



**Traditional Water Conservation Techniques of the Munda Tribe**

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**Abstract:** *The Munda Tribe is a major tribe primarily residing in Jharkhand. They share a deep and traditional relationship with the environment. They live in harmony with nature and play an important role in environmental conversation. For example, they conserve forests, water and soil and also use these resources for their livelihood. The Munda community has rich environmental knowledge and they have always preserved this knowledge. They learn from their experiences with nature and pass this knowledge forward. They play an important role in water conservation. They strengthen their socio-economic condition through water conservation. They conserve water sources like rivers, ponds, and wells, and use them carefully. The most important technique in their water conservation methods is building 'dobha'. It is a simple and effective means of storing rainwater. They also use the 'ahar-pyne' and 'medh bandi' techniques. Today, when the entire world is struggling with a water crisis, not only the traditional water conservation techniques of the Munda tribe are relevant but also provide guidance for modern water management. This research paper highlights the water conservation system of the Mundas, its social-cultural significance, and its utility in the present context from the perspectives of both the Indian Knowledge System and formal knowledge systems. Its objective is to underline the importance of indigenous knowledge in promoting effective and sustainable water conservation strategies.*

**Keywords** *Conservation, Technique, Dobha, Ahar-Pyne, Medh Bandi, Water crisis, Mentor, Sustainable development, Natural resources, Indigenous practices.*

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**Introduction**

Tribes of the world are known for their deep connection with nature. Among them, the Munda tribe of India, which mainly resides in the regions of Jharkhand, Odisha, Bihar, and Chhattisgarh, is especially renowned for its traditional water conservation techniques. They have been living in balance with nature for centuries. Their life is based on water, forest, and land. They use these resources in an extremely balanced and sustainable manner. In their water conservation techniques, a remarkable connection of local knowledge, community participation, and environmental sensitivity can be seen. The economic condition of the Mundas mainly depends on agriculture. Like other tribes, the Mundas also have 'don' and 'tanr' land. "They remain engaged in farming activities for 7 to 8 months of the year"<sup>1</sup>, which is

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why water conservation becomes essential. The techniques of the Mundas for water conservation can be examined under the following headings.

### **Findings and Discussion**

**1. Dobha:** - The most important technique of the Mundas for water conservation is building 'dobha'. We also know dobha as small ponds. It exists in both natural and man-made forms. It is built near fields or in low-lying areas so that rainwater collects in it. Dobha is a simple and effective means of storing rainwater. The water from dobha is used for irrigation and for livestock. Sometimes people also bathe in it. Since it is also man-made, its depth is greater. During the rainy season it remains filled with water, and in summer it may dry up. Dobha is constructed through collective voluntary labor. It is built on one person's field, but its use is communal. Fish farming is also done in it. Natural dobha is also used collectively. The edges of a natural dobha have trees, plants, and large stones or rocks. These rocks are used for sitting and for drying clothes. Dobha is a traditional water source of the Mundas and holds great importance. The importance of dobha is not only as a water source, but it is also a community center for the people of the Munda tribe. Dobha is an important part of their life. The number of dobhas in a village is not fixed. It depends on the size and geographical location of the village. Generally, a village may have dozens of dobhas. Among the Mundas, there are also many proverbs and riddles about dobha. One riddle is - 'Moyod dubare jid hai kadakom ko - Dobha.' It means, 'What is it that has live fish and crab in a single bowl?' The answer is Dobha. The Munda people consider water sources to be sacred. Dobha is also a water source, and they have made special rules for its conservation — such as you cannot catch fish in it alone. You cannot spit in the water. After defecation, you cannot wash directly in it. The bathing times for women and men are separate. Menstrual cloths cannot be washed directly in it. If you are using the dobha for the first time, you should first clap or drop a small pebble into the dobha and only then use it, so that if there are any venomous snakes, they move away and you remain safe. Through this collective effort, the water source can be kept safe for a long time. This perspective makes them naturally sensitive toward water conservation.

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**2. Ahar-Pyne** - The Munda tribe also uses the Ahar-Pyne technique, which is a traditional method of water management. In this technique, 'Ahar' (water collection area) and 'Pyne' (small canals) are included, which collect rainwater and carry it to the fields. This reduces water wastage and ensures that crops receive sufficient water even during drought conditions. Ahar is a ditch dug three to four feet wide along the edges of the field, lengthwise, in which rainwater is stored. Each person may have this ahar in their own field, and from there they can draw water as needed by making a pyne. This technique is individual. The owner can use the water as they wish. Taking water is prohibited for others. The owner may choose to share the water or not.

**3. Daari** - The residential areas of the Munda tribe generally depend on rain-fed agriculture. There is instability in these areas. "This tribe has always been of an extremely self-respecting and resilient nature"<sup>2</sup>. To deal with this challenge, the Munda community developed many effective water

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conservation techniques over time. The main objective of these techniques is to ensure maximum harvesting of rainwater, recharge, and balanced use of water. Their special feature is that they are completely based on local resources, low-cost, and environmentally friendly.

Daari is the most prominent traditional drinking water system of the Munda tribe. It is a natural water source. To maintain the purity of the water, they surround the daari on all sides with large pieces of jamun tree bark. Jamun bark contains tannins. Tannins disrupt the oxidative phosphorylation of parasites in the water, preventing them from producing energy. They absorb organic pollutants, dyes, heavy metals, and toxins. "Research in Bihar found that soaking jamun, mango, and neem leaves in water for a few hours absorbs arsenic, fluoride, and iron"<sup>3</sup>.

Daari is cleaned from time to time. It is also cleaned collectively by the public. "If any particular individual dirties it, then as a punishment that person alone has to clean the daari"<sup>4</sup>. It provides a source of water throughout the year and keeps water available even during drought. Just like dobha, prohibitions and rules also apply to it.

**4. Banda (Pond)** - Each village of the Munda tribes has four to five ponds. These ponds are built through public voluntary labour. Therefore, their use is also public. Ponds are a good source for collecting rainwater. Some ponds are built adjacent to the village, while some are built a little farther from the village. Pond water is multipurpose. It is used by people and animals for bathing. Animals quench their thirst from these ponds. Women rely on ponds and rivers for washing clothes. Pond water is used for irrigation. The bathing times for women and men in the pond are fixed separately. In Munda villages, ponds are traditionally the main source for bathing, washing clothes, and irrigation. Even if there are hand pumps or taps in the village, the use of ponds does not stop. Ponds also have fish and snails which are used as food. You can use the fish and snails from the pond for personal use as well. Ponds also hold religious and cultural significance. During the **Roghar** festival, women break a pot at the village boundary and, on their way back, bathe in the pond along the way so that diseases and evil spirits stay away. Pond water is also used in worship and purification. That is, for the Munda community, a pond is not just a source of water, but is also connected to cleanliness, food, culture, and daily discipline. When a newly married couple comes home after marriage, on the second day they have to complete the "**banasna**" ritual in the pond itself. In this way, we see that the pond plays an important role in the life of the Mundas.

**5. Medbandi Technique (Contour Bunding)** - The Munda tribe living in hilly areas uses the medbandi technique. In this, bunds are made according to the slope of the land, which slows down the flow of rainwater. Due to the medbandi technique, soil erosion is prevented. Water percolates into the ground and the fertility of the land is maintained. This technique is helpful not only in water conservation but also in increasing agricultural production. That is why the Munda tribe practices terraced farming in the mountains. The Munda community makes small pits and channels to allow rainwater to seep into the ground. These pits hold the water and let it gradually seep into the ground, which increases the groundwater level. This technique is especially useful in areas where water flows rapidly.

**6. Forest Conservation Technique** - The Munda tribe does not limit water conservation to only structural measures, rather they consider forest conservation an important part of water management. They impose a ban on cutting trees around water sources and plant new trees. Trees attract rainfall and help water to percolate into the ground. The life of the Munda community is deeply connected to the forest. For them, the forest is not just wood or a resource, but a deity, ancestors, and life-giver. That is why their forest conservation techniques are based on tradition, religion, and collective discipline.

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1. **Sarna** – The Concept of Sacred Grove. Every Munda village has a Sarna site – a part of the forest that is considered the most sacred. **Rules:** Using an axe, cutting trees, plucking leaves, and hunting are completely prohibited in the Sarna forest. Only the village Pahan can take a few flowers or leaves for worship during Sarhul, karma and other festivals. It is believed that the village deities and the spirits of ancestors reside here. Harming it brings calamity upon the entire village. This technique preserves biodiversity hotspots without any formal law.

2. Community Rules and Punishment System - Selective harvesting: Only dry twigs and fallen trees are taken for firewood. Cutting green trees is forbidden. Limited to personal need: Wood/leaves from the forest can be taken only for household use, not for selling. Collective monitoring: The entire village together guards the forest. If anyone breaks a rule, the Panchayat/Hatu Sabha punishes them – with a fine or social boycott. Control on grazing: Animals are prevented from grazing in areas with new saplings so the forest can regenerate.

3. Buru Bonga and Hill Conservation- The Munda people consider hills to be Buru Bonga, i.e., the Mountain Deity. Once a year, Buru bonga is performed, during which a vow is taken to plant trees on the hill and not to set fires. Instead of shifting cultivation, permanent terraced farming is promoted on hills so that the forest does not have to be burned every year.

4. Reforestation through Traditional Knowledge:- Scattering seeds: While walking in the forest, seeds of mahua, karanj, sal, and mango are deliberately dropped. Promoting sacred trees: Trees like sal, karam, and jamun are never cut because they are religiously associated. This naturally maintains a mixed forest. Fire protection: In summer, village youth together create fire-lines – they clear a 10–15 feet wide strip in the forest to prevent fire from spreading.

5. Understanding the Water-Forest Connection-Mundas believe "if the forest remains, water will remain". Therefore, cutting trees in the catchment area of daari, dobha and dams is strictly prohibited. Bamboo and jamun are planted along rivers and streams – jamun roots bind the soil and its leaves help clean the water. The foundation of the Munda's forest conservation technique is the "give before you take" rule. If you take 1 tree from the forest, plant 2. Their technique does not require the forest department or law – community faith and fear itself is the biggest guard. This is why dense sal forests still survive in Munda-dominated areas of Jharkhand.

**Suggestion** - In today's time, there is a need to integrate these traditional techniques of the Munda tribe with modern science, such as developing the dobha with a scientific design. Using modern water management techniques in the ahar-pyne system can make water conservation even more effective. In the present time, due to climate change and a growing population, the water crisis is increasing day by day. In such a situation, the techniques of the Munda tribe can prove to be extremely useful. Water can be conserved at low cost in a way that is environmentally friendly. This will promote community participation. Due to the impact of modernity and urbanization, the use of these traditional techniques is declining. The younger generation is moving away from them, so it is necessary to document these techniques. The government and institutions should promote them and they should be included in education. The traditional water conservation techniques of the Munda tribe are an excellent example of balance with nature and community cooperation. These techniques not only present a solution to the water crisis but also teach us that the path of development is possible only in harmony with nature.

**Conclusion** - The biggest feature of the Munda tribe's water conservation technique is community participation. They establish collective ownership of water sources. They have rules for water use, and violation of these rules results in social punishment. Because of these rules, water is not misused and everyone gets water equally.

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