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Melghat Forest: Environment and Ethnobotanics, a Sustainability Mechanism as Protected Area

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Abstract

Science has attempted to classify and categorize the variability in nature for over a century. This has led to an understanding of its organization into communities of plants and animals. This information has helped in utilizing the Earth's biological wealth for the benefits of humanity and has been integral to the process of "development". This includes better health care, better crops and the use of these life-forms as raw material for industrial growth, which has led to a higher standard of living for the developed world. However, the modern consumerist society, which adversely affects the diversity of biological resources upon which it, is based. The diversity of life on Earth is so great that if we use it sustainably we can go on developing new product from biodiversity for many generations.

Protected Areas (PAs), i.e. Wild Life Sanctuaries, National Parks and Reserve Forests are supposed to protect biodiversity. On paper they cover slightly more than 5 percent total area of the India. In reality, all of them are inhabited by substantial numbers of human being to interact with these ecosystems in various ways. In addition, these protected areas are threatened by civilizing, commercial and technological forces which wants to use theses landscapes for purpose other than sustainable resource – the biodiversity. Melghat Reserve Forest due to their intactness the Ethnobotanics i.e. medicinal plants utilized by the tribal become a sustainable technique for the people. Protected areas, in this regard are the unique part of strategies for development not only local but global too.

This paper is an effort to highlight the role of protected area in biodiversity and environment preservation and especially

ethnobotanics importance, as a strategic step towards sustainable development.

Keywords: Biodiversity, Ethnobotanic, Mechanism, Sustainable, Strategic.

1. Introduction

Preserving forests contributes to both environmental stability and biodiversity goals. Yet other forest values are independent of these –namely as human habitat and repository natural resources. Although all these values may be present together in the intact forest, different management strategies emphasize over the others. Similarly, management strategies such as extractive reserves (Protected Areas) can preserve important habitant values while still providing subsistence and commodity values to human populations to their sustainable development.

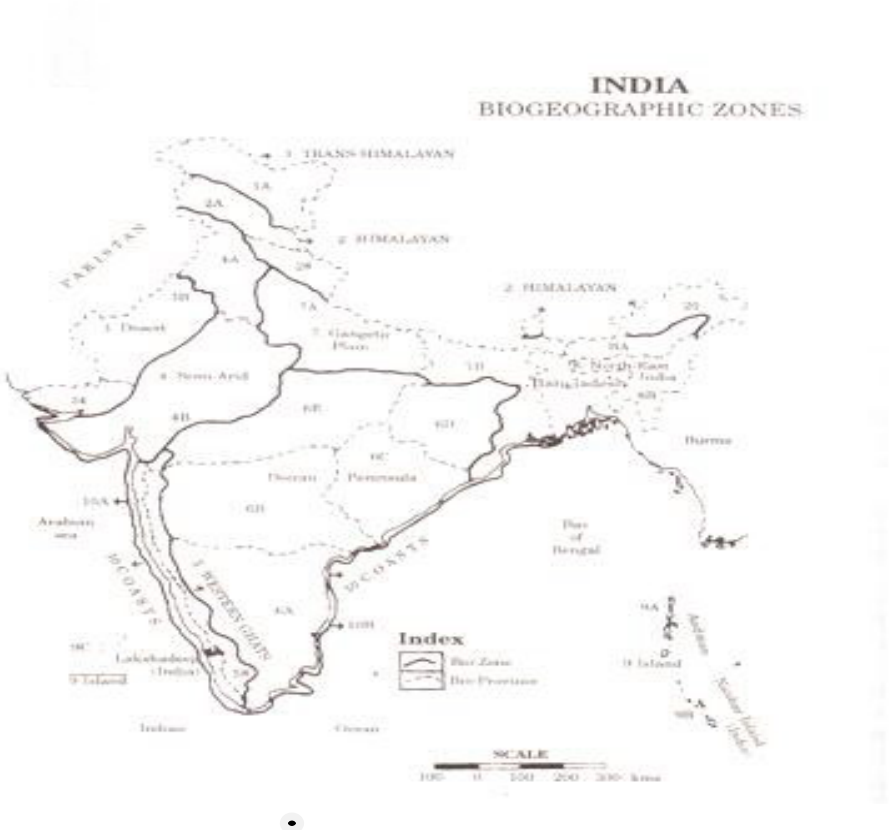

Figure 1: Melghat Location in Biogeographical Zones of India.

Protected Area Data Unit (PADU) of the World Conservation Monitoring Center (WCMC),world heritage at Risk draft (WCMC) reference to parks and reserves encompassed 377 world heritage sites (2001) established are areas “of outstanding

universal value" inscribed either for their natural features, for their cultural value or for both natural and cultural values. Recreational, educational, and scientific activities are generally permitted. Cultivation, grazing, settlements, mining, and other commercial activities are allowed within specific zones of some sites on limited basis. The scope of activities permitted is indicated by the types of IUCN Protected Areas included within individual heritage site boundaries. India's all Protected Areas are of 359 out of 59 are totally Protected Areas (IUCN categories-I-III) covering 3525000 ha. 4.1 percent of National land area protected. Protected Areas include National Parks and Wildlife Sanctuaries. In 1960 there were 60 sanctuaries and national parks in India. Their number has grown to 421 sanctuaries and 75 national parks including 20 Tiger Reserves. It is proposed to bring this number to 633 sanctuaries and 147 parks as per existing plans and impact of the protected areas. Melghat Forest region in Maharashtra declared as Tiger Reserve in 1974, one of the first nine Tiger Reserves (MTR) include in the project.

2. Study Area

The Melghat region of Amravati division has some of the best moist deciduous forest of the State. This tropical moist deciduous forest also known as Southern Tropical Moist Deciduous. This occurs in areas with 1000 to 2500 mm of rain. This found in Melghat region as well as Chandrapur and Bhandara and the slopes of Western Ghats that sprayed into Nasik, Thane, Dhulia and Kolhapur districts.

Figure 2: The Study Area.

The soils in this forest are radish brown and the slopes under fairly high rainfall permit leaching of soils making them poor in time and alkalis. The pH value ranges between six and seven. The most important species in these forests is Teak (TectonaGrandis). Infrequently, is found replaced by teak stands planted by forest department. This forests provide timber, are well protected by forest department, and from the principal source of revenue. Teak forests occupy over 11500 sq. km. area which is about 1/5 of the area under forest department. Other species in the moist deciduous are Ain (TerminaliaTomentosa), Haldu (Adinacordifolia), Bondara (Logerstroemiaparviflora), Kalam (StepheygyraeParvifolia), with a sprinkling of bamboos in certain areas that from the under-storey. Apart from these species like Tiwas (ougeiniadalbergioides), Khair (Acasia Catechu), Shivan (Gmelinaarborea), Dhawada (Anogeissuslatifolia), Salai (Boswellia catechu),Shivan (Gmelinaarborea), Salai (Boswellia Serrata), Moin (Lanneagrandis), Rohan (Soymidafebrinfuga), Babul (AccasiaArebica), Palas (Buteamonosperma), The northern slopes receive heavier rainfall during winter, whereas the southern slopes are virtually devoid of it. Thus in general, north phasing slope with better space rain accordance for more luxuriant vegetation than in south over 80% of the area of Melghat is under forest.

The principal associates are saj (Ain), lendia, Dhawada, mowal, Haldu, Tiwas, tendu, shrubs such as Azenza lampas, Grewiasp, strobilanthescallosa, and Securinegavirosa are found. Trees of excellent height and girth are found in lowlyingareassuch as Kuwapati and Chunkhadi while they show poorer growth on the Slopes. Salai forests, in which Salai is the main tree species, are found in the western parts of the tiger reserve. Besides these forests are a few, grassy meadows scattered all over especially on the flat hilltops known as Balla's. There are also a number of villages with associated cultivation and cattle.

Ecologically several types of forests can be identified in Maharashtra. This accord with the classification suggested by Champion and Seth, and takes into consideration the amount of rainfall and soil moisture in an area, and the morphological characteristics of the member trees. Of the sixteen groups suggested by Champion and Seth, the forests of Maharashtra find a place at least in five groups.

i) Tropical Evergreen Hill Forests and Western Sub-tropical Hill Forests, ii) Tropical Moist Deciduous, iii) Tropical Dry Deciduous, iv) Tropical Thorn Forest, v) Littoral and Tidal Swamp Forest

Table 1: Forest areas owned by different agencies in Maharashtra are shown below in the

Agencies administering the forests	Forest areas by legal status sq.km.				%to the state's geographical areas
	Reserved	Protected	Un-classed	Total	
1.Forest department	34,253	15,304	2,449	56,006	18.20
2. F.D.C.M.	1,051	93	40	1,183	0.38

3.Revenue Department	1.459	161	3,528	5,148	1.67
4.Private forests	1,741	..	..	1,741	0.57
Total	**42,504**	**15,557**	**6.017**	**64,078**	**20.82**

3. Database and Methodology

The present study based on both the primary and secondary data collection. The scope and nature of the present study though ample and applied; the analysis is restricted to the sustainability mechanism of the Reserve forest in the sustainable development of the nation as well as ethnobotanics of the forest and utility to the tribal people. Field visit, questionnaires, interview with local people, volunteers and NGO's conducted. Involvement of forest official, their data and publication utilize. Other scholars work and renowned published literature referred. Apart from, PADU, WCMC, IUCN, WWF, NTCA, WII, NBWL and NGO's report reviewed. For spatial lyres satellite data and quantitative techniques utilized for appropriate maps and diagrams.

3.1 Study Review

As early as 1950, it is Dr.JankiAnmal Chalked out programmes for ethnobotanical survey of India. In context with the global awareness about environment and natural resources, the ethnobotanical work has been greatly intensified in recent years. During last 50 year vast ethnobotanical information has been collected as a result of individual and institutional efforts. Realize the importance of such documentation Ministry of Environment and Forests launched an all India co-ordinate project on Ethnobiology in 1982, involving 42 research centers of the country. The outcome of project is most fantastic, over 9500 wild plant species, used by tribal for meeting their varied requirements, have been recorded. Ethnobiology in India-A Status Report published by Ministry of Environment Forests has noted a total of seven tribes from Maharashtra. However there is no mention of the Korkutribe.i.e. Dr.Prabha and others done the first detailed survey of Korku tribe from Melghat. Melghat is famous tiger reserve. It has a long history of Management. Here teak grows naturally but credit for planned teak forest goes to Ballamtyne, a graduate from Edinburgh School of Forests, who came to Melghat in 1868. Since then the forests, have enjoyed the status of managed reserved forest, and teak has been commercially exploited. Total of 715 species belonging to 424 genera are reported from Melghat. The generic coefficient for the Flora of Melghat comes to be G=424/715 x 100=59.30% .This high percentage of generic coefficient indicates that the present composition of the area is result of intense inter-genetic and intra-generic competition.

4. Discussion

Ethnobotanical Survey of Melghat forest was carried out in collaboration with Melghat Prakalpa ZillaParishad, Amravati; especially for medicinal plants. 198 Species of ethnobotanical interest have been identified. Of these 29 are used as vegetables.

Begonia crenata if cultivated can be exploited as ornamental for its beautiful flowers as well as for its tasty leaves as table green salad. Celosia argentia can be grown without and special care and is a tasty vegetable. Seeds of B.Wahli are nutritious, tasty and with high calorie value, since handful of roasted seeds are sufficient for one person for a day. It will be worthwhile to carry out chemical investigation of these plants and calculate their calorie values. They may form a table fancy for city people. Another important thing to be noted for these vegetables is that, some of them have medicinal properties also. 16 species are medicinal out of these 138 are dicots belonging to 50 families and 31 monocots belonging to 11 families. Nearly 79 species can be classified as medicinal plants with novel use. Nearly 274 ethnobotanical and medicinal plants works were referred to conclude this. Every plant in itself is a huge biochemical laboratory synthesizing hundreds of chemical compounds. No plant has been assessed that completely. For 29 plant species no reference was found in the literature study. There has classified unique Korku Medicine and of 2912 belong to monocots. Use of monocots drug is not that common. The Plants mostly used by the tribal as a medicinal value are as the following

This extensive ethonomedicinal survey was conducted in the rural and tribal pockets of Melghat wildlife area which includes places like Madizadap, Raipur, Semadoh, Makhala, Pili, Memana, Kund, Churni, Pastalai, Vairat, Malor, Bari, Dharghar and Gullazghat.

Table 2: Plants Used By Tribal in Melghat.

Sr. No.	**Local Name**	**Botanical Name**	**Family**	**Parts Used**
1	Ritha	Sapindustrifoliatus	Sapindanceae	Fruits
2	BakanLimbdo	Meliaazedarach Linn	Meliaceae	Seeds
3	Alsi	Linumusitatissimum	Linaceae	Seed Oil
4	Nagod	Vitexnegundo Linn	Vebenacceae	Leaves
5	Shikakai	Acacia sinuataLour	Mimosaceae	Fruits
6	Brahmi	Bacopamonnieri Linn.	Scrophul-ariaceae	Leaves
7	Bhangro	Eclipta alba Linn. Hassk	Asteraceae	Leaves
8	Jasud (Jaswand)	Hibiscus rosa	Malvaceae	Flower
9	Amla	Emblicaofficinalis	Euphorbiaceae	Fruits
10	Dadhie	LagenariaSiceraria	Cucurbitaceae	Fruits
11	Karanj	Derriesindica Syn. Pongamiapinnata	Fabaceae	Seeds
12	Ingoriyo	Balanitesaegyptiacapierre	Balanitaceae	Fruits
13	Seetaphla	Annonasquamosa	Annonaceae	Seeds
14	Sarsav	Brassica campestries L.	Brassicaceae	Seeds
15	Kanda	Allium cepa L.	Liliaceae	Bulb

16	Neem	Azadirachtaindiaca	Meliaceae	Seeds & leaves
17	Korphad	Aloe barbadensis.Mill	Liliaceae	Pulp
18	Galo	Tinosporacordifolia (Wild) Miers. Emend.Troupin	Menispermaceae	Twigs
19	Arandi	Ricinuscommunis	Euphorbiaceae	Fruits
20	Bajro	Pennisetum	Poaceae	Seeds
21	Chana	Cicerarietinum L	Fabaceae	Seeds
22	Til	Sesamumindicum L.	Pedaliaceae	Seed Oil
23	Mango (Amba)	Mangiferaindica L.	Anacardiaceae	Seeds
24	Heena (Mehendi)	Lawsoniainermis L.	Lythraceae	Leaf

4.1 PA Sustainability Mechanism

The change the recognition of the global environment is now urging Protected Areas to play new role. These include the conservation of biological diversity and the contribution of protected areas to the mitigation of global warming. The importance of the conservation of biological diversity has been raised since a few years ago. This concept has integrated the concept of protected areas. UNEP, IUCN and WWF finalized the world conservation strategy under the titled “caring for the world a strategy for sustainability”. Following the first World Conservation strategy prepared in 1980, the second strategy further emphasized the interdependence of conservation and development taking full account of economic and social as well as ecological requirements of sustainability and thus outlines what individuals and governments can do to satisfy the needs of the people without lessening the earth’s capacity to support the future generations. The documents clarify the importance of protected areas in the context of biological diversity. It suggests completing and maintaining a comprehensive system of national parks and other protected areas, how they contribute to the human communities and what is needed to improve the management of protected areas, and strengthening demarcation of biographical zones.

In this context Melghat Tiger Reserve is an important Biosphere reserve, as an protected area in the State of Maharashtra with the potential to hold viable population of the tiger. Tiger conservation is priority for the State. Melghat Forests are dry deciduous forests of Central India. Melghat lies in Central Highland Biotic Province (Province 6E) of the Deccan Biogeographically Zone (ZONE 6). The forest is dominated by deciduous species. Tiger conservation as an apex ecological succession, there is need for monitoring tiger and its prey population in Melghat for assessing the impact of management interventions and external threats and as a tool for effective management decisions caring the biodiversity value in anticipation of sustainable development.

5. Conclusion

Protected Area sustainability mechanism implies that sustainable resource environment is the most powerful force of development. By sustainable resource environment is meant that a region must have the full knowledge of its resources, potentials, and prospects, must continue with its resource –based development and ensure resources implying sustainable mechanism. Resource development synchronization may key to sustainability. Likewise, it indicates that Melghat Reserve Forest of Maharashtra State is botanically exploring. The peculiar geographical position and physical features of the region gives an idea to a large extent of the extreme isolation of tribes people in the area are dependent on limited agricultural land and local plant product. Their immediate contact and dependence on nature has led to the development curious knowledge which ultimately is reflected in traditional culture, folklore, local belief and religion. Present survey and the study shows that there is much information still waiting to see the light of down in biodiversity of Melghat terrain.

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