (SMEs) operating in Nepal's cultural industries regarding the green economy. Primary data were collected through a structured questionnaire, designed to gather numeric information relevant to the research objectives. The target respondents included managers and owners of SMEs operating within the Kathmandu Metropolitan area. A total of 219 respondents were selected as the sample for this study using appropriate sampling techniques.

To analyze the data, descriptive statistics (such as frequency, percentage, mean, and standard deviation) were used to summarize the demographic and perceptual data. Additionally, Pearson correlation analysis was employed to examine the relationships between variables related to cultural industries and green economy perceptions.

Results

The data was collected by distributing structured questionnaires among business owners, managers, and community representatives in selected urban and semi-urban areas of Nepal, including Kathmandu Metropolitan. This section covers the respondents' demographic profile and how it was analyzed and interpreted based on the primary information gathered through the questionnaires. This helps to better understand the demographic characteristics of the respondents involved in the study. The profile of the respondents includes information about their gender, age, and ethnicity.

Table 1: Sample Distribution of Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	107	48.9	48.9	48.9
	Female	106	48.4	48.4	97.3
	Others	6	2.7	2.7	100.0
	Total	219	100.0	100.0	

The table shows how the genders of the study participants were distributed. Of the 219 respondents, 107 persons (48.9%) were male, 106 persons (48.4%) were female, and 6 persons (2.7%) fell into other gender categories.

Table 2: Sample Distribution of Age

Age Group		Frequency	Percent	Valid Percent	Cumulative Percent
	Below 20	25	11.4	11.4	11.4
	20 to 30 years	149	68.0	68.0	79.5
	30 to 40 years	27	12.3	12.3	91.8
	40 to 50 years	10	4.6	4.6	96.3
	50 to 60 years	6	2.7	2.7	99.1
	Above 60 years	2	.9	.9	100.0
	Total	219	100.0	100.0	

The table presents the distribution of respondents according to their age groups. Out of the total 219 respondents, the majority (68.0%) fell within the age range of 20 to 30 years. This was followed by 12.3% of respondents who were between 30 to 40 years of age, and 11.4% who were below 20 years old. Smaller proportions of respondents were in the age groups 40 to 50 years (4.6%), 50 to 60 years (2.7%), and above 60 years (0.9%).

Table 3: Sample Distribution of ethnicity/caste

	Frequency	Percent	Valid Percent	Cumulative Percent
Brahmin/Chhetri	101	46.1	46.1	46.1
Newar	96	43.8	43.8	90.0
Madhesi	10	4.6	4.6	94.5
Dalit	12	5.5	5.5	100.0
Total	219	100.0	100.0	

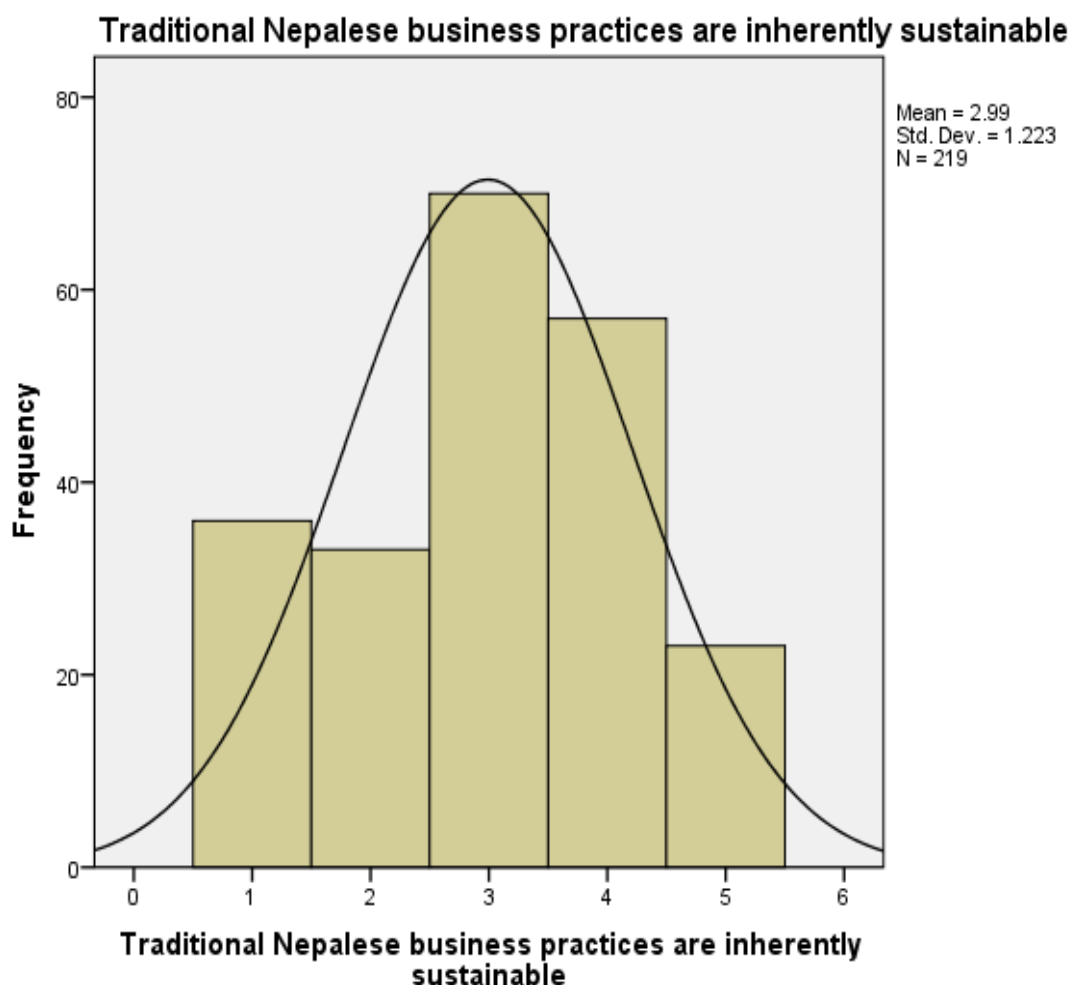
The survey shows how respondents in this study are distributed by ethnicity or caste. Out of the total 219 people who participated, just under half (46.1%) identified as Brahmin/Chhetri, which makes this the largest group in the sample. This is closely followed by Newar respondents, who make up (43.8%) of the total. A smaller number of respondents identified as Dalit (5.5%) and Madhesi (4.6%).

Cultural Business Practices

Table 4: Traditional Nepalese business practices are inherently sustainable

		Frequency	Percent
Valid	Strongly Disagree	36	16.4
	Disagree	33	15.1
	Neutral	70	32.0

Agree	57	26.0
Strongly Agree	23	10.5
Total	219	100.0

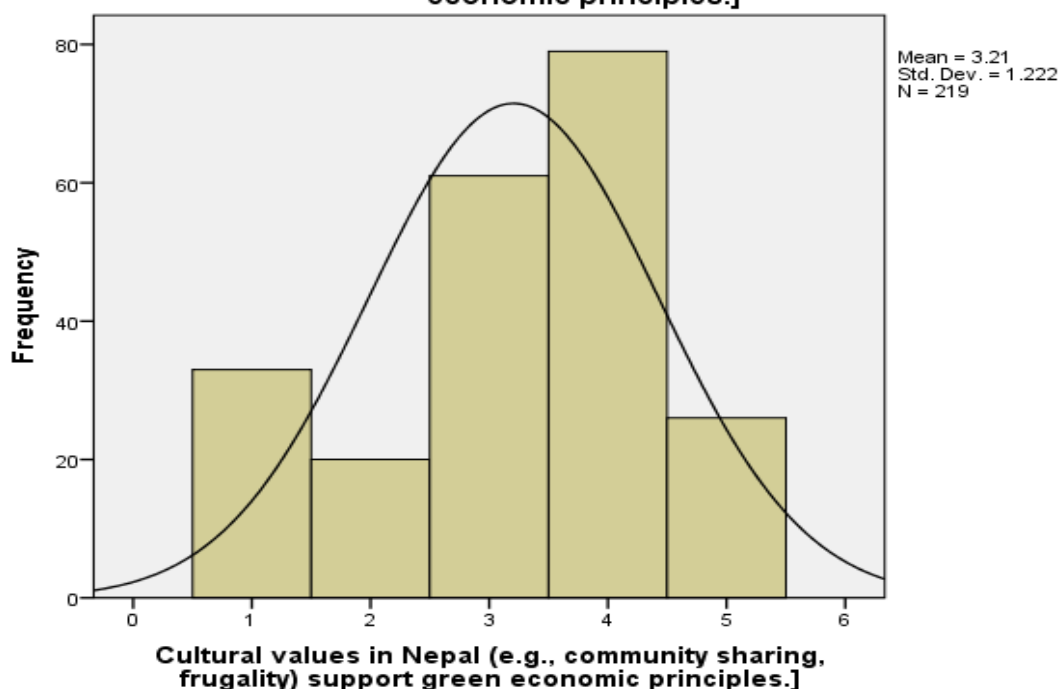


The analysis of responses regarding the statement "Traditional Nepalese business practices are inherently sustainable" reveals a diverse range of perceptions among the 219 respondents. A considerable portion of the participants remained neutral (32.0%), indicating uncertainty or a balanced viewpoint about the sustainability of traditional practices. About 26.0% of respondents agreed, and 10.5% strongly agreed, suggesting that a combined 36.5% believe traditional Nepalese business practices possess inherent sustainability. On the other hand, 15.1% disagreed and 16.4% strongly disagreed, totaling 31.5% who do not perceive these practices as sustainable. The mean score of 2.99, with a standard deviation of 1.223, indicates an overall neutral to slightly negative tendency in perception, with a relatively moderate spread of opinions. This suggests that while there is some acknowledgment of sustainability in traditional business methods, skepticism and neutrality prevail among many cultural business representatives.

Table 5: Cultural values in Nepal (e.g., community sharing, frugality) support green economic principles.

		Frequency	Percent
Valid	Strongly Disagree	33	15.1
	Disagree	20	9.1
	Neutral	61	27.9
	Agree	79	36.1
	Strongly Agree	26	11.9
	Total	219	100.0

Cultural values in Nepal (e.g., community sharing, frugality) support green economic principles.]



The statement "Cultural values in Nepal (e.g., community sharing, frugality) support green economic principles" received a generally positive response from the 219 participants. A combined 48.0% of respondents agreed (36.1%) or strongly agreed (11.9%) with the statement, indicating a substantial portion recognize the alignment between Nepalese cultural values and green economic principles. Meanwhile, 27.9% remained neutral, suggesting some uncertainty or lack of strong opinion. On the opposing side, 15.1% strongly disagreed and 9.1% disagreed, totaling 24.2% who do not perceive a clear connection between cultural values and green economic support. The mean score of 3.21, with a standard deviation of 1.222, indicates a slightly positive perception overall, with a moderate level of variability in responses. These

findings suggest that traditional cultural norms like community sharing and frugality are moderately seen as reinforcing sustainability and green economic values in Nepal.

Table 6: Modern business trends are erasing Nepal's traditional eco-friendly practices

		Frequency	Percent
Valid	Strongly Disagree	31	14.2
	Disagree	32	14.6
	Neutral	43	19.6
	Agree	81	37.0
	Strongly Agree	32	14.6
	Total	219	100.0

[Modern business trends are erasing Nepal's traditional eco-friendly practices.]



The statement "Modern business trends are erasing Nepal's traditional eco-friendly practices" elicited a range of opinions from the 219 respondents. A significant proportion 37.0% agreed and 14.6% strongly agreed indicating that over half (51.6%) believe that modern business developments are diminishing traditional, environmentally friendly practices. Meanwhile, 19.6% of respondents chose a neutral stance, possibly reflecting uncertainty or a balanced view. On the contrary, 14.2% strongly disagreed and 14.6% disagreed, making up 28.8% who do not share this concern. The mean score of 3.23 with a standard deviation of 1.27 suggests a moderately positive tendency toward agreement, with a fairly wide spread of opinions. These findings imply that while there is a prevalent belief that modernization may be compromising

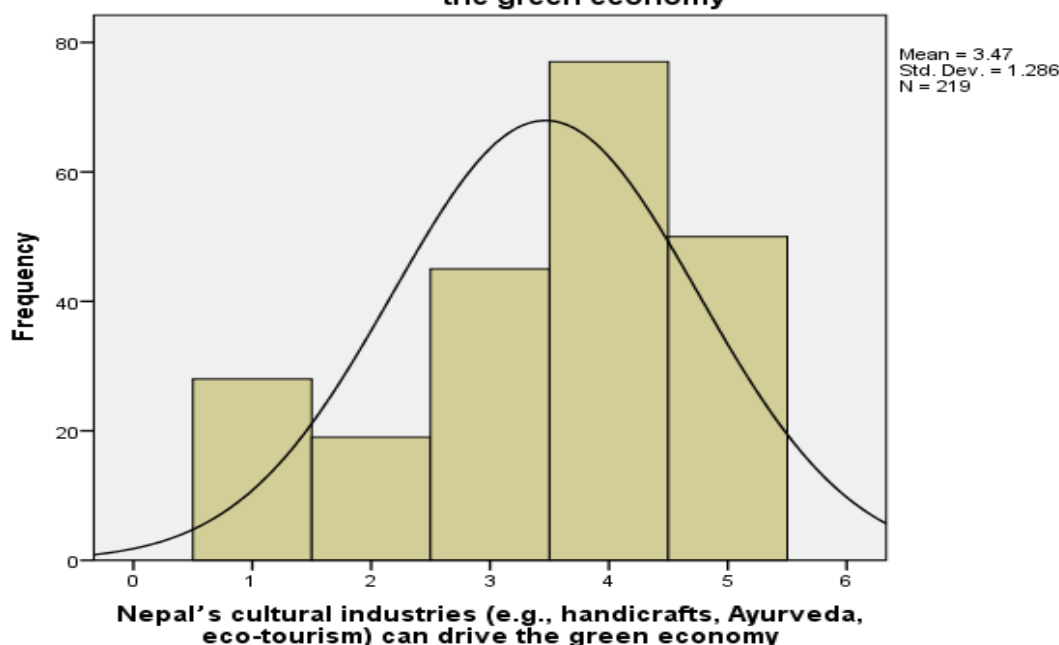
traditional sustainability values, a notable portion of respondents either disagree or are undecided on this issue.

Green Economic

Table 7: Nepal's cultural industries (e.g., handicrafts, Ayurveda, eco-tourism) can drive the green economy

		Frequency	Percent
Valid	Strongly Disagree	28	12.8
	Disagree	19	8.7
	Neutral	45	20.5
	Agree	77	35.2
	Strongly Agree	50	22.8
	Total	219	100.0

Nepal's cultural industries (e.g., handicrafts, Ayurveda, eco-tourism) can drive the green economy

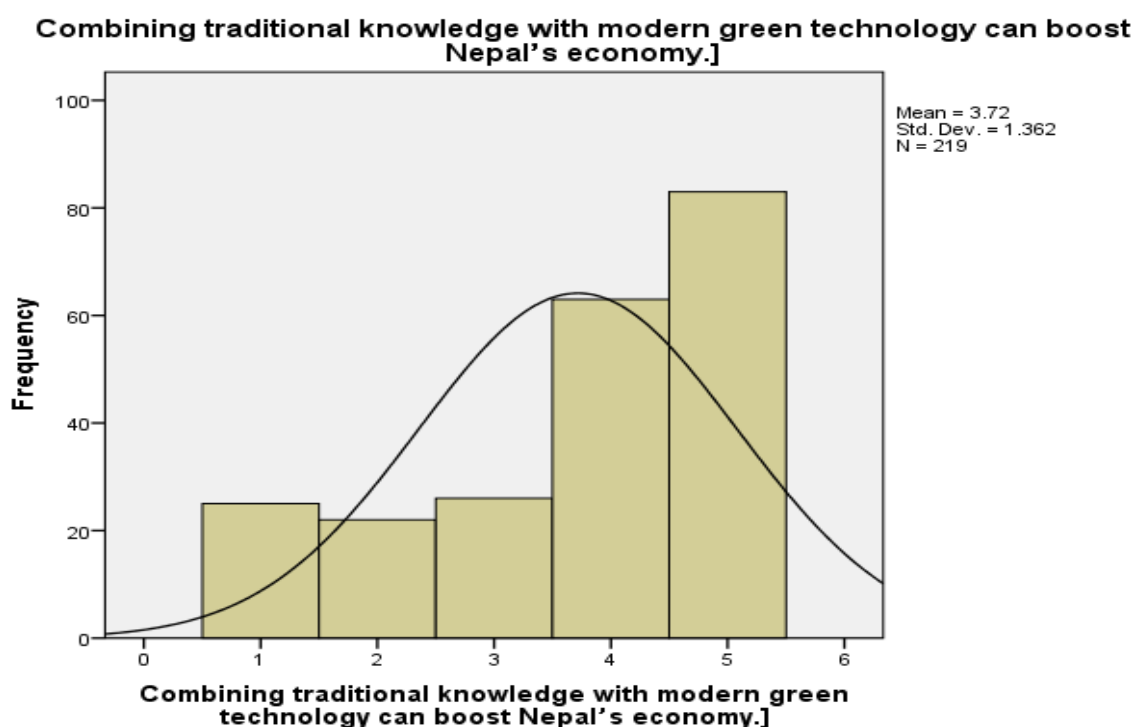


The responses to the statement "Nepal's cultural industries (e.g., handicrafts, Ayurveda, eco-tourism) can drive the green economy" reflect a generally positive perception among the 219 participants. A combined 58.0% agreed (35.2%) or strongly agreed (22.8%), indicating that a majority recognize the potential of cultural industries in promoting green economic growth. Meanwhile, 20.5% remained neutral, suggesting a segment of respondents who are either uncertain or hold a balanced view. On the other hand, 12.8% strongly disagreed and 8.7% disagreed, totaling 21.5% who are skeptical about the contribution of cultural industries to the green economy. The mean score of 3.47 and a standard deviation of 1.28 suggest a moderately

positive overall perception, with some variability in responses. These findings imply a prevailing belief that Nepal's traditional sectors hold significant promise for advancing sustainable economic development.

Table 8: Combining traditional knowledge with modern green technology can boost Nepal's economy.

		Frequency	Percent
Valid	Strongly Disagree	25	11.4
	Disagree	22	10.0
	Neutral	26	11.9
	Agree	63	28.8
	Strongly Agree	83	37.9
	Total	219	100.0

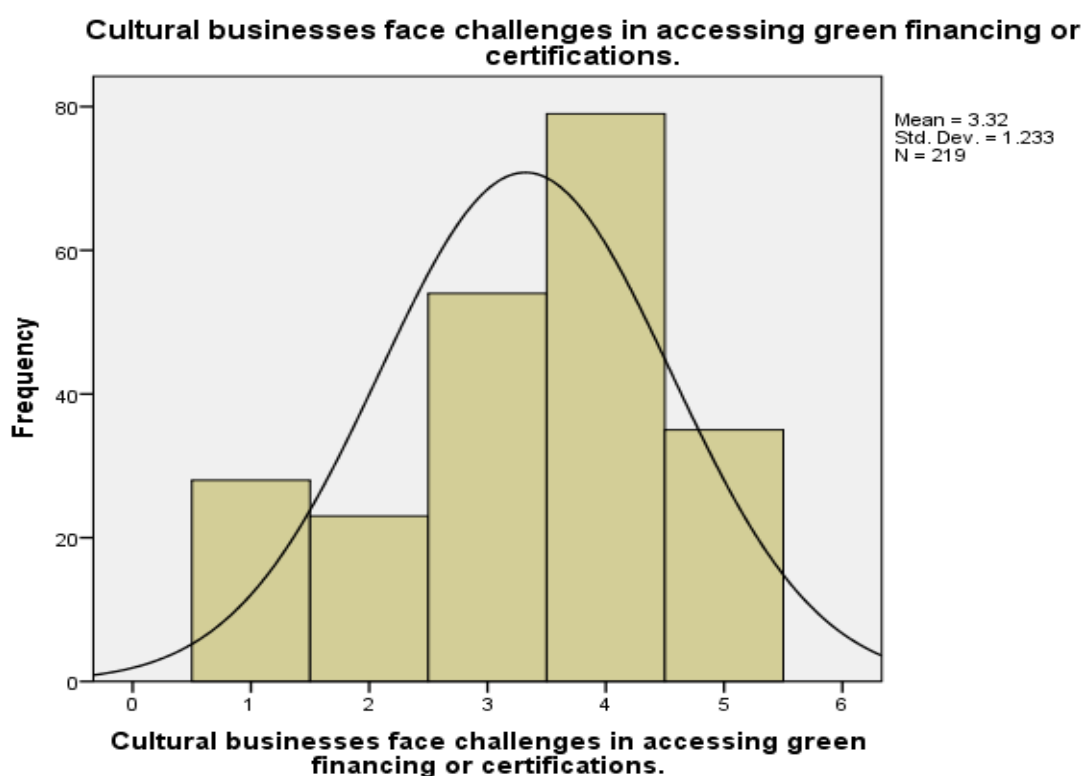


The statement "Combining traditional knowledge with modern green technology can boost Nepal's economy" received strong support from the 219 respondents. A significant majority 28.8% agreed and 37.9% strongly agreed resulting in a combined 66.7% who view this integration as beneficial for Nepal's economic growth. Only 11.9% remained neutral, indicating relatively low indecision compared to other items. Meanwhile, 11.4% strongly disagreed and 10.0% disagreed, comprising a minority (21.4%) who are skeptical of this synergy. The mean score of 3.72 with a standard deviation of 1.36 reflects a generally favorable outlook with moderate variability in opinions. These results suggest a widely held belief that

blending Nepal's rich traditional knowledge with contemporary green technologies could serve as a powerful strategy for sustainable economic development.

Table 9: Cultural businesses face challenges in accessing green financing or certifications.

		Frequency	Percent
Valid	Strongly Disagree	28	12.8
	Disagree	23	10.5
	Neutral	54	24.7
	Agree	79	36.1
	Strongly Agree	35	16.0
	Total	219	100.0



The statement "Cultural businesses face challenges in accessing green financing or certifications" highlights the perceived barriers within Nepal's cultural industries in adopting green practices. Among the 219 respondents, a substantial portion 36.1% agreed and 16.0% strongly agreed indicating that over half (52.1%) acknowledge difficulties related to financing and certification in the green sector. Meanwhile, 24.7% remained neutral, suggesting either limited awareness or a balanced perspective on the issue. On the other side, 12.8% strongly disagreed and 10.5% disagreed, making up 23.3% who do not view access as a major challenge. The mean score of 3.32 and a standard deviation of 1.23 point to a moderately positive perception of the existence of such challenges, with a reasonable spread in responses. Overall,

the findings reflect a common recognition that despite the green potential of cultural businesses, financial and regulatory barriers remain significant obstacles.

Relationship between Cultural Business Practice and Green Economic

Table 10: Correlations

			culture	green
Kendall's tau_b	Cultural Business Practices	Correlation Coefficient	1.000	.450**
		Sig. (2-tailed)	.	.000
		N	219	219
	Green Economic	Correlation Coefficient	.450**	1.000
		Sig. (2-tailed)	.000	.
		N	219	219
**. Correlation is significant at the 0.01 level (2-tailed).				

The relationship between Cultural Business Practices and the Green Economy was examined using Kendall's tau-b correlation coefficient, a non-parametric test suitable for ordinal data. The analysis revealed a moderate positive correlation between the two variables, with a correlation coefficient of 0.450, which is statistically significant at the 0.01 level ($p = 0.000$). This result suggests that as positive perceptions or practices in cultural businesses increase, there is a corresponding increase in support for green economic principles. In other words, respondents who believe in or practice traditional, culturally rooted business approaches are more likely to support or engage in green economic activities. The finding supports the idea that Nepal's cultural values and business traditions can be aligned with sustainable and environmentally responsible economic development.

With $N = 219$, the result is based on a solid sample, reinforcing the reliability of the observed association.

Conclusion

The study presents two key findings. First, it assessed perceptions of cultural business practices and the green economy, revealing that respondents generally hold moderately positive views, particularly regarding the integration of traditional knowledge with modern green technologies. Challenges such as limited access to green financing and certifications were also identified. Second, the study found a significant positive correlation (Kendall's tau-b = 0.450, $p < 0.01$) between cultural business practices and the green economy. This indicates that stronger cultural practices are associated with greater support for green economic principles. The findings highlight the potential of cultural industries in promoting sustainable development in Nepal.

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