



Research Paper

Environmental Value of Social culture for Modern Forest Management and Implication of the Forest Rights Act. A Case study of Bagidora Forest range Southern Rajasthan

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ABSTRACT

Forest is an essential part of the cultural landscape and natural resource, linked with traditional communities' livelihood concerns. In the age of globalization, forest resources are rapidly being degraded. Forest managers, planners, policy-makers, and the scientific world have too long ignored and denigrated this valuable traditional knowledge of indigenous communities. Holders of traditional knowledge face an uphill battle in most parts of the world to protect their lands and their practices from political, economic, social, cultural, and environmental pressures. Growing awareness of the importance of forest resources' ecological, social, and cultural values supports increased recognition of traditional knowledge and justification towards traditional communities. Traditional knowledge is an alternative knowledge system that complements formal forest science and has a vital role in our quest for sustainability at personal, local, regional, and global levels. In India, the government has enacted the Scheduled Tribes and Other Traditional Forest Dwellers Act 2006. The present paper aims to know the contribution of traditional knowledge to modern forest management and connotation of the Forest Right Act 2006 in the Bagidora forest range of southern Rajasthan, where traditional knowledge acts as an essential ecological tool of biodiversity conservation.

KEYWORDS: Traditional Knowledge, Forest Rights Act, Indigenous people, Forest Management.

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I. INTRODUCTION

The current trend towards decentralization is a unique opportunity for local natural resources management, particularly for forests. Moreover, the scientific approach of forest management has been replaced with progressive, participatory forest management in many countries [1], [2], and [3]. Eight percent of India's populations are dependent on forest resources for their livelihoods. The practice of community participation in forest management and the concept of customary law among tribal people show a similar idea [4]. Globally about 60 million indigenous people are dependent on forests. About 350 million people who live in or adjacent to dense forests depend on the forest to a high degree for subsistence and income [5]. The participatory approach received increasing recognition following the international post-Rio forest dialogue, where the term participation was integrated as an essential component of sustainable development. In their National Forest Program, many developing countries accepted the role of people's involvement in forest management within a pluralistic entity [6]. The sacredness of fauna, flora, and sites is a common practice of biodiversity conservation in India. People in the southern part of Aravali have a perfect traditional resource management system in their habitat corridors. These places are the main centers of religious and cultural activities of villagers [7].

The total number of sacred natural sites is unknown; a global estimate above a quarter of a million, approximately 50,000 sacred groves have been reported in India [8]. These sacred groves are self-fenced areas. They yield so many benefits to the local community. Local people can get herbal ethnomedicine, limited water sources, and fallen woods for emergency needs without greed. These places are good models of in situ conservation of biodiversity [9]. Sacred natural sites are considered an additional pillar for biodiversity conservation next to the protected areas network. However, sacred landscapes are not primarily conservation areas but exist for cultural and social reasons [10]. In recent times, the increased knowledge of the ethnic communities and social scientists' culture is interested in ethnomedicinal studies [11]. The F.R.A. [12] has the

potential to recognize the diversity of use, access, and conservation practices of traditional knowledge that have contributed to the conservation of forests and their biodiversity. Community conservation initiatives play a fundamental role in the preservation of ecosystems, wildlife habitats, and biodiversity. South Asia is the home of more than 20% of the world's population and is known for its rich cultural diversity and biodiversity. A home garden is a small-scale socioecological and traditional land-use system, which involves managing useful plant species within the area of an individual home [13], [14] and [15]. Sociocultural values, ecological values, and economic values are the main pillars of Sustainable Forest Management in Europe [16]. Appreciation of biological, cultural heritage in forests can promote interest and learning of forests and their values. Natural culture will be informative for developing sustainable conservation programs for all biota in forests [17].

The traditional knowledge base is now gaining more and more recognition and credibility as the basis for expanding community involvement in forest conservation and management [18]. An ethnoforestry element is an example of traditional biophilia of ancient human cultures that express a tendency to love and respect nature and mother earth. The conservation of biodiversity through local realities of traditional societies in the Banswara dates back to millennia [19]. A global forest tenure transition is underway with declining state tenure of previously appropriated forested landscapes and increasing citizen tenure. At some Andhra Pradesh places, struggles are observed for Scheduled Tribes and Other Traditional Forest Dwellers Act 2006. Considering the implementation processes in Andhra Pradesh, the extent to which rural people in forest areas have access to the act's provisions [20]. It is necessary to work with indigenous peoples and local communities to provide legal tools and various forms of protection of traditional knowledge and achieve international consensus on the solutions. Ethnobotanically useful species in the vicinity of homes have a long tradition of inhabitants. Homegardens have received a reasonable amount of research attention [21], [22], and [14]. Ethnic people have a very close relationship with the forest, and their life and sustenance are harmonized with available forest resources [23]. This study's key elements are recognizing the linkage of the indigenous worldview, and traditional knowledge with the conservation of biodiversity, landscapes in the Bagidora forest range of southern Rajasthan.

II. MATERIALS AND METHODS

This study was carried out in tribal villages Haijamal and Bhurakuwaitala of Bagidora forest range of semi-arid Banswara district in southern Rajasthan, India (Fig. 1). The data collection was carried out in the year 2009. Semi-structured questionnaires, interviews, and discussions were used. The questionnaire included both open and closed questioning. Interview conducted in local language Vagadi and Hindi also. This study is mainly based on field study, site observation, and villager's views. During the study, 15 field trips were conducted. A scaling method was used in close questioning to measure people's participation. Response descriptions against each item were given on a 4-point Likert-type scale (always, mainly, rarely, and never). The villages of this area are composed of several phalias, hamlets spread across hillocks and ridges of the Aravalli mountain belt. Haijamal village has approximately 400 hectares area while Bhurakuwaitala village has around 1200 hectares area (because this village is divided into Bhurakuwaitala - A and Bhurakuwaitala - B) undulating terrain. This demarcated forestland was the land claim's object under the Forest Rights Act [12] and traditional activities of inhabitant related to biodiversity conservation. Officials of the Forest department and Revenue department working at the study sites were also interviewed to understand their perception of the Forest Rights Act's effect and role of traditional knowledge in biodiversity conservation (in-situ and ex-situ).

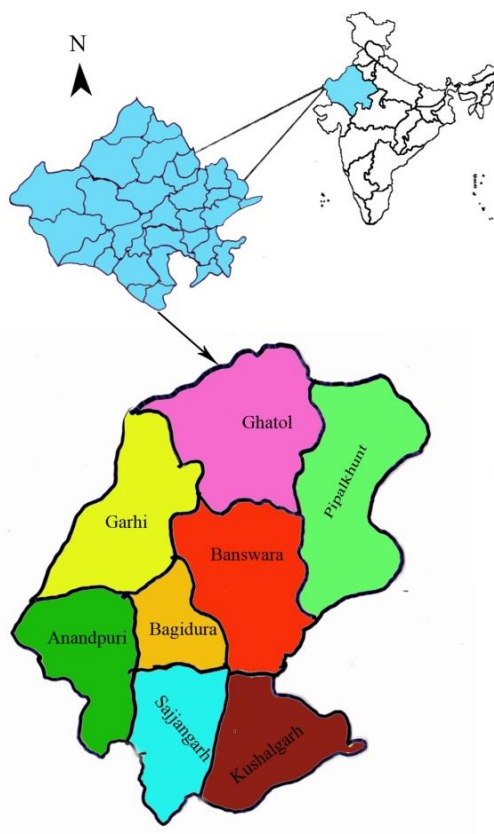


Fig. 1 Map of location of study area

III. OBSERVATIONS

The significant observations were based on the views of interviewees (Table -1).

| S.N. | Particulars | Village Hajamall | Village Bhurakua | | Total N. of respondents |
|------|------------------------------------|--|--|--|-------------------------|
| | | | Bhurakua- A | Bhurakua- B | |
| 1 | Women Interviewed | 45 (above 30 years) 25 (below 30 years) | 50 (above 30 years) 35 (below 30 years) | 60 (above 30 years) 40 (below 30 years) | 155 100 |
| 2 | Men Interviewed | 70 (above 30 years) 45 (below 30 years) | 75 (above 30 years) 40 (below 30 years) | 80 (above 30 years) 55 (below 30 years) | 225 140 |
| 3 | Representatives of gram panchayats | 02 | 01 | 04 | 07 |
| 4 | Traditional healers | 02 | 03 | 03 | 08 |
| 5 | Total | 189 | 204 | 242 | 635 |

Table – 1. Shows the status of interviewees.

The traditional health knowledge of the study area was closely linked to the availability of bioresources. Medicinal plants for healthcare were derived by continuous access to and observation of natural resources. Sacred groves were also an ordinary local reality in this area. Haijabavsi and Bavsipada Mata Ji are the main holy places of study villages. Several sacred trees were also observed (Table- 2).

| S.N. | Local Name | Botanical name |
|------|------------|----------------------------|
| 1. | Aam | <i>Mangifera indica</i> |
| 2. | Arjuna | <i>Terminalia arjuna</i> |
| 3. | Ankra | <i>Calotropis gigantea</i> |

| | | |
|-----|-------------|--------------------------------|
| 4. | Ashok | <i>Saraca indica</i> |
| 5. | Bilva | <i>Aegle marmelos</i> |
| 6. | Bad | <i>Ficus bengalensis</i> |
| 7. | Kamal | <i>Nelumbo nucifera</i> |
| 8. | Kaner | <i>Nerium indicum</i> |
| 9. | Kadam | <i>Anthocephalus chinensis</i> |
| 10. | KalpVirkash | <i>Boswellia serrata</i> |
| 11. | Nibu | <i>Citrus medica</i> |
| 12. | Pipal | <i>Ficus religiosa</i> |
| 13. | Rudrakha | <i>Elaeocarpu</i> sp. |

Table – 2. Sacred trees

In the study area, so many herbal healers were busy in their profession. The study area's healers used the whole plant, leaf, resin, rhizome seed, root, bark, latex, bulb, etc., for ailments of inhabitants and livestock (Table -3).

Table – 3. Common Medicinal Plants and Ailments

| S.No. | Botanicalname | Ailments | Useful part |
|-------|--------------------------------------|-------------------------------------|-------------|
| 1. | <i>Acaciacatechu</i> (L.f.)Willd. | Asthma,bronchitis | Root,bark |
| 2. | <i>Aeglemarmelos</i> (L.) | Dysentery,diarrhea,fever | Fruit,bark |
| 3. | <i>Alpiniagalanga</i> (L.)Willd | Healthtonic | Bulb |
| 4. | <i>Andrographispaniculata</i> | Malaria,livercomplaints, | Whole |
| 5. | <i>Aquillariamalaccensis</i> | Toremove the fishspinefrom | Leaf,resin |
| 6. | <i>Artemisiamaritima</i> (L.) | Antiseptic,bloodpurifier | Whole |
| 7. | <i>Asparagusracemosus</i> Willd. | Dysentery,cough,cutand | Root |
| 8. | <i>Bacopamonneri</i> (L.) | Braintonic,bloodpurifier, | Whole |
| 9. | <i>Berberisaristata</i> (D.C.) | Eyediseases | Root,stem |
| 10. | <i>Chlorophytumtuberosum</i> | Leucorrhoea,sexualtonic | Tuber |
| 11. | <i>Coleusbarbatus</i> Benth. | Tonic,bloodpressure | Root |
| 12. | <i>Commiphorawightii</i> | Asthma,typhoid | Resin, bark |
| 13. | <i>Curculigoorchoides</i> | Asthma,dysentery,tonic | Root |
| 14. | <i>Curcumazedoaria</i> | Jaundice,bloodpressure | Rhizome |
| 15. | <i>Gloriosasuperba</i> L. | Snakebite,leprosy,tonic | Rhizome |
| 16. | <i>Gymnemasylvestre</i> (Retz.) | Gastricdisorders,eyediseases | Root,leaf |
| 17. | <i>Ocimumsanctum</i> L. | Fever,livercomplaints,bloodpurifier | Seed,leaf |
| 18. | <i>Phyllanthusamarus</i> Schum&Thonn | Jaundice,aphrodisiac,dysentery | Whole |
| 19. | <i>Phyllanthusemblica</i> L. | Constipation,diabetes,tonic | Fruit |
| 20. | <i>Picrorhizakurrooa</i> Benth | Headache,fever,dysentery,anemia, | Rhizome |

Hedge plants recorded from the study area included shrubs and deciduous climbers. The tribes of this area traditionally use these plants as biofencing and other traditional uses. Among the distribution of hedge plants, thorn species were widespread, with 85% occurrence followed by *Jatropha*, *Caesalpinia bonducs* species, etc. These hedge plants have the potential of the least medicinal value and soil conservation. It was also observed that the *Citrus limon*, *Lycopersicon esculentum*, *Cucumis sativas*, *Capsicum annum*, *Benincasa hispida*, *Loofa acutangula*, *Cyamopsis tetragonoloba*, *C. psoralioides*, *Momordica charantia*, *Raphanus sativus*, *Moringa oleifera*, *Aegle marmelos* (rarely), *Carica papaya* (commonly), *Ziziphus spinosa*, *Coccinia grandis*, *Syzygium cumini*, *Solanum melongena*, cauliflower, *Zea mays*, *Pisum sativum*, *Phaseolus vulgaris* and *Bambusa sp.* were very common in their home gardens. Maize was cultivated across a range of agro-ecosystems, including uplands and lowlands irrigated land and rain-fed landscapes. The tribal community gets two crops of maize per year in the study area. It is a very remarkable practice of agroforestry. Kalikamod species of rice was cultivated in this belt, but now – a – days its cultivation is declined; it is a fundamental question of further research. Except for these findings, various flora and fauna were observed from the study area conserved here due to customary knowledge. Plate 1 (of the photograph) is also in support of observations.



A. *Sturnus contra*



B. *Phoenicopterus minor*



C. *Cinnyris asiaticus*



D. *Neophron percnopterus*



E. *Grus antigone*

AVIAN BIODIVERSITY OF STUDY AREA

Plate – 1. Avian Biodiversity of Study Area.

IV. RESULT & DISCUSSION

Traditional knowledge is an essential treasure because it works as a link to nature's management and modernization. Everything of this knowledge is interconnected, inter-dependent, complex, and flexible in favor of nature. Ethnobotanical uses of these communities' plants deserve attention for the in-situ and ex-situ conservation of biodiversity. It is noteworthy that the traditional use of plants and some animals is an integral part of inhabitants' traditional knowledge. Sacred groves are good models of community forest management. They are segments of landscape containing faunal, floral, microbial biodiversity, and geographical features that were delimited and protected by indigenous communities. They believe that to keep them in a relatively undisturbed state because these are models of the divine and nature's relationship. Findings of this study of sacred groves corroborate with the determination of [7]-[10] and [24]-[27]. Indigenous communities of this area grow plants for biofencing to protect their crops and home gardens. The presence of thorns, spines, prickles, stinging hairs, and profuse branching of these plants makes the biofences strong and effective. These plants have soil binding capacity and are efficient in strengthening crop fields' soil boundaries and home gardens. These results correlated with the study of [27]. Plants of the home garden are beneficial to their day-to-day life. These customary practices of the home garden of tribal communities are not only to provide daily food needs but also well and fair, sustainable use and conservation of biodiversity and gene pool. Results of the home garden are in favor of findings of [28].

The information on the herbal healers and various aspects of folklore medicines used by the inhabitants have been noticed in the study area. Some plants have been used for therapeutic use against wounds and related injuries such as cuts, burns, bruises caused by external damage, boils, sores, abscess, and wounds created during delivery. Herbal healers of this area use leaves, roots and bark most frequently. This finding shows similarities with the determination of [19] and [29]. Four Haijama village families (letter no. 137, 138, 139, 140 dated

02/02/2009, khasara no. 534/3) and two families of Bhurakuwaitala (letter no. 142 and 143 dated 02/02/2009, khasara no. 102 and 314) got ownership benefits under the act F.R.A. 2006. It makes a beginning towards giving a voice and importance to the role of tribal communities in forest and wildlife conservation. This region's tribal communities have conserved species of served flora of species and pioneering practices to meet evolving food security, gene pool conservation, and environmental conservation. Nature's worship had been a critical force in shaping human attitudes towards conservation and sustainable utilization of our valuable natural resources.

V. CONCLUSION

The indigenous people of these forested areas still hold and follow various nature-based religious beliefs and traditional knowledge. Using this traditional knowledge as the basis, scientific research and Information can be integrated to provide a sustainable development strategy. As a result of globalization and modernization, energy-subsidized and intensive agricultural practices will be expected. Sacred groves are also useful for the propitiation of deity spirits, totemic objects biotic and abiotic, an assertion of group identity, establishing new alliances, the supply of medicinal plants, and moral support. A wide range of plants with ethnomedicinal value against some important diseases has been reported, but much larger folk medicines have remained endemic to some ethnic pockets.

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