

Chapter 17

Revisiting Environmental Sustainability and Rural Resilience in Indigenous Worldview: An Ethnoecological Study in Santal Society

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Santals, an indigenous community of Eastern India, emphasize constructing a cultural dimension by managing an eco-centric approach in their worldview. Being the 'denizens of forest,' Santals are fully conscious of the human-nature relationship in their cognition and, therefore, in their worldview, the existence of both human beings and nature establishes a prolonged indigenous way of perceiving nature. Standing on the platform of globalization and

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urbanization where destroying nature has been perceived as the easiest, it is challenging for the Santal, an indigenous people, to implement their ethno-scientific knowledge toward the achievement of an eco-centric worldview contrary to the materialistic gain of mainstream life. The relationship between human and non-human beings, clan system, farming, food gathering, dependence on environmental resources like forest, land, and water, and sacred grove interprets not just the indigenous identity but also the mode of existence of the Santals that accentuate their goal of conserving nature and determining an environment-based culture. This paper will revisit the indigenous worldview by providing insights into multifaceted interpretations of the indigenous perception of the environment of the Santals thereby enhancing environmental sustainability and rural resilience. It will decode the intricate ethnoecological approach of the Santals toward their ethno-scientific development.

17.1 Introduction

As we move away from the Age of Anthropocene, our attitude toward nature and realizing our position in it are becoming compelling issues day-to-day. Our vision of the survival of our species must coincide with nature's view of our survival. 'Ecocriticism,' 'Environmentalism,' 'Green Studies,' etc. are some of the pathways through which we are trying to assess what commitment we must make to understand what role we must play within our ecosystem. As we are part of an era that is seeing global catastrophes like global warming, rapid storms, draught, soil erosion due to deforestation, and other man-made incidents, theories like 'Ecocriticism' and 'Environmentalism' are helping us to course a path that may lead toward an end to this period of utter destruction of our planet. Ecocriticism began as a global phenomenon during the 20th Century with the groundbreaking works of William Rueckert and Cheryll Glotfelty. Rueckert, in his *Literature and Ecology: An Experiment in Ecocriticism* (1978), has stated, "Literature is a means of exploring and preserving the human relationship with nature." Through literature, we can unlock the understanding of the assemblage we are part of along with the other organic

and inorganic elements of our ecosystem. For example, suppose we follow the environmental policies in Henry David Thoreau's *Walden* (1854); in that case, we will sense a growing awareness of ecological justice through a meditative philosophical process that precedes even the coinage of the term 'ecology.' So, communion with nature is not a new realization we must develop. We have inherited it from our ancestors. However, we have chosen to neglect it to maintain the superior status of human beings creating a man-nature binary division. Ecocriticism and other environmental policies aim to surface that realization. Rachel Carson's *Silent Spring* (1962) is a monumental work that brings forth the necessity of this eco-centric realization. The book stands as the Bible to modern ecocritical ethics. Carson has pointed out, "In nature, nothing exists alone." This leads to the fact that uncontrolled exploitation of natural resources will soon destroy the entire planet along with the mighty human beings because human beings as a species are a part of the ecological assemblage and the destruction will wreak havoc on the entire assemblage. According to Carson, human beings are too foolish or too selfish to realize the atrocities they are committing. "The more I learn about people, the more I like my dog," Carson's message has created a deep impact on ecological consciousness and philosophies. Arne Naess, the Norwegian environmentalist, has pointed out that we have different understandings of environmental awareness within us. The concepts of 'deep ecology' and 'shallow ecology' have been developed to generate awareness of the flaw that has nearly destroyed us as a species and as a part of the ecological assemblage. Naess has highlighted the already-known fact that man is not at the center of nature. This decentering process has been a crucial one in ending the Age of Anthropocene and the rise of non-anthropocentrism. Naess' concept of 'deep ecology' has always been the primal force behind the decentering process. The deep ecology movement is based on the idea that nature has intrinsic value, independent of its utility to human beings, and that this intrinsic value deserves respect and protection. This attempt to re-establish the belief that nature is the base of everything we have around us leads to the growth of eco-consciousness. Bill McKibben, in his *The End of Nature* (1989), has commented that "The atmosphere is a shared resource, and so everyone needs to take responsibility."

This issue of sharing and understanding its necessity is essential for the development of eco-consciousness within us. Ecological awareness is deeply connected to the role the land or the planet plays in our lives. The land is the source of most natural resources that enable us to sustain ourselves. However, this sustenance is continually being exploited by us unethically. This unethical policy was challenged by American environmentalist Aldo Leopold. According to Leopold, we must realize that we have a moral responsibility toward the land we are part of (Leopold 1987, 204). This moral standpoint is needed because land is still treated as human property:

“There is no ethic dealing with man’s relation to land and the animals and plants which grow upon it. Land, like Odysseus’ slave-girls, is still property. The land-relation is still strictly economic, entailing privileges but not obligations” (Leopold 1987, 203).

Leopold’s land ethics aims to generate the awareness that land is our home and we do not exploit our home. Moreover, in his *A Sand County Almanac and Sketches Here and There* (1987), Leopold has given a list of eco-moral traits that we need to develop. The most important of the traits is man’s position concerning land. Man is not the master of the land. He is just the caretaker. He has certain responsibilities toward land just as the other animals and plants. He is no superior in status. This idea has a solid scientific backup in the projection of the food pyramid which Leopold has demonstrated as the land pyramid (Leopold 1987, 214). The structure of the land pyramid clarifies that every being depends on each other for survival. Wendell Berry has rightly commented, “The earth is what we all have in common” (Berry 2003, 54).

This concept of ethical treatment of land proposes that we must form a community with all the biotic and abiotic elements of the ecosystem and stay together peacefully and equally sharing the resources. This community structure is a very important part of the cultural beliefs of the indigenous peoples. If we look clearly at the socio-religious practices and folk narratives of indigenous communities across the globe, we will see that they share a pretty harmonious bond with nature. Santals, as a core indigenous community, have developed a kin-centric ecological awareness

that promotes the assemblage of all organic and inorganic elements of the ecosystem. The members of these communities have a profound knowledge of all the essential details of their ecosystem. Their traditional ecological knowledge (TEK) covers knowledge from protecting biodiversity to understanding weather patterns. This holistic worldview that everything is interconnected is the guiding force of the community members of the Santals. The Australian Aboriginals, the Red Indians, and the tribes from the Indian subcontinent, all share a single idea that they are part of the same global group. In *Decolonizing Methodologies: Research and Indigenous Peoples* (1999), Linda Tuhiwai Smith stated that “Indigenous people have a long history of living in harmony with their environment, guided by a deep spiritual understanding of their place in the natural world.” Their simple way of living in harmony with other members of the ecological community is what the mainstream is trying to implement:

“While mainstream ecological consciousness often focuses on conservation and sustainability from a scientific or economic perspective, indigenous ecological consciousness is deeply rooted in a spiritual and rational understanding of the environment, viewing it as an integral part of their cultural identity and community well-being” (Smith 1999, 142).

Their eco-moral approach forms the needed course for the implementation of environmental policies, which ecocriticism and other movements are aiming for. Learning from their practices, we must develop a similar consciousness that generates the feeling that we are one single community within our planet Earth. This awareness may lead to ecological resilience that can halt our extinction.

17.2 Theoretical Framework and Major Concepts

17.2.1 Ethnoecology

Ethnoecology is the scientific study of how different groups of people perceive the nature around them. Ethnology is an interdisciplinary field that intersects between ecology and

ethnography. This theory interrogates the deep complexities of understanding between groups of humans and the ecosystems surrounding them. Humans and nature are interdependent of each other and one cannot function properly without the other. Ethnoecology is primarily the study of local knowledge and management of ecological interactions (Martin 2001, 12).

Multifaceted human-nature relationships are probed to understand the changing human and nature interactions. Ethnoecology bridges the gap between ecological surroundings and the anthropological focus on understanding planetary universality. Social and ecological systems are interconnected under this umbrella term.

Ethnoecology began its journey with some of the early works of Dr. Hugh Popenoe. In his 1954 dissertation, "The Relation of Hunuroo Culture to the Plant World", Harold Conklin coined the term ethnoecology. The term was initially used to understand how people of Hunuroo culture understand the color system in nature. Ethnoecology indicates a localized study of people's understanding of the environmental changes around them. It is an intersection between living organisms and the environment around them. Through ethnoecology, people of certain communities apply their indigenous knowledge in a global context. This theory encounters indigenous populations to protect ecology in the face of environmental degradation with the help of traditional ecological practices and indigenous knowledge systems.

Ethnoecological theories are partly derived from linguistic and cultural anthropology. This theory stresses the historical development methodologies and applications. This field recognizes traditional and indigenous knowledge that can offer valuable insights into the intersecting fields of biodiversity, ecosystem management, and adaptation to environmental changes. Ethnoecology has its roots in anthropology and early anthropologists such as Franz Boax and Julian Stewart probed into this field.

There are approximately 370 million indigenous people throughout the world who represent more than 5000 diverse cultural backgrounds with their traditional value systems and knowledge parameters regarding other living and celestial bodies on the Earth. Culture plays an important role in shaping the

worldview of indigenous communities. Ethnoecology encourages people from a common bioregion to come together and integrate a 'descriptive picture' of how they have been living with the natural world that they call home (Geraldine 2020, 3), therefore creating a sense of harmony and commonality. The evolution of ethnoecology has been shaped by the incorporation of traditional indigenous knowledge in the context of contemporary environmental challenges.

Ethnoecology in literature delves into the complex interplay between cultural ideologies and indigenous ecological comprehensions. It investigates the dynamic nuances of how literary works reflect and shape human relationships with the ecological surroundings. Ethnoecology bridges the gap between literary advocacy and environmental justice.

17.2.2 Rural Resilience

A study on ethnoecology felicitates the traditional knowledge of a rural indigenous community, which is transferred over generations. Indigenous communities practice their ancient indigenous knowledge to manage their resources, retain cultural integrity, and above all, to hold a sustainable development in a particular ecosystem. Ethnoecological practices in an indigenous worldview promote biodiversity, betterment of the ecosystem, and one kind of resilience to the climate shift, ecological challenges, and economic degradation. Hence, the study of ethnoecology in a particular society establishes the stepping stone for developing a better notion about the structure of rural **resilience in that** community.

Rural resilience is the ability of a rural indigenous population to cope with the rapidly changing environmental and economic vulnerabilities around them. The concept of resilience in ecological systems was introduced in Holling in 1973. This is the method by which the rural or indigenous people maintain a standard living condition in a changing external condition. In the contemporary world, villages across the globe are facing great challenges imposed by social, cultural, and ecological shifts. Rural resilience focuses on how a rural population can tolerate

changes before adopting a new worldview about the environment. Rural resilience encompasses methods of sustainability practices to survive environmental changes and foster long-term prosperity in indigenous lives. Early research on rural resilience primarily focused on rural communities' ability to accept, adapt, and reorganize after facing changes in global population and economic and environmental dynamics. Rural human resources and rural ecology are interdependent and rural resilience reflects the persistence of humans and nature in the face of constant change.

Research in rural resilience involves insights from other disciplines such as sociology, economics, environmental science, and public policy. Rural resilience assesses the current situation and potential for development (Wang et al. 2023). There are various subsets of rural resilience such as:

1. **Economic Resilience:** It is a way for rural communities to adopt sustainable livelihood practices to face rapid economic changes and focuses on various methods to embrace local economic practices by adapting to global economic dynamics and occupational hazards, and merging local business practices and global economic development and changes in basic public services and infrastructure.
2. **Environmental Resilience:** This is how rural indigenous communities adapt to environmental changes such as climate changes, disasters, scarcity of resources, and oppressive changes in the ecosystem. The traditional ecological knowledge system often faces hindrances by contemporary environmental theories, environmental degradation, and invasion of foreign knowledge systems.
3. **Social Resilience:** Social resilience helps indigenous people cope with social challenges like demographic shifts, social outcaste problems, and moral and ethical shifts in community dynamics. Social resilience investigates the capacity of indigenous communities to recover from the socio-economic and environmental shock. Trust, reciprocity, and cooperation enhance social community networks and work to build social resilience.

4. **Cultural Resilience:** Each indigenous community has a rich cultural heritage and traditional knowledge systems. Cultural resilience preserves and documents rural resilience in the face of cultural shifts and preserving cultural heritage during the diversification of existing culture.

This interdisciplinary field of study also analyzes the role of policy, governance, and institutionalized norms in rural resilience and assesses the role of technological advancements playing a role in rural resilience. It is a futuristic argument where indigenous communities must deal with uncertain and unprecedented changes in environment and ecology. Rural resilience promises to maintain productivity during environmental vulnerabilities. Rural demographics, dynamics, and diversities play important roles in the complex intricacies of rural resilience. Psychology plays an important role in rural resilience where people preserve their psychological sanctity during the changes in their surroundings. Rural resilience is different for each community and its ability to adapt to external disturbances. The factors creating differences are location, customs, cultures, social values, ethical standards, ecological dependency, etc. (Centre for Rural Health Research and Rural Health Services Research Network of BC).

If we probe deep into the socio-cultural aspects of the Santals, it will highlight their resilience as rural communities showcase their struggles, strength, and enduring capacity to manage adversities. Rural resilience is a perennial struggle in the Santal society where elements such as diversification and sustainability issues are explored.

17.2.3 About Santals

Santals, one of the important indigenous groups in Eastern India, predominantly inhabit the states of Jharkhand, Odisha, Bihar, West Bengal, and Assam in India. The inhabitation of the Santals mainly comprises the areas of Bhagalpur, the Santal Parganas, Birbhum, Bankura, Hazaribagh, Manbhum, Midnapore, Singhbhum, Mayurbhanj, and Balasore (Dalton 1960, 203–209). In West Bengal, Santals are largely found in Paschim Midnapore,

Jhargram, Purbamedinipur, Bankura, and Purulia districts. Biraja Shankar Guha has marked the Santals as a group who are very much unwilling to permanently settle down. According to him, Santals belong to the Proto-Australoid group, similar to the Australian Aboriginals (Guha 1944, 206–208). From the linguistic point of view, Santals who speak Santali belong to the Munda family (Raj 2019, 5–8). Santals as an indigenous community strongly sustain their solidarity and integrity through their culture, tradition, customs, belief system, and identity. Indigeneity being an inseparable part of Santal identity they firmly believe in maintaining a worldview habitually dependent on the environment and its resources.

17.3 Research Methodology

Qualitative research focuses on and provides a deep insight into the real problems of a particular community. It always involves an in-depth analysis of the information to conclude the findings of the research (Sandelowski 1996, 525–529). This study has utilized a qualitative research method, the most suitable and appropriate method to explore the real situation in a social scenario to understand specific phenomena. Ethno-scientific study unveils the human–nature relationship focusing on the study of ethnoecology in a particular indigenous community. Therefore, the ethno-scientific approach that has been followed for this particular study concentrates on how a specific group particularly an indigenous group perceives elements and structure of the environment around them through their indigenous knowledge system.

For this study, four villages Kamalpur (Gram Panchayet-2, Block-Debra), Jalimanda (Gram Panchayet-6, Block-Debra), Tabageria (Gram Panchayet-3, Block-Debra), and Antala (Gram Panchayet-6, Block-Debra), predominantly inhabited by the Santals and situated geographically in the district of Paschim Midnapore, West Bengal, India, was selected. Among these four Santal-dominated villages, a total of 60 participants participated in the research study voluntarily and willingly to interpret the influence of the environment on their worldview and their response as well as the perception of accepting it in their lives

thereby developing rural resilience. The interviewees, both males and females, were categorized into three groups: young group (18–30 years), middle-aged group (31–50), and old-age group (60 onwards), denoting each generation.

The data were collected from the four villages in three phases. The first phase was done by completing a pilot survey. For this survey, the participants were selected from each village according to the age groups and an effort was made to build up a rapport with the community members. During the study, data was collected by applying four tools: (i) In-depth interview and analysis, (ii) Observation of the participants, (iii) Folk taxonomy, and (iv) Focused group discussion.

In-depth interviews were conducted among various age groups about their approach toward environmental sustainability, how they perceive nature, and finding a way to put up resilience by utilizing natural resources. Before the collection of data, verbal consent was taken from each participant. The participants were ensured that each response would remain anonymous and they would not face any kind of risk or harm while participating in this study. All the interviews were taken in Bengali language and had a duration of 25–30 minutes (Majumder et al. 2021, 218–234). After the interview of 60 participants (20 in each group), consisting of both males and females, there was a time when there was a repetition of answers and nothing analytical was coming out. At this point of time known as the data saturation point (Corbin and Strauss 2007), the data collection process must stop.

Observation of the participants was conducted when both the Santal men and women were participating in various festivals, ceremonies, cultural programs, and activities related to agriculture, cultivation of domestic animals and birds, collection of resources from forests, participation in fishing, hunting, etc. Folk taxonomy is a scientific method based on the study of ethnoscience among various groups to explore “the indigenous perception and structural classifications of selected domains (land, plant/forest, animal, and water)” (Majumder et al. 2021, 218–234).

Folk taxonomy (Sengupta 2003, 15–22) intends to deal with the name and classification of a living being, plant, or animal through their culture (Phaka 2019, 15). A total number of 3 GDs

was conducted on groups consisting of 15 members where both males and females have equal participation.

All the interviews taken in Bengali were translated into English in the next step. The translated scripts were read, checked, and analyzed critically in detail. All the data were checked and cross-checked during the study. Multiple rounds of inductive content analysis, close to qualitative research (Denzin and Lincoln 2005), were conducted to focus on the result. The emerging themes from the interviews, discussion, and analysis represented the command of the indigenous community like Santals on their traditional knowledge system solely dependent on the environment and its resources. Sometimes the quotes have been mentioned in the result section to mark the authenticity of the research. The outcome of the observation of the participants and the group discussions were also recorded through fieldnotes and mentioned as well in the discussion.

Being an indigenous tribe Santals understand the interdependence and interrelationship of man and nature to build an environmentally sustainable world. They perceive that the total system of creation relates to cosmology. In their traditional vision of belief systems, human beings (Santals) are part of the cosmos (Mathur 2001, 2–8). Santals believe that man is constituted of five basic elements of nature: sky, air, fire, water, and earth (Prasad 1985, 99–118). Santal songs, myths, and origin stories relate to this connection of man with primitive elements of nature. Irrespective of all ages, Santal people strongly maintain their relationship with nature, as their life history onsets with nature. The following words are an echo of the statement: “The sacred lore of the tribe is not a fanciful tale told in explanation of a natural phenomenon and inexplicable vents, but a method of expressing certain ways of thinking and feeling about the facts of life and of regulating human action” (Culshaw 2004, 64). In the present study, Santal worldviews—concepts related to the origin stories, myths prevalent in society, and clan hierarchy have been analyzed to highlight the interdependence of the community on environments. Besides, interviews have also been critically evaluated to represent some major perceptions deeply connected with Santal life like the resources of forest, animal, water, and

land to investigate how they utilize them and build up a resistance against the aggression of global change and environmental hazards. Santal festivals that also mark the changes in the environment and are celebrated according to the change of seasons have also been examined to point out the eco-friendly worldview of the Santals. There have been multiple ethnomedicines that reaffirm the relationship between traditional indigenous ecological knowledge and the sustainable approach of the Santals toward the environment. Simultaneously, it also focuses on the ecological worldview of the Santals assisting them to build up one kind of rural resistance.

17.3.1 Origin Story of the Santals

In the beginning, the Earth was underwater and Thakur Jiu created beings who lived underwater like crabs, crocodiles, alligators, *raghop* boarfish, prawns, earthworms, and tortoises (Bodding 2001, 1–3). Thakur Jiu first created two human beings and wanted to give them life but suddenly the day-horse came and destroyed them into pieces. Being angry, Thakur Jiu decided to create birds first. He pulled two beautiful birds from his breast. When Thakur Jiu breathed, the two birds flew upwards. Being tired and finding no space as the Earth was covered with water, they requested Thakur Jiu for food. Thakur Jiu then called the alligator and asked him “Why did you call me Thakur?” Thakur Jiu asked him “Would be willing to bring up Earth?” As per the instruction of Thakur Jiu, the alligator tried and everything was dissolved. Likewise, other aquatic animals like prawns, *raghop* boarfish, stone crabs, and earthworms tried to restore land and create Earth but failed. Then the earthworm with the help of the tortoise succeeded in bringing the Earth upward. The foam was created from the saliva of the day-horse and stuck on the Earth. Thakur Jiu sowed there and plants like *Sirom*, *Dhubi grass*, *Karam tree*, and *Tope Sarjom* started growing and the vegetation started this way on the Earth. As the Earth was firm then a nest was made on the *Sarjom* tree and the two birds laid their two eggs, and from there two human beings were born. To keep them in a safe place, the two birds carried them on their back and reached *HihiriPipiri*.

From the two birds, known as *Has* and *Hasil* the ancestors, *Pilchu Haram* and *Pilchu Budhi* of the Santals were created (Prasad 1985, 99–118).

The creation myth of the Santals reaffirms their faith in the environment. They believe that the Earth, water, ocean, river, and non-human beings are all part of their existence. Since the very beginning, their life is largely dependent on nature, Santals without the imposition of ecological theory believed in building up a sustainable world where the environment would play the most pivotal role. Santals' myth of creation just decodes their contribution to developing environmentally friendly growth in society.

The creation myth has also been documented in many books. The narration may vary, but the connection between man and nature starts from the very beginning. We believe that nature is the closest friend of Santals and, therefore, we always prefer to maintain an eco-friendly relationship. The wanderings of the Santals and their inhabitation make one thing very certain that Santals loved to live near a forest and very rightly, therefore, they are called the 'denizens of forest' (Mathur 2001, 15).

The reference to the myths or the origin stories of the Santals available as written documents find proximity in the group discussion. During the survey when asked about the importance and its resources, each group mentioned the origin story of the Santals closely associated with five primal elements of nature—*Thakur Jiu*, *Has*, *Hasil*, *Pilchu Haram*, and *Pilchu Budhi*. Especially the older generation of the Santals finds a major dependence on nature, and to confirm their opinion, they refer to the stories of *Pilchu Haram* and *Pilchu Budhi*, the first male and female on the Earth. The responses of middle-aged and younger groups are also synonymous with the older ones. Santal myths and origin stories deal with the plants, animals, water, and land covering an ecosystem where both flora and fauna hold a great influence that enhances religion-cultural integrity in the Santal life and acts as an option to ascertain the social and cultural resilience as well in the rapidly changing dynamic world.

17.3.2 Clan System of the Santals

Santals do not believe in casteism to maintain a strong clan organization in society. According to the clan hierarchy, there are 12 clans: 1. Hansda, 2. Murmu, 3. Kisku, 4. Hembrom, 5. Marandi, 6. Pauria, 7. Soren, 8. Tudu, 9. Baske, 10. Besra, 11. Chore, and 12. Bedea. Each clan has its totemic species with whom Santals share a special relationship (Raj 2019, 9). Hansda holds the highest hierarchy among all clans in Santal society. The word 'Hansda' consists of *Has* meaning wild goose and *dak* means water. The wild goose is related to the first ancestors of the Santal. Murmu who come second in the clan hierarchy had nilgai or antelope as their totem. Kisku who come next to Murmu has kingfishers as their totems. Hembrom who have beetle nuts as their totem come fourth in the clan hierarchy. Santals believed that they were born with a betel nut. One type of weed or grass is the totem of the Marandi. Soren has a constellation of stars as their totems. The owl is the totem of the Tudu. Each totem of these clans belongs as an inseparable part of the environment. The clan system of the Santals reveals the Santal view of the world. The totems and the restrictions on them show how the Santal behavior is regulated by nature and natural elements. They accept all these impositions related to natural elements without a single... with its various implications that control their lives (Culshaw 2004, 77).

Besides, when asked about the clan hierarchy during the survey, all three age groups responded in the same tune that they are strongly against the killing of the totems of each clan. The world totem of each clan comprises the world of animals, birds, leaves, and other natural resources, which form a part of the Santal worldview, their existence is interrelated with them. According to the Santal interviewees, their totems are an object of high reverence that in an oblique way support to maintain a balance in the ecosystem. So, in the study of the clan hierarchy, Santals showcase their mindset to build up a world where the environment and its resources play an omniscient role. This approach to nature also allows Santals to build up social, cultural,

and environmental resilience—the subsets together assess the formation of rural resilience.

17.3.3 Plant or Forest Resources

As an indigenous tribe, Santals always believe in the co-existence of nature. Eco-centrism being the ‘deep ecological thing’ Santals prefer to live in the proximity of nature. If an intensive study is done on this tribal community, it will be evident that Santals worship nature from the core of their heart and, therefore, they go together with the concept of ‘nature as culture’ (Mathur 2001, 1–7). It remains one of the main reasons that Santal intends to live in solidarity, in close vicinity of nature especially close to forests. In a justified way called the denizens of the forest, Santals find plants or forest as an important source of their livelihood. So, not for being just a part of their economic growth, Santals confirm the **irreverence for each natural element** from the outset of their life cycle. Santals without the imposition of any scientific concepts or theories related to environmental policies anticipate building up an ecosystem, where both flora and fauna will co-inhabit in one land as a part of their worldview. When asked about the importance of the environment in their life irrespective of all age groups, all the Santals in the respective villages responded in the same tune.

“We cannot imagine even our life without nature, especially plants. As per the importance of our domestic life, we identify plants into seven categories: eatable plants (*Jom dare*), inedible plants (*Bakojom dare*), local or native plants (*Rohoy dare*), wild plants (*Bir dare*), flowering plants (*Baha dare*), non-flowering plants (*Banuonah dare*), and poisonous plants (*Gobojal dare*). Forests or plants in the Santal community are alternate sources of livelihood. We use various parts of plants for various purposes. We collect seasonal fruits, flowers, mushrooms, and sometimes medicinal plants and sell them in local markets. It helps us to develop our family income. Besides, the grass that we collect from forests is used for domestic animals. Sometimes dry leaves, leafy vegetables, and stems are also used as fuel for cooking food. At times, we grow a kitchen garden in our household premises to continue the sustenance of our livelihood smoothly.”

“The herbs, non-timber stems that *ojhas* collect from dense forests for medicinal use have a lot of importance in local markets. Sometimes, high-valued trees like ‘Sal’ and ‘Segun’ are cut with the permission of the Village Forest Committee (VFC), and the market value of the forest resources is immense. We Santals, always, therefore, prefer to build up a world based on the sustainability of the environment. We are beneficial also because a large part of the rural economy is based on the environment.”

Figure 17.1 shows that Rina Saren, a young Santal woman in Kamalpur (a Santal-dominated village selected for the present study), is standing in front of the kitchen garden, nurtured by herself and her family.



Figure 17.1 Kitchen garden.

The interpretation of the interviewees intensifies the concept of the Santals worldview, which is closely dependent on nature. Be it their understanding of the importance of nature or their close dependence on nature for the sustenance of their livelihood, Santals never cause harm to nature for their materialistic development. Like other indigenous people, Santals believe in ‘progress with nature’ (Khubchandani 2009, 8). They believe in sustaining their indigeneity by maintaining a superiority of traditional knowledge in their life.

17.3.4 Animal Resources

Rearing up of domestic animals acts as a supplementary source of earning a livelihood in the Santal society. In most Santal households, domestic animals like cows (*Dangri*), goats (*merom*), bullocks (*urit*), pigs (*sukri*), etc. are reared. Sometimes they rear hens (*enga*) and ducks (*gede*).

When asked about the importance of animal resources in Santal life, a middle-aged man narrated in this way: “We extremely prefer bullocks and buffalos as domestic animals as they contribute a lot to agriculture. Santals generally prefer a local breed of buffalo or bullock due to their super working power in agriculture on which our economy is largely based. Chicken and duck in a Santal household are the sources of meat and egg too. We also use dogs to help in hunting. Besides, Santal women catch fish or collect snails from ponds and sell them in local markets. At times, we must suffer from fever but we must continue our livelihood. The meat, egg, and milk that we get from domestic animals sometimes we consume them for our daily livelihood or sell them in local markets to strengthen our economy.”

Animal resources in the Santal community are a good mode to develop an economically strong segment of society. Not only agriculture, eggs of chicken and duck and meat of chicken, duck, and pig, a supreme source of sustenance of livelihood, are sold in local markets, and especially the women contribute here largely in rural Santal-dominated areas. The dogs that the Santals frequently use for hunting help hunt forest animals such as wild pigs (*Bir Sukri*), non-poisonous snakes (*Birkudbing*), and pigeons (*Bir Parwal*). The flesh of these animals is sometimes used for domestic consumption and sometimes sold in local markets. These sources of earnings help Santals to build up one kind of economic and social, two of the important classifications of rural resilience, especially in remote areas. These practices of sustainability help Santals to be a part of the indigenous people.

17.3.5 Water Resources

Right from the creation of the earth and the start of human life, water termed as *dak* by Santals is the most essential and revered

primal object in Santal life. Not only the interpretation of the conversation with the interviewees, but many Santal folktales also acquaint us with the concept of 'jal-jamin-jungle,' a concept of integrity. A Santal mind without the imposition of any scientific theory learns to develop a sustainable world where there will be no scarcity of water. A young Santal has narrated the utilization of water resources in this way:

"We know the importance of water and, therefore, we preserve it. Water means life to us. As per the availability of the sources of water, there are two types of water: rainwater and underground water. As our main occupation is cultivation, we must depend largely on rainwater and partly on underground water. During summer, we use electric pumps to draw underground water for farming or as a source of drinking water. We completely depend on underground water for drinking. We also preserve water in our community pond (*Aher*) and use it for domestic purposes. The community pond is sometimes used for cultivating fish. We Santals are very much conscious about the process of conserving water."

In a Santal village, villagers sometimes with the help of the government create a community pond and cultivate fish there. Water-well (*Kuan*) is sometimes dug up as per the decision of the *Manjhi-Pargana System* (Hembrom, 1996). Cultivating fish is also a mode of earning a livelihood that helps them build up a strong rural economy. Besides, with the help of rainwater and underground water, seasonal vegetables, fruits, and flowers are also sold in local markets, which helps form an economy resilience, especially in rural areas. Santals, therefore, sustain every object of nature and show a high reverence for each of them.

17.3.6 Land Resources

A young Santal (20 years old) who is a college student and still very much involved with agriculture has talked about the resource of land through the following words: "Land is not just a source of livelihood for us. I am educated, but I still want to cultivate the land that I have learned from my forefathers. My ancestral land gives me one kind of strength and identity. I am cultivating my land

now and will cultivate agricultural land till the last breath of my life. My land gives me one kind of security and we treat it as our mother Earth.”

Another old man (65 years old) narrated: “We Santals cultivate various types of seasonal fruits on our agricultural land. We have generally two types of land: (i) Upland and (ii) Lowland. Upland has low water retention capacity. The lowland, we generally use for growing paddy and upland is used for producing seasonal vegetables like corn, potato, tomato, pumpkin, cauliflower, cabbage, bitter gourd, etc. There is also barren land that is used by the Santals for grazing domestic animals like cows, goats, bullocks, etc. The barren land usually works as a source of nutrition for the domestic animals. Sometimes this kind of land is also used as a playground or for celebrating festivals or cultural programs. Forest land is also a part of our livelihood as we collect grass, fruits, and flowers from there.”

Figure 17.2 shows a group of middle-aged Santal women engaged in the cultivation of paddy in an upland area in Jalimanda (a Santal-dominated village selected for the present study).



Figure 17.2 Cultivation of paddy.

The sustainable world that the Santals develop becomes a way of maintaining rural resilience. Santals living predominantly in rural areas with spontaneity build resilience based on the rural economy.

17.3.7 Santal Festivals

In the Santal worldview, Santal festivals are an expression of their faith and belief system. A series of festivals in their society rotate around the agricultural year of the Santals. As the Santals tend to live in an environmentally sustainable world, their festivals and activities are considered a mark to worship nature that supports them to form a kind of cultural resilience. The agricultural activities that start with the initiation of varied features serve as a mark of dedication and supplication of the benevolent *Bonga* for their help and blessings upon their agricultural activities, and at the beginning of the harvesting season of each crop (Hembrom 1996, 41). Santal festivals, mostly connected with agricultural operations play a pivotal role in the Santal culture and economy. Besides, a few festivals like *Karam* and *Jom Sim* completely focus on the eco-centric approach to their life. Therefore, the observation and celebration of festivals unlock the ways of building up socio-cultural and environmental resilience by the Santal mind. This is a great moment for tribal to celebrate any functions and puja rituals involving nature. The mind of the Santals is filled with deep love and reverence for nature. To celebrate the *Baha* festival at such a time is a great act for the Santals to show their love of nature (Biswas 1956, 86).

Baha Parob: At the advent of Spring when nature starts blooming with flowers all around, new leaves start sprouting, and a new life is felt all around the environment, Santals start celebrating *Baha* in the month of *Fagun* (from mid-February to mid-March). A deeper philosophical thought lies in the celebration of the *Baha* or Sal blossom festival keeping a close parity with the blooming nature of the environment all around. Besides, the *Baha* is also celebrated to mark the pollination period in an environment often compared with the attainment of adulthood of Santal women.

The reflection of this concept has been incorporated in the following words letting us know about the interconnection and interactive relationship between an intoxicated Santal mind and environmental exuberance:

“Seeing the beautiful appearance of nature, one cannot remain indifferent without being romantic. The appearance of the Earth is as youthful as a blooming maid, who has just grown up, attained her adulthood, and awaits to step into the state of motherhood” (Biswas 1956, 86).

A close affinity of this discussion we find here: “This festival marks the end of an agricultural year, ushering in a new hope and new life as manifested in the natural phenomena” (Hembrom 1996, 43).

Sohorae: *Sohorae* known as *Bandhna Parab* is celebrated in the month of *Pous* (from mid-December to mid-January). It is also known as a thanks-giving festival among the Santals when the paddy is harvested. Santals for the growth of paddy connected in a large number with the concept of economic resilience thereby holding up rural resilience offer thanks to their spirits. “In Santal Pargana, this festival represents a thank offering for their main crop paddy and is associated with great rejoicing” (Ray et al. 1982, 59).

Magh Sim: If the *Baha* festival marks the beginning of the Santal calendar, the celebration of *Maghe Sim* marks the end of the year. In the month of *Magh* (mid-January to mid-February), Santals mow the thatching grasses. The date of the festivals falls from the 1st to the 10th day of the *Magh* and is celebrated to appease the deities residing in the forest areas.

Erok Sim: *Erok Sim* or the paddy sowing festival of the Santals comes in the month of *Asar* (mid-June to mid-July) when the main cultivation is started with the advancement of monsoon. Santals start sowing maize, *Iri*, and *Gundli*, especially the winter crops, and evoke spirits to make the field fertile and for sufficient rain that will help the growth of paddy. The priest invokes the following chanting for the flourishing of human beings’ land: “We salute you, creator *Jaher era*, *Maran Buru*, and others. In the name of the sowing festival, we are offering sacrifice unto you so

that we may sow in one quarter, and in twelve quarters, these may flourish in a bumper crop. Let the wind bring rain. Let rains shower in profusion... Let our cattle increase in number. Protect them from the attacks of wild animals, when they will frequent the jungles. Protect our hunting dogs" (Mukherjee 2017, 234).

Karam Festival: The Santal festival, *Karam*, comes in the month of *Aswin* (mid-September to mid-October). According to the customs of this festival, Santal youths being purified go to the forest with music and dance to collect two branches of the *Karam* tree and plant them outside the house. This festival marks the consciousness of the Santal mind to build up an environment where the plantation is a must-do job.

The intergenerational variation after the interview was taken was that the younger generation is aware of the festivals and their importance in the Santal society. The middle-aged generation knows all the rituals and customs of the festivals and celebrates them to worship nature. The oldest generation is very serious about each festival and eager to pass it on to the next generation.

A young Santal participant declares: "During my childhood days festivals were celebrated with a lot of grandeur. Our grand mother and grandfather from our childhood days have made us realize the importance of nature and through the celebration of these festivals, they want us to express our reverence to the environment. But nowadays as many of us must go outside to continue our livelihood, the grandeur of the festivals has reduced to some extent. Though we know the importance of the environment in our life, we cannot participate in them as earlier."

A middle-aged man narrates: "We love to celebrate our festivals as earlier. The younger generation may a little bit be influenced by mainstream festivals, but we must retain our culture and identity by celebrating our festivals. We worship nature not because we are dependent on it, but because it provides our sustenance. If we worship nature, our ancestral spirits will be happy. So, our land will be fertile, there will be plenty of rainfall, crops will be grown at a high rate, and our rural economy will be developed a lot. Our festivals remind us of our culture, economy, and overall, of our agrarian identity."

An age-old Santal shared his opinion: “Our festival is our identity. We, rural people, are completely dependent on agriculture. Our festivals throughout the year rotate around the agricultural year. So, we celebrate our festivals to pass on the importance of nature to the next generation. Nature helps us to have a flourishing crop in every season and develop our rural economy as well.

The way the Santals relate their experience and excitement about the celebration of the festival around the year marks their involvement with nature and its abundance in their life. The same tone we can connect in the following words: “... further this is a great moment for tribal to celebrate any functions and puja rituals involving nature. The mind of the Santals is filled with deep love and reverence for nature. To celebrate the *Baha* festival at such a time is a great act for Santals to show their love of nature” (Biswas 1956, 86).

17.3.8 Ethnomedicinal Practices

Ethnomedicine refers to the traditional medicinal practice among ethnic groups especially indigenous communities. The method of using therapeutic agents to cure common ailments in an indigenous community by applying the traditional knowledge collected largely from nature and animals is known as ethnomedicinal knowledge. As an indigenous community in the Santal worldview, the perception of the worshipping of nature, appeasement of evil spirits, and sacrifices for the prosperity and happiness of the community, some supernatural practices also form a part of ethnomedicinal practice. Santals being the age-old habitats of forest areas have impressive knowledge of plants, herbs, stems, animals, and other natural resources. Bodding has mentioned that “knowledge of their medicine will, within certain limits, show their knowledge of nature, and how they use this knowledge.”

The study in the Santal villages makes it clear that Santals rarely have any written documents of the therapeutic agents. In most cases, the elderly Santals, the *ojhas*, medical practitioners pass on the ethnomedicinal practices to the next generation.

The ethnomedicinal practices largely known as the indigenous medical system of the Santals focus too on magico-religious beliefs

and illness caused by supernatural forces like *Bonga* and witchcraft. Faith-healing systems or the practice of prayer and rituals to treat illnesses, practitioners of faith-healing system believe more in prayer to gods and deities than in medical methods. "A faith-healing system is a method of treating illness through the exercise of faith rather than medical methods" (Gopichandran 2015, 238). Santals with indigenous belief systems have strong faith in healing through spirituality, religion, and supernatural power.

In *Introduction to P.O. Bodding's Santal Medicine* (1983), Suhrid Bhowmick, the greater researcher who played a pivotal role in the development of the Santal literature, commented on the command of the Santals on the practice of ethnomedicine through the following words: "... the present writer happens to know so many old men and women in his home district who are specialists in treatment with herbs for various diseases, from night-blinders to very acute blood dysentery. Some of them also know the secret herbs, which are used as preventive medicine for contraceptive action" (Palit 2009, 43).

During the group discussion symptoms of some diseases, remedies, and the procedures of applying and taking those medicines have come out. The sources of these medicines are majorly dependent on plants, their bark, leaves, stems, roots, and sometimes animals or reptiles that the Santals practice in their day-to-day life. Santals transmit their traditional knowledge of ethnomedicines to the next generation orally. Here is the mention of some such kind of ethnomedicinal practices among them:

1. **Name of the disease:** Baldness (hair may fall entirely both in cases of children and adults)

Name of local medicines: The bark of moringa with the scientific name *Moringa Oleifera*.

2. **Name of the disease:** *Gai Khura* (foot and mouth disease)

Name of local medicine: *Bandbhora Bin Jan* (native Santal language). The bone of a venomous snake with the scientific name *Bungarus Fadsciatus*.

Application: Tie on the animals with yarn from the spinning wheel and drive into the mud so that no bugs may come out.

3. Name of the disease: Headache

Name of local medicines: The bulb of Shivlingi with the scientific name *Bryonia Lacinosa* and the spiny gourd with the scientific name *Momordica Diocia*.

Application: Make a paste and tie a cloth soaked in the paste on the painful part.

Name of local medicine: Stem and leaves of bitter gourd with the scientific name *Borassus Flabelliformi*.

Application: Squeeze the juice and give it to the patient.

4. Name of the disease: Malaria

Name of the local medicine: (a) The roots of Madhunashini with the scientific name *Gymnema Hirsutus*.

(b) The roots of the black creeper with the scientific name *Ichnocarpus Frutescens*.

Application: Take a little of each and tie on the patient.

5. Name of the disease: Colic pain

Name of the local medicine: The roots of Shivlingi with the scientific name *Bryonia Lacinosa*, black pepper, and salt.

Application: Make a paste of all these things together and give it to the patient to drink.

6. Name of the disease: High fever

Name of local medicine: The bulb of cathedral bells with the scientific name *Cotyledon Laciniata*.

Application: Wrap the patient with the paste and provide some paste to drink.

7. Name of the disease: Small Pox

Name of the local medicine: Wild eggplant with the scientific name *Solanum Zacquini* and Jatamansi with the scientific name *Nardos Tachys*.

Application: Boil these together and give them to the patient to drink.

Ethnomedicinal practice is an integral part of the tribal belief system. The indigenous communities use plants, herbs, stems, and bark of trees in various ways from the dawn of civilization.

Even raw materials for many pharmaceutical companies are supplied from Santal villages. Till now, elderly Santal people believe more in their indigenous knowledge than in modern medical systems. The practice of an ethnomedicinal approach toward day-to-day in a Santal village is proof that Santals are the flag-bearers of maintaining a sustainable world completely dependent on nature. The home remedies of medicines also help the Santal community to maintain integrity and thereby sustain their indigeneity by building up socio-cultural and environmental resilience in a world where a dynamic economy, change in the ecosystem, and lack of cultural integrity are constant issues.

17.4 Conclusion

The mainstream society familiarizes us with a scenario where uncontrollable damage to the environment is a very common phenomenon. The waves of urbanization and globalization have left a havoc damage to the ecosystem. Therefore, an ethnological approach to survey the human-nature relationship to comprehend the worldview and the interaction between the Santals and the ecosystem around them to unlock their perception of the environment through their deeply-rooted belief systems, socio-cultural practices, and their management of environmental resources. The way Santals interpret nature through their myths, origin stories, and hierarchy of clan system showcase the command of the Santals on the indigenous knowledge system they use to perceive a sustainable world where the environment will play an omnipotent role. Whenever we are trying to implement the emerging ecocritical theories, we must understand that indigenous communities like the Santals have already incorporated them within their cultural belief system. Western environmental policies have always been part of the traditional knowledge system of indigenous communities. The management of resources like plants, animals, water, and land shows that Santals perceive their indigeneity and solidarity through their eco-cultural entity. The orally transmitted ethnomedicinal knowledge forms another part of cultural practice among the Santals. The interviews, focused group

discussion, and participant observation represent the indigenous worldview of the Santals, the multifaceted interpretation between human beings and nature, and living and non-living objects. This ethnological study bridges a gap in the Santal society between the environment and culture. The concepts of socio-cultural, environmental, and economic resilience altogether form rural resilience in the Santal worldview.

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Annexure-I

Questionnaire

1. Do you have a myth about origin?
2. Do the creation myth and the origin stories point to your cultural identity?
3. Are the totems in the clan organization related to certain aspects of the environment in your society?
4. Does the clan organization indicate the formation of the indigenous worldview of the Santals?
5. How is the environment connected to your life with respect to plants, animals, land, water, festivals, and ceremonies?
6. How do you use plant resources in your daily life? Are they useful?
7. Does the use of plant resources help boost the rural economy?
8. Does the forest, you prefer to live nearby, play any role in continuing your livelihood?
9. How do plants and animals play an important role in your daily life?
10. What kind of animals and birds do you have in your house?
11. Are they used as a source of your economy?
12. Do you prefer to lead a nature-centric life?
13. How do you manage water resources in your village?
14. Do you continue your cultivation with natural water?
15. How many types of land are there? Which vegetables do you cultivate in which land?
16. Do you take help from forest land?
17. Are there any different kinds of land that you use for various purposes in your life?
18. What is ethnomedicine? How do you produce medicine from plants and animals around you? Give some examples.
19. Is the use of this medicine useful in your life? From when are you using them?
20. Why do you use it?

21. Have you recovered from any diseases by applying these ethno-medicines in your life? Explain the names of such medicines and how have you treated them to recover.
22. Does it help in any way to build up livelihood in your community?
23. In which month do you celebrate *Baha/Sohorae/Karam/Magh Sim/Erok Sim*?
24. Do you celebrate these festivals every year?
25. Why do you celebrate such festivals?
26. Are rituals, customs, and traditions related to these festivals eco-centric?
27. How is *Baha/Sohorae/Karam/Magh Sim/Erok Sim* different from mainstream culture?
28. How do these festivals help sustain indigeneity in the Santal community?
29. Do the Santal people enjoy it?
30. How do the older/younger/middle-aged generation respond to such festivals?
31. Do their festivals convey any particular message to the mainstream?