

# **The Sustainability of Tribal Women in Jharkhand: A Philosophical and Cultural Investigation**

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## **Abstract**

This study explores the contributions of Santali women to sustainable development, focusing on philosophical orientation of their culture and traditional insight. Conducted in the Dhanbad and Dumka districts, the research involved 110 women respondents. Through ethnographic fieldwork and in-depth interviews, the study documents sustainable farming techniques, water management skills, medicinal practices, and social activities. The findings highlight the significant role of Santali women in promoting environmental stewardship, community resilience, and cultural preservation. This paper brings out struggles in terms of resource constraint, educational barriers, and insufficient government support. The analysis, using SPSS, includes descriptive statistics, regression analysis, ANOVA, and multidimensional scaling, providing a thorough comprehension of the respondents' contributions. The study concludes by emphasizing the significance of inculcating primitive insight into sustainable development frameworks and recommends further research to explore specific mechanisms for policy integration, comparative studies with other indigenous societies, and the consequence of global environmental changes on traditional practices.

**Keywords:** *Santali Women, Sustainable Development, Primitive and Traditional Knowledge, Cultural Practices, Environmental Stewardship*

## **Introduction**

Sustainable development is an ever-evolving concept that seeks to balance the requirement of present generations without compromising the capacity of people in the future to address their own needs. The job of native information in advancing practical improvement has acquired huge consideration lately, particularly due to its holistic approach to environmental management and community welfare. Indigenous communities worldwide, including the Santali people of India, have long practiced sustainable living through their primitive skills and their cultural practices. This research aims to explore the endowment of Santali women to sustainable environment from both cultural and philosophical perspectives, emphasizing their indispensable role in preserving and promoting sustainability within their communities.

The Santali people, one of India's largest indigenous groups in India, vibrant cultural legacy which inculcate unique socio-economic execution and a profound connection to nature. Santali women highlight a dominant role in maintaining these traditions and guaranteeing the sustained growth of the community. By use of their customary beliefs and methods, Santali women contribute significantly to several facets of sustainability, including agriculture, water management, health care and customs within the community. Documenting these contributions and examining their philosophical and cultural relevance within the Santali community will be the goals of this research.

### **Sustainable Development and Indigenous Knowledge**

The term traditional ecological knowledge, frequently called "indigenous" knowledge, comprises the insights, competencies and philosophies, which have accumulated by native communities over many years interacting with their environment. This understanding is always changing and is derived from oral traditions, daily practices and rituals. It's an inclusive approach to existence that involves blending the different facets of social life, culture, ecology, and spirituality. This knowledge is integral to the sustainable management of resources, because it is firmly ingrained in indigenous peoples' traditional practices and worldviews. Berkes et al. (2000) highlights that indigenous knowledge systems are characterized by their adaptability, holistic approach, and emphasis on community well-being, making them crucial for sustainable development efforts. Considering the Santali community, indigenous knowledge manifests in various sustainable practices, such as traditional agriculture, water conservation, and healthcare.

Traditional agricultural practices of the Santali people, for instance, demonstrate a profound understanding of local ecosystems and biodiversity. Santali women play a crucial part in maintaining these practices, which include crop rotation, intercropping, and the use of organic fertilizers. These techniques not just upgrade soil richness and forestall land corruption yet in addition guarantee food security and biodiversity protection. Additionally, the Santali's knowledge of water management, including the construction of traditional irrigation systems and rainwater harvesting techniques, contributes to the sustainable use of water

resources in their region. These practices exemplify the community's ability to manage natural resources sustainably, guided by their indigenous knowledge and cultural values.

Native information frameworks are necessary for economical turn of events as they encompass a wide range of beliefs and customs that have changed with time. These systems are inherently sustainable since they are intently attached to the indigenous habitat and rely on an intimate understanding of local ecosystems. For instance, the use of traditional agricultural techniques, such as shifting cultivation and mixed cropping, helps maintain soil fertility and biodiversity. According to Berkes et al. (2000)<sup>1</sup>, the rediscovery of conventional natural information is fundamental for versatile administration, as it offers time-tested strategies for resource use and conservation. Indigenous knowledge not only fosters environmental stewardship but also strengthens community resilience by promoting sustainable livelihoods and social cohesion.

The mix of native information into standard sustainable development frameworks can get beyond any obstacle between modern scientific approaches and traditional practices. This integration is vital for dealing with complex environmental challenges, such as climate change and biodiversity loss. “The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)”<sup>2</sup> emphasizes the need to honor and promote indigenous knowledge in environmental governance. It is becoming more and more accepted that sustainable policies must incorporate indigenous perspectives to be truly effective. The success of such integration hinges on genuine collaboration and mutual respect between groups of indigenous people and policymakers, ensuring that traditional knowledge is valued and conserved for next generations (UNDRIP, 2007).

### **Women's Integral Role in Sustainable Futures**

Women have a significant role. in sustainable development, particularly in rural and indigenous communities where they are often the primary managers of

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<sup>1</sup> Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications*, 5(1), 1251-1252.

<sup>2</sup> <https://www.unccllearn.org/resources/>

natural resources. Women's involvement in agriculture, water management, and household energy use directly impacts the sustainability of these practices. For example, in many parts of Africa and Asia, women take responsibility for collecting water and fuelwood, making them key stakeholders in water conservation and forest management initiatives. Agarwal (1992) highlights the gendered dimensions of environmental management, noting that women's unique knowledge and responsibilities make them indispensable to sustainable development efforts.

However, women's contributions to sustainability are frequently undervalued and overlooked in policy and decision-making processes. Empowering women and ensuring their active participation in environmental governance can lead to more inclusive and effective sustainable development outcomes. Programs that focus on gender equity and women's empowerment, such as providing access to education, credit, and land rights, have shown significant positive impacts on sustainability. For example, studies have shown that when women are involved in community forestry management, there are advancements in the preservation of forests and resource management (Agarwal, 2009). Recognizing and enhancing the role of women in sustainable development is not only a matter of equity but also a pragmatic approach to achieving long-term environmental and social goals.

### **Cultural Footprints: Pathways to Sustainable Development**

Culture assumes a basic part in forming sustainable development practices and attitudes. Cultural values, traditions, and standards impact how networks communicate with their local environment and manage resources. Indigenous cultures, particularly provide extensive insights into sustainable living through their holistic worldview and deep connection to nature. The cultural practices of indigenous peoples, such as the celebration of seasonal cycles, the use of conventional ecological knowledge, and the communication of oral histories, reinforce sustainable behaviors and foster a sense of responsibility towards the environment. According to Berkes and Folke (1998), these cultural elements are essential to the adaptation and resilience of social-ecological systems.

The conservation and renewal of cultural heritage are essential for promoting sustainability. Cultural diversity contributes to the resilience of communities by providing multiple perspectives and approaches to problem-solving. Moreover, cultural practices often contain embedded environmental ethics that promote conservation and sustainable use of resources. For instance, many indigenous rituals and taboos serve to regulate hunting and fishing, ensuring that wildlife populations remain stable. Recognizing and supporting cultural contributions to sustainability involves protecting cultural rights and facilitating the intergenerational transfer of traditional knowledge. This approach not only enhances environmental stewardship but also strengthens community identity and cohesion (Berkes & Folke, 1998).<sup>3</sup>

### **Philosophical Reflections on Environmental Stewardship**

Philosophical perspectives on sustainability offer foundational principles and ethical frameworks that guide sustainable development practices. These perspectives encompass a range of views, from anthropocentric approaches that prioritize human well-being to ecocentric approaches that emphasize the intrinsic value of all living beings and ecosystems. The concept of sustainability itself is deeply rooted in ethical considerations about intergenerational justice, equity, and the right to a healthy environment. Philosophers like Aldo Leopold have argued for a land ethic, which posits that humans are part of a larger community that includes the land, water, plants, and animals, and that we have a moral responsibility to maintain the health of this community (Leopold, 1949)<sup>4</sup>.

Indigenous philosophies of sustainability often align closely with ecocentric and holistic worldviews. These philosophies emphasize the interconnectedness of all life forms and the importance of maintaining balance and harmony within the natural world. For example, many indigenous cultures view humans as stewards of the Earth, with a duty to protect and care for the environment for future generations. This perspective is reflected in the principle of "Seventh Generation" sustainability, which considers the long-term impacts of actions on the seventh generation into the

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<sup>3</sup> Berkes, F., & Folke, C. (1998). *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*. Cambridge University Press.

<sup>4</sup> Leopold, A. (1949). *A Sand County Almanac*. Oxford University Press.

future (Kimmerer, 2013)<sup>5</sup>. Integrating philosophical perspectives on sustainability into development practices can provide a deeper ethical foundation and inspire more comprehensive and compassionate approaches to environmental stewardship.

### Review of Literature

Author (s) and Year	Title	Importance of the Study	Objectives	Methodology Used	Findings and Conclusion
Ziyu Liu (2024)	The concept of music education from a philosophical perspective	Examines the philosophical foundations of music education	To explore how philosophical theories influence music education	Philosophical analysis and literature review	Highlights the integral role of philosophy in shaping music education practices
Soma Ghosal & Priya Singh (2024)	Language as a Resource in India's Decolonized Cultural Curriculum: A Case Study of the Santali Language	Discusses the role of indigenous languages in cultural curricula	To investigate the integration of the Santali language in India's educational system	Case study and qualitative analysis	Finds that incorporating Santali enhances cultural preservation and student engagement
Narmina Gasimova (2024)	Multiculturalism as the Main Philosophical Doctrine of Political and Cultural Development of Modern Society	Analyzes the impact of multiculturalism on society	To assess the philosophical underpinnings of multiculturalism in modern development	Literature review and philosophical critique	Concludes that multiculturalism is essential for inclusive development
Dimitrios Kalfas, Stavros Kalogiannidis,	Contribution of the Cultural and Creative Industries to Regional	Examines the role of cultural industries in regional development	To evaluate the economic and social impacts of cultural	Case studies and economic analysis	Shows significant positive effects on regional revitalization

<sup>5</sup> Kimmerer, R. W. (2013). *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. Milkweed Editions.

Vasilios Ambas, & Fotios Chatzithodoridis (2024)	Development and Revitalization: A European Perspective		industries in Europe		
H S N Silva (2022)	Women's Contribution to Sustainable Development in Sri Lanka	Highlights the role of women in sustainable development in Sri Lanka	To document and analyze the contributions of Sri Lankan women to sustainability	Qualitative interviews and case studies	Demonstrates that women play a crucial role in environmental and economic sustainability
Mamatha Hegde & Gugu Kemp (2024)	Rejuvenation of Naga Textile and Development of Contemporary Women's Wear	Investigates the revival of traditional Naga textiles	To explore how traditional textiles can be adapted for modern fashion	Ethnographic research and design analysis	Finds that modern adaptations of Naga textiles can promote cultural heritage and economic development
Soyeon Kim (2023)	Women's Empowerment for a Sustainable Future: Transcultural and Positive Psychology Perspectives	Explores the role of women's empowerment in sustainability	To assess how transcultural and positive psychology perspectives contribute to women's empowerment	Mixed-methods research	Concludes that women's empowerment is critical for sustainable development
Brightness Mangoloth (2023)	Women's Empowerment for a Sustainable Future: Transcultural and Positive Psychology Perspectives	Examines sustainable values in technology education	To investigate the philosophical perspectives on design evolution in technology education	Philosophical analysis and case studies	Highlights the importance of sustainable values in educational practices
Jonas Hallström	Foregrounding Sustainable	Discusses the philosophical	To analyze philosophical	Literary analysis	Finds that women's

m & Piet Ankiwicz (2024)	Values in Technology Education: Philosophical Perspectives on Design Volition	ideas in women's drama	themes in drama, focusing on women's experiences		drama often explores themes of empowerment and societal roles
Akansha Yadav & Komal Ojha (2024)	Gender Sensitization: Empowering Women for Sustainable Development	Investigates the role of gender sensitization in sustainable development	To explore strategies for empowering women through gender sensitization	Case studies and qualitative research	Concludes that gender sensitization is essential for achieving sustainability goals

### Research gap

Despite the fact that the indigenous knowledge and women's roles in sustainable development, there remains a significant research gap in understanding the specific contributions of Santali women from cultural and philosophical perspectives. Existing literature often overlooks the unique practices, beliefs, and socio-cultural contexts of Santali women, focusing predominantly on broader indigenous or gendered perspectives without delving into their distinctive experiences. This gap limits the comprehensive understanding of how Santali women's traditional knowledge and philosophical outlooks can uniquely contribute to sustainable development, underscoring the need for targeted research to illuminate these crucial aspects and inform more inclusive policies and practices.

### Significance of the Review

The study on Santali women's contributions to sustainable development is of paramount importance as it sheds light on the often-overlooked roles that indigenous women play in promoting environmental stewardship, cultural preservation, and community resilience. By documenting their traditional practices and philosophical perspectives, this research not only highlights the vital contributions of Santali women but also emphasizes the need to integrate indigenous knowledge into broader sustainable development frameworks. Recognizing the value of these contributions can lead to more inclusive and effective approaches that help sustainable practices while preserving cultural

heritage. This study is particularly relevant in the context of global sustainability efforts, as it provides insights into how traditional systems of knowledge work can complement modern scientific approaches to address pressing environmental challenges.

### **Study Goals and Aspirations**

The primary objectives of this study are fourfold. First, it aims to identify and document the traditional knowledge and practices of Santali women that contribute to sustainable development. Second, the study seeks to analyze the cultural significance of these practices within the Santali community, highlighting their role in preserving cultural heritage. Third, it explores the philosophical perspectives of Santali women regarding sustainability, examining how their beliefs and values influence their practices. Finally, the study assesses the impact of Santali women's contributions on the broader goals of sustainable development, providing recommendations for incorporating indigenous wisdom into practice and policy. These objectives collectively aim to provide a comprehensive understanding of the critical role of Santali women in promoting sustainability.

### **Methodology**

This study employs a qualitative research methodology, combining ethnographic fieldwork with philosophical analysis. Information assortment included member perception and in-depth interviews with 110 Santali women from the Dhanbad and Dumka districts. The ethnographic approach allowed for an immersive understanding of their daily practices, while the interviews provided personal narratives and insights into their philosophical perspectives on sustainability. The data were analysed by means of SPSS programming, employing descriptive statistics, regression analysis, ANOVA, and multidimensional scaling (MDS) to identify patterns and relationships. This mixed-method approach ensures a thorough and nuanced analysis, capturing both the empirical data and the underlying cultural and philosophical dimensions of the respondents' contributions to sustainable development.

## Data Analysis and Interpretation

### *Sample Size*

The Size of the sample for this review is 110 women respondents from the Dhanbad and Dumka districts.

### **Analysis with SPSS**

The following advanced statistical techniques were applied to the data collected: regression analysis, ANOVA, and multidimensional scaling (MDS). The results were analyzed and interpreted to understand the contributions of Santali women to sustainable development.

### **Regression Analysis**

**Table 1: Regression Analysis of Factors Affecting Sustainable Farming Practices**

Variable	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t	Sig.
Age	0.032	0.015	0.210	2.133	0.035*
Education Level	0.245	0.087	0.302	2.816	0.006**
Occupation	0.158	0.079	0.195	2.000	0.048*
Access to Resources	0.312	0.091	0.370	3.429	0.001**

$$R^2 = 0.425, \text{ Adjusted } R^2 = 0.397, F(4, 105) = 15.43, p < 0.001$$

The relapse examination introduced in Table 1 shows that few factors fundamentally impact sustainable agricultural practices among Santali women. Education level ( $B = 0.245$ ,  $p = 0.006$ ) and access to resources ( $B = 0.312$ ,  $p = 0.001$ ) emerge as the most significant predictors. This finding underscores the critical role that education plays in equipping women possessing the requisite knowledge and abilities for sustainable farming. Additionally, access to resources such as seeds, tools, and financial support enhances their capacity to implement sustainable practices effectively. Age ( $B = 0.032$ ,  $p = 0.035$ ) and occupation ( $B = 0.158$ ,  $p = 0.048$ ) also positively influence these practices, although to a lesser

extent. The model explains 42.5% of the variance in sustainable agricultural practices ( $R^2 = 0.425$ ), indicating a substantial impact of these variables on agricultural sustainability within the Santali community.

## ANOVA

**Table 2: ANOVA for Differences in Sustainable Practices Based on Occupation**

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.432	3	8.477	4.125	0.008**
Within Groups	215.318	106	2.032		
Total	240.750	109			

The ANOVA results in Table 2 reveal significant differences in sustainable practices based on occupation ( $F = 4.125$ ,  $p = 0.008$ ). This suggests that the type of occupation significantly affects how Santali women engage in sustainable practices. Post-hoc analysis (Tukey's HSD) shows that farmers and artisans differ significantly from homemakers and others in their adoption of sustainable practices. Farmers are more likely to implement practices such as crop rotation and organic farming, possibly due to their direct engagement with the land. Artisans, who often rely on natural materials, also show a higher tendency towards sustainability. This differentiation highlights the need for occupation-specific strategies to promote sustainable practices effectively.

## Multidimensional Scaling (MDS)

**Table 3: MDS Stress Value and RSQ**

Stress Value	RSQ
0.089	0.942

The MDS analysis in Table 3 provides a visual representation of the connections between various sustainable practices. With a stress value of 0.089 and an RSQ value of 0.942, the model fits well, explaining 94.2% of the variance in the data. The MDS plot (not shown) reveals that practices such as crop rotation, organic farming, and community water management are closely related. This shows that respondents who engage in one of these practices are likely to engage in the others as well. Such clustering of sustainable practices suggests a holistic approach to

sustainability among Santali women, where multiple interrelated practices are adopted to enhance environmental and community well-being.

### Final Tables and Interpretation

**Table 4: Cross-tabulation of Age and Participation in Cultural Activities**

Age Group	Participation in Cultural Activities		Total
	Yes	No	
18-25 years	20	2	22
26-35 years	28	6	34
36-45 years	22	6	28
46-55 years	8	8	16
56 and above	4	6	10

**Chi-Square Test:**  $\chi^2(4, N=110) = 12.43, p = 0.014^*$

The cross-tabulation in Table 4, coupled with the Chi-Square test results ( $\chi^2 = 12.43, p = 0.014$ ), indicates a huge relationship between age and participation in cultural activities. Younger respondents (18-35 years) show a higher likelihood of participating in cultural activities compared to older age groups. This trend highlights the active role of younger women in preserving and promoting cultural heritage. Their participation in traditional festivals, dances, and oral history preservation is crucial for maintaining cultural continuity and fostering a sense of community identity. This result indicates that cultural engagement is a significant aspect of sustainability, intertwined with environmental and social practices.

**Table 5: Descriptive Statistics for Health and Herbal Medicine Use**

Practice	N	Mean	Std. Deviation
Use of herbal medicine	78	4.15	0.89
Knowledge of medicinal plants	60	3.75	1.02
Participation in health workshops	34	3.20	1.15

Table 5 presents illustrative measurements for health practices among the respondents. The mean score for the use of herbal medicine ( $M = 4.15, SD = 0.89$ ) is the highest, indicating its widespread acceptance and usage among Santali women. Knowledge of medicinal plants ( $M = 3.75, SD = 1.02$ ) and participation in health workshops ( $M = 3.20, SD = 1.15$ ) follow. These practices reflect the deep-rooted reliance on traditional health systems and the importance of herbal medicine

in their daily lives. The data underscore the requirement for coordinating traditional health knowledge with modern healthcare initiatives to promote overall well-being and sustainability.

**Table 6: ANOVA for Differences in Philosophical Perspectives Based on Education Level**

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.432	3	6.477	5.125	0.003**
Within Groups	133.318	106	1.258		
Total	152.750	109			

Table 6 shows significant differences in philosophical perspectives on sustainability based on education level ( $F = 5.125, p = 0.003$ ). Advanced education levels are related with more progressive philosophical views on sustainability. This finding indicates that education not only equips women with practical skills for sustainability but also shapes their beliefs and attitudes towards environmental stewardship. Educated women are likely to advocate for and implement more advanced and effective sustainable practices, highlighting the transformative power of education in fostering a sustainability ethos.

**Table 7: Regression Analysis of Factors Influencing Water Management Practices**

Variable	Unstandardized Coefficients (B)	Standard Error	Standardized Coefficients (Beta)	t	Sig.
Education Level	0.285	0.091	0.320	3.137	0.002**
Access to Resources	0.342	0.085	0.385	4.024	0.001**
Community Support	0.214	0.078	0.245	2.744	0.007**

$$R^2 = 0.465, \text{ Adjusted } R^2 = 0.442, F(3, 106) = 15.68, p < 0.001$$

The regression analysis in Table 7 identifies education level ( $B = 0.285, p = 0.002$ ), access to resources ( $B = 0.342, p = 0.001$ ), and community support ( $B = 0.214, p = 0.007$ ) as significant predictors of water management practices among Santali

women. The model explains 46.5% of the variance in water management practices ( $R^2 = 0.465$ ). This highlights the significance of these elements in enhancing water sustainability. Education empowers women with the knowledge to implement effective water management techniques, while access to resources provides the necessary tools and materials. Community support fosters a collaborative approach, ensuring that water the executives rehearses are taken on and kept up with aggregately.

### **Concluding Remarks:**

Santali women assume a basic part in the sustainable development of their communities, driven by their deep-rooted cultural practices and traditional knowledge systems. This paper highlights that their contributions span various domains, including agriculture, water management, health, and cultural preservation, each of which is essential for the holistic development of their communities. The demographic information show that most of the respondents are between the ages of 26-35 and have attained higher education levels, indicating that younger, educated women are particularly active in sustainable practices (Table 1). The findings are in line with this demographic trend. by Berkes et al. (2000), who stress the significance of incorporating conventional natural information with contemporary educational frameworks to enhance sustainability efforts. The involvement of Santali women in sustainable agricultural practices, such as crop rotation (58.2%) and mixed cropping (49.1%), is a testament to their commitment to environmental stewardship and food security. These practices, deeply embedded in their cultural heritage, help maintain soil fertility and reduce pest outbreaks, reflecting the community's reliance on time-tested, sustainable farming techniques.

Water management is another crucial area where Santali women exhibit significant contributions. The data indicate that a substantial portion of the respondents engage in water management in the community (56.4%) and rainwater harvesting (47.3%), essential methods of practice for areas prone to water scarcity (Table 3). These practices not only ensure the efficient use of water resources but also foster a sense of collective responsibility and resilience within the community. According to Agarwal (1992), women's involvement in resource management is

pivotal for sustainable development, as they bring unique perspectives and solutions to environmental challenges. The study also highlights the widespread use of herbal medicine among Santali women (70.9%), underscoring their reliance on traditional health practices (Table 4). This aligns with Shiva's (1988) argument that women's knowledge of medicinal plants is crucial for maintaining community health and biodiversity. However, the challenges faced by these women, such as lack of resources (65.5%) and limited access to education (43.6%), underscore the need for specific approaches to support and empower them (Table 7).

The cultural and philosophical perspectives of Santali women further illuminate their role in sustainable development. The solid arrangement among respondents that sustainability is integral to their cultural identity (60 strongly agree, 40 agree) and that women are the main stewards of natural resources (68 strongly agree, 32 agree) mirrors a profoundly instilled conviction framework that values environmental stewardship (Table 6). This perspective aligns with Kimmerer's (2013) principle of "Seventh Generation" sustainability, which considers the long-term impacts of actions on future generations. The active participation of Santali women in cultural activities, such as traditional festivals (74.5%) and cultural dances (60.0%), highlights their role in preserving cultural heritage and fostering community cohesion (Table 5). Not only are these cultural practices vital for maintaining social identity but also embed environmental ethics that promote sustainable living. However, the significant challenges these women face, such as cultural and social divides (36.4%) and insufficient government support (27.3%), highlights the requirement for arrangements that perceive and address these obstacles (Table 7). As Gasimova (2024) points out, inclusive development requires acknowledging and integrating the contributions of all societal members, especially those who come from underrepresented groups.

This study underscores the crucial role of Santali women in fostering long-term prosperity by their deep-rooted cultural practices, traditional knowledge, and philosophical perspectives. The findings reveal that Santali women significantly contribute to sustainable agriculture, water management, health practices, and cultural preservation. Their engagement in practices such as crop rotation, rainwater harvesting, and the use of natural remedies highlights their commitment

to environmental stewardship and community resilience. Furthermore, their strong philosophical beliefs in sustainability as an integral part of their cultural identity emphasize the significance of preserving and integrating indigenous knowledge into broader sustainable development frameworks. Despite the significant contributions, the study also highlights the challenges Santali women face, such as limited resources, educational barriers, and insufficient government support, which should be tended to fully harness their potential.

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