

Traditional Agricultural Equipment's and Using Techniques of the Santal Tribe in the Context of Tourism Development

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ABSTRACT

The Santal tribe is one of the major Indigenous communities of Eastern India known for their close relationship with nature, agro-based lifestyle, and traditional ecological knowledge. Their agricultural practices use tools crafted from locally available materials, reflecting sustainable, environment-friendly technology. This paper discusses the major traditional agricultural equipment's used by the Santals, their cultural value, and their potential to be promoted through tourism initiatives such as rural tourism, eco-cultural tourism, and heritage village tourism. The study is based on ethnographic interview, secondary literature review, and fieldbased observations conducted in selected Santals dominated regions across Jhargram District of Jangalmahal, West Bengal. Highlighting the cultural and economic significance of these indigenous tools can support both cultural preservation and livelihood enhancement.

Keywords: Santal Tribe, Traditional Agricultural Equipment's, Techniques, Traditional Ecological Knowledge (TEK), Tourism Development

INTRODUCTION

Agriculture forms the backbone of the Santal community's socio-economic life. Traditionally, the Santals depend on rain-fed cultivation, forest resources, and livestock rearing. Their farming practices involve tools and techniques developed through generations of experience and adaptation to local environmental conditions. These tools are not just functional implements but are deeply woven into the cultural identity, festivals, community cooperation, and rituals of the Santal people.

In the present era of globalization, industrial agriculture and mechanization have begun to replace traditional agricultural methods. However, there is a growing global interest in Indigenous Knowledge Systems (IKS) and sustainable lifestyle practices. This context provides an opportunity to integrate Santal traditional agriculture into tourism development as a means of cultural promotion and economic sustainability.

Objectives of the Study

1. To identify of traditional agricultural equipment's of the Santal tribe.
2. To document and analyze the traditional agricultural equipment's and techniques used. 2. To explore the socio-cultural significance of agricultural practices in Santal life.
3. To assess the potential of integrating traditional agricultural practices into tourism development.
4. To identify challenges and sustainability concerns regarding traditional ecological knowledge.
5. To propose strategies for community-based tourism involving Santal agricultural heritage.

METHODOLOGY

The study is based on ethnographic involving interview, secondary literature review, and field-based observations conducted in selected Santal-dominated regions across Jhargram District of Jangalmahal, West Bengal. Data are analyzed in qualitative methods.

RESULTS AND DISCUSSION

Traditional Agricultural Equipment's of the Santal Tribe: The Santals use a range of agricultural tools that are simple yet effective. These tools are made primarily from wood, bamboo, stone, and iron. Some of the most common traditional equipment's include the following:

Equipment Name	Local Name	Material Used	Primary Use
Wooden Plough	Langal	Wood, Iron Blade	Tilling Soil
Yoke	Arar	Wood	Attaching Oxen to Plough
Hand Hoe	Kurkuti	Iron, Wooden Handle	Digging & Weeding
Sickle	Hansua/Dangri	Iron Blade	Harvesting Crops
Grinding Stone	Janta	Stone	Grinding Grains
Rice Husking Lever	Dhenki	Bamboo, Wood	Husking Paddy
Seed Storage Basket	Khoka	Bamboo, Straw	Storing Seeds

Traditional Agricultural Equipment's use Techniques:

Dangri Gadi (Bullock Cart): A bullock cart is an old vehicle used for farming. The two main parts of a cart are the wheel and the shaft. When we think of a wheel, the first thing that comes to mind is a wooden wheel, and the shaft is made of bamboo, wood, and rope. Below is an introduction to the different parts of the wheel and shaft.

Jatra Bamboo: When loading paddy on a bullock cart and bringing it from the field, a jatra bamboo is needed. The bamboo is slightly bent. The jatra bamboo is first tied to the back of the cart in a special way. It must be tied in such a way that it does not come down easily. A lot of pressure is required to bring it down forward. Two people tie a rope to the front and pull it to the cart, while the other hangs by holding the bamboo. One person presses the bamboo from the top of the loaded cart. The paddy is tied tightly and brought from the field to the farm. The name 'jak bamboo' is given because of the pressure or tension exerted by this bamboo. Again, the name 'jatra bamboo' is given because the bamboo is tied just before leaving the field.

Nahel (Plow): Plow are had been used since ancient times to loosen the soil of the land. It is even said that our mother Sita was born from the ploughshare. While searching for ploughs, it is known that people first used to cultivate the land by pulling the plough themselves. Later, when they were able to domesticate forest animals, they started pulling the plough by attaching domestic animals. The work of cultivation became a little easier. It looks less time. Nowadays, with the help of science, we can easily plough the land in a very short time using various sophisticated equipment. As a result, the use of ploughs is almost non-existent. Although some ploughs are seen, they are also made of iron. Plows made of wood are on the verge of extinction today. The different parts of wooden plough are identified below. Farmers cannot make this plough. Woodworkers make ploughs. There are also variations of it. The plough that 'Bose plough' is and the plough that pulls the soil on both sides is called a 'Dull plough'. The name 'Dhulor plough' is derived from the fact that the land is cultivated in dust.

Argam (Ladder): Ladders are made of bamboo are used in farming to level the clay and dust and break up the soil. A ladder is made dividing a bamboo into two parts, making six or seven holes at equal distances and attaching bamboo poles to it. Farmers cannot make ladders. A carpenter is needed. The ladder is five feet long. However, it can be small or large in length. Ladders often serve as steps. Ladders are needed when loading rice carts, when bringing rice to the farm and stacking it, when shaking rice to make straw bales, and when making rice balls. To level the land, the ladder is laid on the ground, two ropes are tied to both ends of the ladder; the two ropes are tied together to form a ring. And the farmer stands on the ladder holding the rope. The soil becomes level with the farmer's weight. In other cases, the ladder is used by raising it high. In Purulia and Bankura, the type of ladder is different because the soil is hard. They use ladders made of rattan.

Arar (Yoke): The yoke is made of wood. The oxen are tied to cart and plough by attaching the yoke. There are two holes at both ends of the yoke. The farmer ties the oxen to the cart by placing a shoe in the hole. Nothing else is needed in the case of the cart. But when ploughing, the plough is tied with a ring and rope. The farmer cannot make the yoke himself. The yoke connects the plough, the ladder and the cart, hence the name "Joal".

Genge: A rope made of coconut or cane is tied around the mouth of the cow. The cow cannot eat the crops. Its weave is like a net. One side of the round cloth is open. This open part is worn over the mouth and the two ropes

on either side are tied to the ox's shoulders by passing them under the ears. Usually, the cloth is tied to the ox's mouth while it is being taken through the fields and through the crops of many people. Again, when carrying a plow and oxen, or when plowing the land with a plow, they are tied to mouths of the oxen. In Genges, farmers make them with their own hands.

Dokka (Chimney): Chimney have been used for irrigation for a long time. Farmers used chimneys, which were triangular pyramids made of bamboo and tin or just iron, to carry water from small reservoirs to their fields. Chimneys were usually used for small irrigation. They required a lot of labor. Farmers would repeatedly fill the chimneys with water and pour it into the drain. The water would flow into the drains and on to the fields. When there was little rain during the rainy season, the water from the ponds was used for farming with the help of chimney water could be seen during vegetable cultivation in the fields.

Kuri: Round in shape. Made by attaching iron sheets to a wooden frame. With the help of a Water was drawn from the well and used for irrigation. Bamboo was planted near the well or long bamboo was tied to a tree, a rope was tied to one end of the bamboo and mud bucket was tied to the other end. When the bucket was filled with water, a slight pull on the rope caused the bucket to rise up under the weight of the mud bucket. The farmer pulled the rope, filled the rope with water and pulled the rope again. By doing this repeatedly, the water went to the irrigated land. Sometimes, irrigation was done very quickly because there was a well next to the land. We call irrigation 'pawano'. Its method is much like a canoe.

Dungi (Boat): It is usually made of iron. However, palm and date palm wooden canoes were also used. The length gradually increases from the front to the back. This is an ancient method of irrigation. A canoe is used to carry water from a water body to the cultivated land. Its use has decreased a lot now. Five bamboos are required when using a canoe. A 'tekatha' is first made by joining three bamboos. It is made. This tekatha is placed on the edge of the water body, two poles are driven into the water body and 'payra' bamboo is tied slightly below the water. After this, a 'shir' bamboo is placed between the tekatha bamboos, one end is tied to the canoe with a rope, and a large lump of mud 'bharna' is tied to the other end. The lump of mud is quite heavy. The farmer stands on a bamboo pole and dips the front of the canoe into the water body and lifts it up a little, causing the lump of clay to lower the canoe. The water from the canoe flows through the canal to the cultivated land. This is how farmers have been irrigating our Bengal since ancient times.

Ghugu (Ghang): Farmers use long, woven ghang leaves to themselves from rain during the rainy season. Many people also make ghugu leaves around leaves. The cap, which looks like (Fig8) a triangular pyramid, is open on one side, when worn over the head, it covers the area below the knees. Some farmers can make it, while others make it from domed leaves. In Purulia, Bankura and Jhargram 'Ghang' is seen made from ghugu leaves.

Tupi (Cap): Made of palm leaves. It looks like a round hat. When science could not invent umbrellas or polythene, the people of the village hat jhampi. Farmers used to protect themselves from the sun and water by wearing jhampi on their heads were protected by wearing jhampi. The use of jhampi is seen more during rain than in the sun. On rainy days, jhampi was used in rice planting, plowing, etc. When the use of polythene started, farmers started putting polythene on their heads. People used jhampi not only for farming but also at other times.

Kudi (Spade): Made of iron. It has a bamboo or wooden handle. The farmers can make the handle himself. He takes a spade from the blacksmith's shawl and peels the branches cut from the trees and puts them on the spade. The spade is needed to cut the soil in the field and to 'shape' the land.

Tagna (Hang on): It looks like a spade, but it is not a spade. The spade handle is short. It is difficult to work. You have to apply more force. And the handle of the hoe is large. There is an advantage in terms of work, you don't have to bend too low. You have to apply less force. It is used for cutting soil. In cutting the land, in potato or tobacco cultivation, the use of the hoe is seen to be to put soil at the base of the tree.

Basla (Basil): An iron-made wooden-handled awl is used to make wooden or bamboo agricultural implements. The implement is used to chop wood or bamboo. Its use is seen in Jangalmahal regions.

Banku (Bankua): The use of bankua is seen in Jangalmahal regions to carry paddy from the field to the farm. Paddy cannot be carried in a bullock cart from uneven cultivated land, so they use bankua. Before placing the

bankua on the land, first two bundles of paddy are placed on the left and right sides, the bankua is placed on top of the paddy, two more bundles of paddy are placed on the bankua, tied with ropes, and the farmer carries the paddy to the farm on his shoulders. We call it 'banku'.

Kunke (Serpai): Kunke or Serpai is used to measure crops. Lokpur of Birbhum has maintained its tradition by making Serpai even today. Although the Sonjhur is made of wood, it was previously made of mango wood. Earlier there was a seven-bar kunke. Now only the Serpai remains. However, nowadays, due to the increase in value, various types of Serpai are seen being made. The brass legs have various designs have evolved. Since one Ser is measured, it is called Serpai. Many people call it 'Pai'. Serpai made of cane, iron, brass, and dokra are also seen.

Kulo: The bamboo fan helps to aerate the rice. The agar is separated from the rice by aeration. In addition, the girls of the house use the fan to clean (pachura) the rice or other grains. After placing the grains in the fan, they hold the fan with both hands and move it forward and backward in a special way to clean the grains.

Jhuri (Basket): It looks like a bamboo basket. It is covered with soil and cow dung. Because if it is not covered with mud, the rice will fall. The edges of the basket are not tied. But the edges of the basket are tied. It is used to carry rice to the basket or tie the sack. Its weave is thin. And when the weave is dense and the mud is not covered, it is called 'dala'. The use of the dala is seen when separating the soil from the rice.

Hata (Sleeve): A hand is used to gather rice, wheat, and sesame. It is made of palm bark and wood. It often does not have a handle. The name 'hand' comes from the fact that it gathers rice in one place, just like gathering rice by hand. A small amount of rice can be gathered at once by using a hand. Again, a hand with a handle can gather more rice at once.

Bandi: They make a bandi by wrapping it with straw. It is a small neck for storing rice. It looks like a cocoon of a small insect. Bandi was popular among the Santal tribals.

Dhaner Gola (Rice Store): In mud houses, rice gola was used to store rice or easily bring rice down from the upper rooms. While building a house, banana tree trunks were placed on the walls, and when the tree rotted, they were taken out and this gola was created. This type of gola was used in Jangalmahal regions



Figure1: Traditional Agricultural Equipment's of the Santal Tribe

Cultural Significance of Agricultural Tools:

Santal agricultural implements hold cultural symbolism. They reflect cooperation (*dangar-daury*, group farming), appear in Santal folk songs, myths, and festivals such as *Saharai*, and are blessed during rituals praying for good harvest and rainfall. Crafting and repairing of tools strengthen local craftsmanship traditions such as blacksmithing and carpentry. Thus, tools are part of both material culture and intangible cultural heritage.

Traditional Agriculture and Tourism Development:

Tourism based on Indigenous cultures is gaining recognition worldwide as a form of sustainable cultural tourism.

Santal agricultural heritage can be integrated into the tourism sector through:

Rural and Agro-based Tourism:

Visitors can observe traditional ploughing, sowing, growing and harvesting.

Cultural Museum and Craft Exhibition:

Displaying traditional tools can attract researchers and cultural tourists.

Community-Based Tourism: Local communities can guide tourists, ensuring benefits return to the Santals.

Economic and Social Benefits:

Integrating Santal agriculture with tourism can generate local employment, empower women through craft demonstrations, strengthen community pride, and promote eco-friendly livelihood alternatives.

Challenges:

Despite potential benefits, challenges such as lack of documentation, youth migration, limited government support, and mechanization replacing traditional tools persist. Addressing these issues requires planned policy support and active community participation.

CONCLUSION

Santal agricultural tools are more than implements of farming; they represent an ecological knowledge system and cultural identity developed over centuries. Integrating these traditional practices into tourism initiatives provides a meaningful pathway for cultural preservation and economic development. Sustainable tourism policies, museum exhibition, and heritage village development can play key roles in promoting and safeguarding Santal agricultural heritage.

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