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Research Article

Ecotourism opportunities and conservation challenges: A case study involving some lesser known protected areas of central India landscape

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ABSTRACT

Madhya Pradesh is a wildlife tourism destination in India. However, some Protected Areas are not developed, and their importance is not well-known. Weak management practices and low motivating factors for staff, lack of ownership among the communities were some of the restricting factors why they have not been able to develop to their full potential. In order to support their development, organizations having corporate social responsibility (CSR) funds were identified from various districts of Madhya Pradesh viz. Indore, Dhar, Satna, Katni, Singrauli and Dewas. The primary objective of this study is to throw light on their potential, to generate awareness about their potential and how they can be promoted to boost ecotourism with the help of all concerned stakeholders' participation.

Key words: Wildlife conservation, Corporate Social Responsibility, Wildlife Sanctuary, National Park

INTRODUCTION

Government of India formulated National Tourism Policy 2015 aiming at promoting the country as a honeymooners' paradise. India's new government under Prime Minister Narendra Modi has set tourism as a key sector to meet the overall objective of faster economic growth (Ohlan, 2017). Presently, the contribution of tourism in Indian economy is relatively low (Aramberri, 2004, Narayan *et al*., 2009). For instance, just 6.7 per cent of GDP originated in this sector in 2014 implying that there is a large untapped potential in the Indian tourism industry. India is one of the 17 mega diverse countries of the world. The occurrence of different kinds of ecosystems in different climatic zones e.g. forests, grasslands, wetlands, mangroves and desert together with species diversity, genetic diversity and cultural diversity makes India one of the mega diverse countries of the world (Mittermeier *et al*., 1997). Within the country, Madhya Pradesh has the largest area under forest, including eleven national parks, six of them given status of tiger reserves and twenty-four wildlife sanctuaries in the state. The famous protected areas like Kanha tiger reserve, Satpura tiger reserve and Bandhavgarh tiger reserve get more attention and tourist flow whereas the lesser known protected areas do not get into limelight. These lesser known protected areas have a lot of potential in tourism/livelihood generation opportunities but due to various reasons, their potential as tourist destination has not been fully explored. Therefore, a study was conducted at the behest of Madhya Pradesh Tiger Foundation Society (MPTFS) during April 2019 to June 2019 to assess the challenges and issues hindering such sites. These areas are already declared as wildlife sanctuaries by the state government but could not be developed as true ecotourism sites and genuine livelihood generation options, thus failed to realize their optimum potential. Exploring the corporate social responsibility (CSR) opportunities on the part of nearby industries/business houses for conservation and development of these protected areas was another objective of the research study.

MATERIALS AND METHODS

The study was conducted in six protected areas (Table 1) of Madhya Pradesh state. They lie in different districts covering large area of central Indian landscape inhabited mainly by local tribes who are living in these areas since time immemorial. The natural surroundings consist mainly of grasslands, woodlands, wetlands and somewhere open areas, devoid of vegetation due to heavy biotic pressures. Key informant interviews and focused group discussion were held with the local community, forest department officials and industry people for collection of primary data. Key informant interviews were held with people who have first-hand knowledge about the matter and focused group discussion is a tool where questions were asked about their perception or attitude about a specific issue.

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Table 1. Statistics related to lesser known protected areas

S No.	Name	District	Area (in Hac)	Notification year	Well-known for
1	Dinosaur Fossil National Park	Dhar	89.74	2011	Dinosaur egg, marine and plant fossils
2	Sadarpur wildlife sanctuary	Dhar	20344	1983	Breeding habitat for critically endangered Lesser florican
3	Gandhisagar wildlife sanctuary	Neemuch and Mandsaur	36800	1974 & 1986	Habitat for critically endangered vulture species
4	Ralamandal wildlife sanctuary	Indore	235	1989	Habitat for local animal and bird species
5	Kheoni wildlife sanctuary	Dewas	13400	1955	Habitat for 225 bird and 21 animal species
6	Sanjay-Dubri Tiger reserve	Sidhi	36500	1975	Habitat for 152 bird and 46 animal species

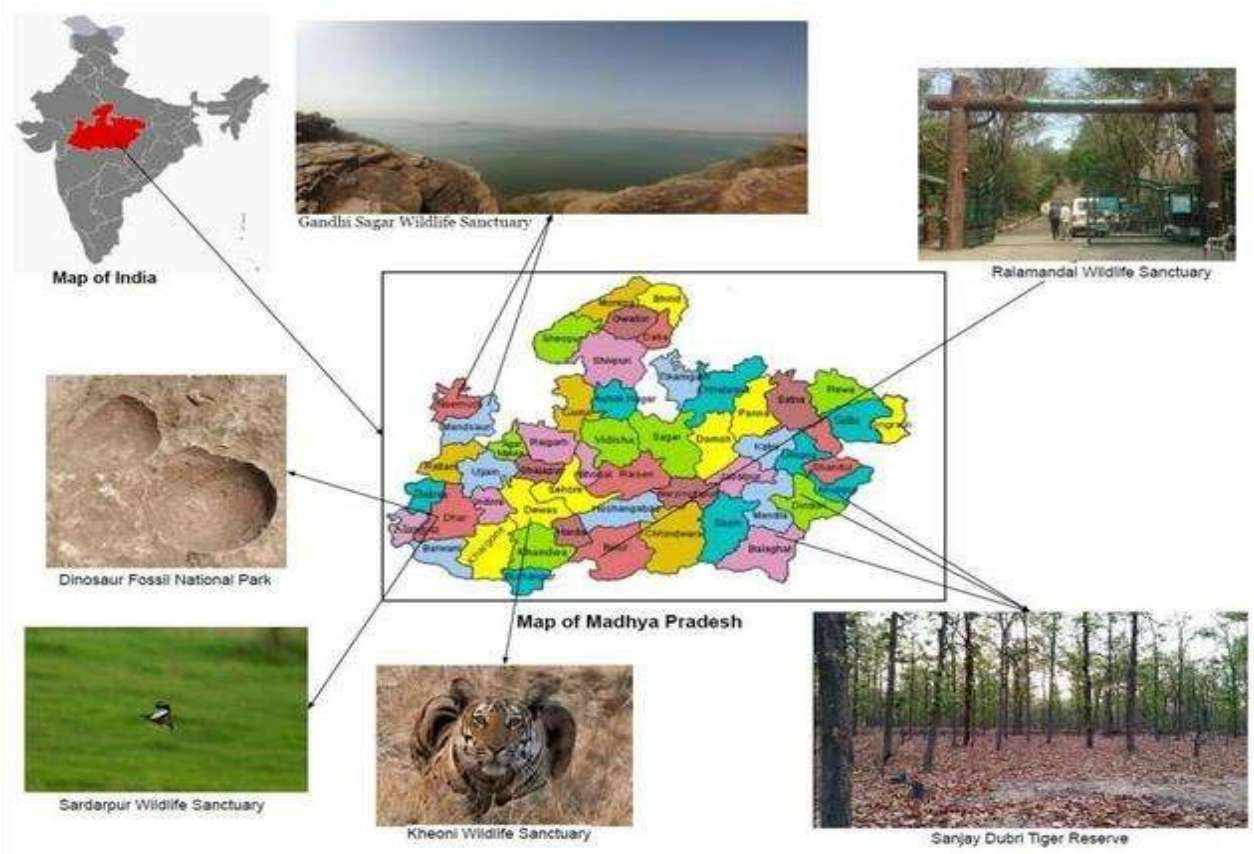

Figure 1. Study Areas

Description of sites

Dinosaur Fossil National Park (Dhar district) is one of its kinds in the state. Thousands of dinosaur egg fossils are found in and around the park. Their conservation is important not only from viewpoint of national significance but also from the historical and scientific research perspectives (Figure 2).

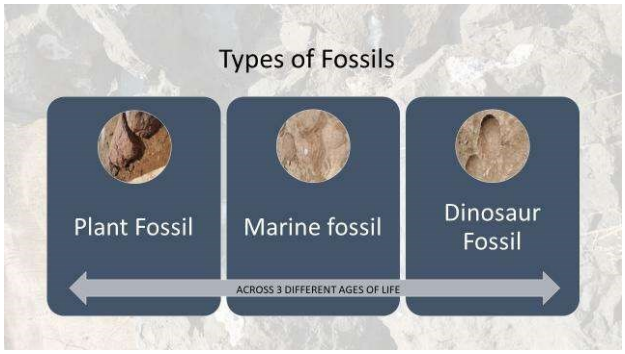

Figure 2. Types of fossil found in Dinosaur Fossil National Park

About 40 percent of park area is planned to be covered with floral diversity of three types: Dinosaur aged floral species like Peepal (*Ficus religiosa),* Coconut (*Cocus nucifera*) Floral species worshipped by Indigenous tribes (Bhil Tribe) like Semal (*Bombax Ceiba*) and Cactus Garden comprising of various cactus species. Nearby Bagh caves (located within one km radius) attract few hundred visitors annually. Therefore, if Dinosaur Fossil National Park is developed and maintained properly, both Bagh caves and National park would share the advantage of shared tourism. The age of the fossils ranges from 6.5 billion to 10 billion years.

sanctuary (Neemuch & Mandsaur districts) is classified as dry deciduous forest with about 15 species of animals, 226 species of birds and over 500 species of angiosperms (personal communication with local forest officials). Out of six species of vultures found here, two are of 'critically endangered' status (Table 2).

Winter season migratory birds in nearby Chambal river (Figure 4) add beauty and charm to the sanctuary and rocks on either side of the river makes a perfect habitat for vulture nests and breeding. Worshipping places like Takhaji temple and Bhadkaji temple & historical forts like Hinglajgarh fort and Chowrasigarh fort coupled with nearby rock paintings (Figure 5) attract few visitors annually but full potential is yet to be realized due to factors mentioned in next sections.

Table 2. Different species of vultures found in Gandhi Sagar Wildlife Sanctuary

Common vulture species	Scientific names	IUCN Red List Status
Egyptian Vulture	*Neophron percnopterus*	Threatened
Long-billed Vulture	*Gyps indicus*	Critically endangered
Cinereous Vulture	*Aegypius monachus*	Near Threatened
White-backed Vulture	*Gyps africanus*	Critically Endangered
King Vulture	*Sarcoramphus papa*	Least Concern
Eurasian Griffon Vulture	*Gyps fulvus*	Least Concern

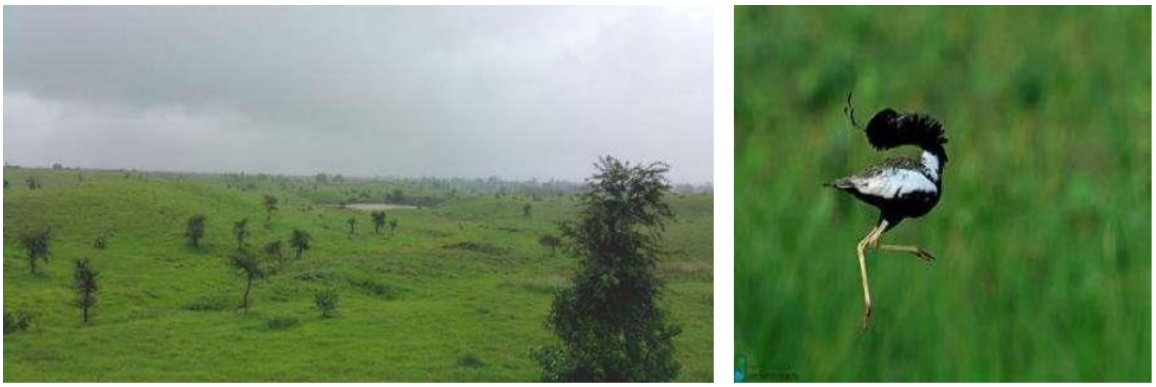

Figure 3. Panoramic view of Sardarpur Wildlife Sanctuary and a dancing Lesser Florican (Picture Credit: Rakesh Damor, SDO, Sardarpur and Happy's Click)

Sardarpur wildlife sanctuary (Dhar district) is mainly a grassland area providing perfect breeding habitat for the Lesser florican (Sypheotides indicus), a bird from 'Bustard' family having critically endangered status of IUCN Red list (Figure 3).

Besides Lesser florican, the sanctuary boasts of number of species like hare, mongoose, fox, jackal, squirrel and monkey. Among birds, owl (strigiformes), pigeon *(Columba livia domestica),* eagle *(Haliaeetus leucocephalus),* flamingo *(phoenicopteridae)* and bulb*ul (pycnonotidae)* are common (personal communication with local forest officials). Gandhisagar wildlife

Figure 4. Panoramic view of Gandhi Sagar Wildlife Sanctuary

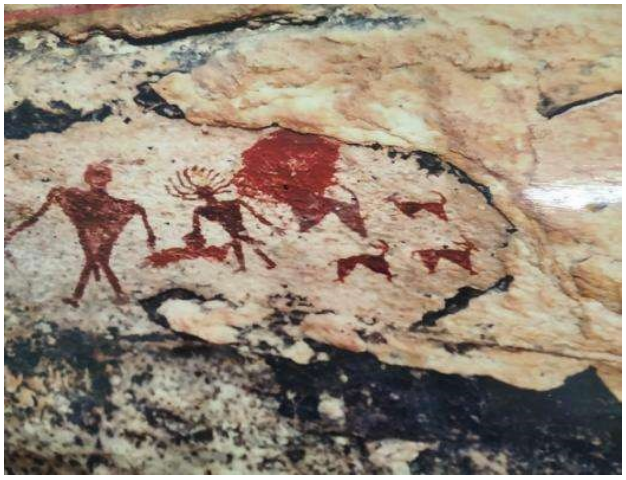

Figure 5, Rock paintings present on the walls of Chowrasigarh fort

Kheoni Wildlife Sanctuary (Dewas district) is surrounded by Vindhyachal ranges of mountains. Lush green valleys and ridges make it more scenic in rainy season. The sanctuary is home to approximately 21 species of animals with four tigers, twenty-five leopards and more than fifty jackals (personal communication with local forest officials). Other species include fox, sloth bear and hyena. Herbivores include chital (*Axis axis*), sambar, blue bull and wild boar. More than 225 species of birds are found, and five most common species spotted at the site were Plum headed parakeet, Chestnut shouldered petronia, Red vented bulbul, Spotted dove and Rufous treepie. Some lucky bird watchers may also locate Indian Paradise Flycatcher (Figure 6). Presence of beautiful valleys and ridges in the sanctuary make it a suitable place for trekking and nature trails. Few other locations attracting tourists include Lord Shiva temple, Balganga and some viewpoints present at hilltop forests.

Figure 6. A tiger about to jump over a prey and an Indian Paradise Flycatcher chirping on nearby tree (Source: DFO, Kheoni Sanctuary).

Ralamandal wildlife sanctuary (District Indore) is in urban landscape as it is hardly 11 km from the most prominent cities of the state i.e. Indore. The peak point in the sanctuary is about 800 m from Mean sea level, making it an attractive point for city view. Earlier the sanctuary was old Shikargah (hunting ground) of Holkars, king dynasty of Indore but now this place is home to more than 200 animal and bird species residing in it. Various tree species of ecological importance such as Teak (*Tectona grandis*), Shisham (*Dalbergia sissoo*), Saja (*Terminalia tomentosa*), Karanj (*Pongamia Pinata*), Jamun (*Syzygium cumini*), Imli (*Tamarindus indica*), Kachnar (*Bauhinia variegata*), Sitaphal (*Annona squamosal*), Neem (*Azadirachta indica*) etc. are available in abundance. Tourism facilities have also been developed for the tourists (Figure 7).

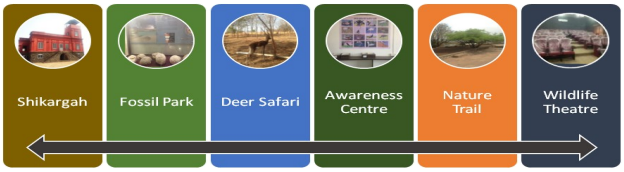

Figure 7. Tourism facilities at RWLS

The Sanjay-Dubri Tiger reserve (spread over Sidhi, Singrauli and Shahdol district) is known for its rich biodiversity of Sal and Bamboo mixed forest. There are about 152 species of birds,32 mammals, 11 reptiles and 3 amphibians (personal communication with local forest officials). Apart from tigers, the sanctuary supports sloth (*Melursus ursinus*), chital (*Axis axis*), chinkara (*Gazella bennettii*), Sambar (Rusa unicolor), jungle cat (*Felis chakus*), Hyena (Hyaenidae), Jackal (*Canis aureus*), Fox (*Vulpes vulpes*), Indian python (*Python molurus*) and Barking deer species. The area is divided in to eight forest ranges for administrative purposes. Some of the birds found are Golden Hooded Oriole (*O. xanthornus*), Racket Tailed drongo (*Dicruridae*), Indian Pitta (*Pitta brachyuran*), Rufus treepie (*Dendrocitta vagabunda*), Rumped vulture (*Gyps bengalensis*) and Nightjars (*Caprimulgus europaeus*).

Figure 8. Scenic view of Sanjay Dubri Tiger Reserve

Problem tree analysis

A problem tree analysis was undertaken to establish the cause–effect relationship between the problems of a sanctuary and the outcome. Root causes remain same at most of the places e.g. lack of awareness about importance of conservation, lack of livelihood options, lack of amicable and mutually acceptable solution to community's problems in the sanctuary area, lack of infrastructure facilities like water tankers, boundary walls, signboards etc., and lack of facilities for frontline government staff working in the sanctuary areas (Figures 9, 10, 11,12, 13 and 14).

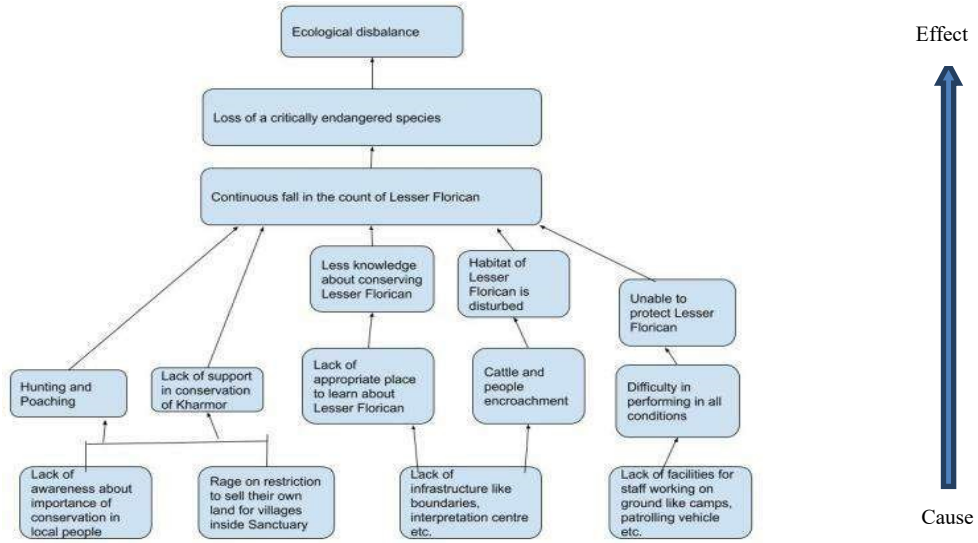

Figure 9. Problem tree analysis to locate hindrance in management of Sardarpur Wildlife Sanctuary

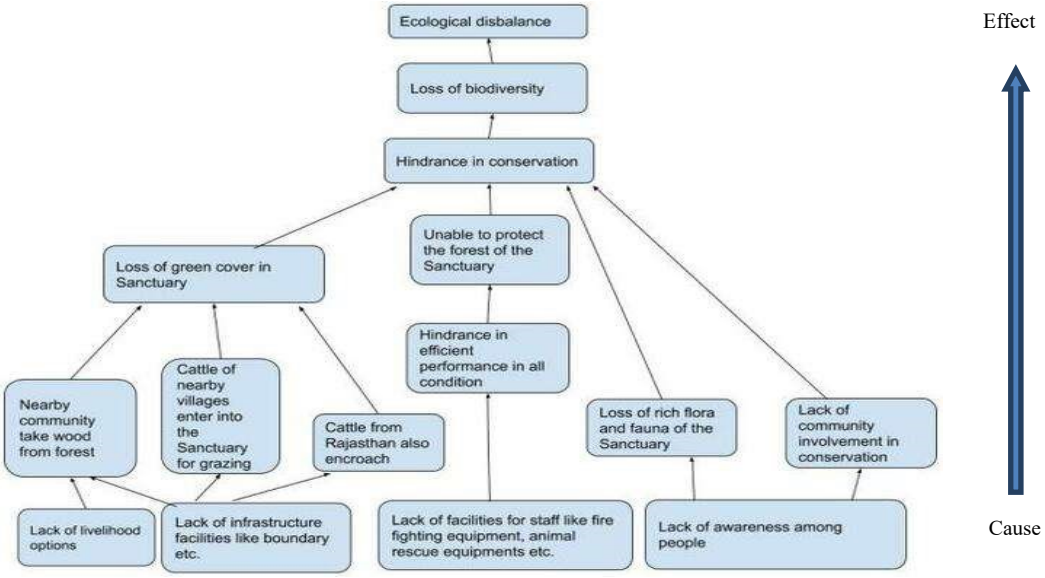

Figure 10. Problem tree analysis to identify the hindrance in management of Gandhisagar wildlife sanctuary

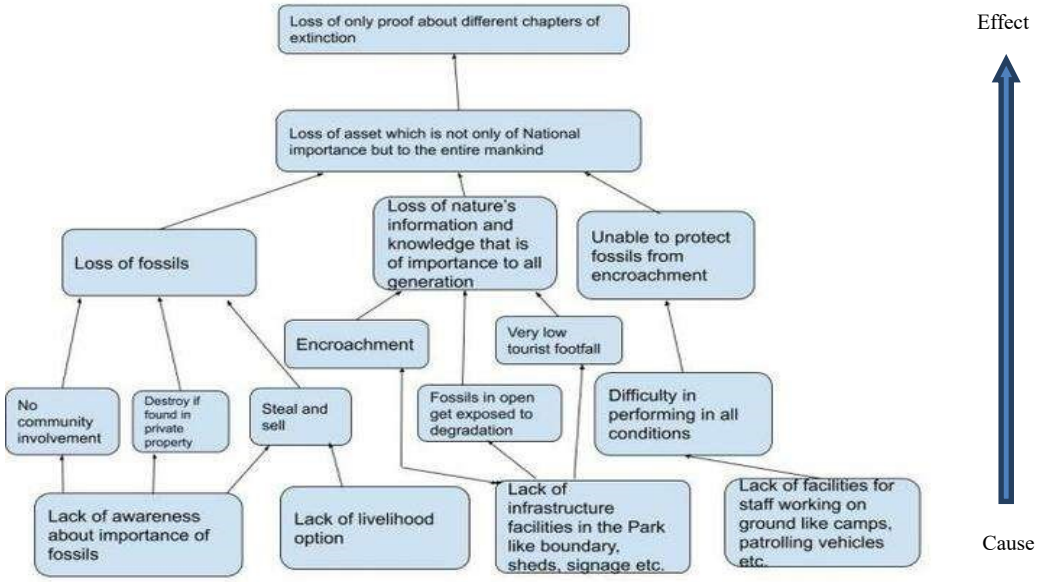

Figure 11. Problem tree analysis to locate hindrance in management of Dinosaur Fossil National Park

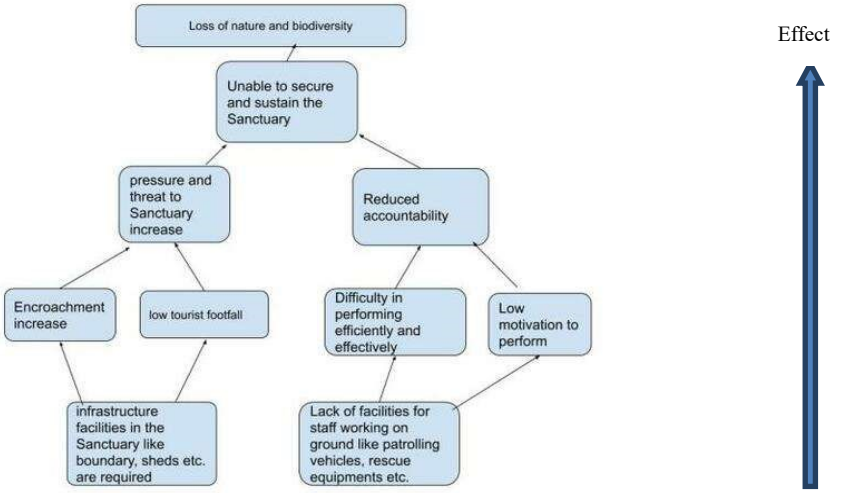

Figure 12. Problem tree Analysis of RWLS

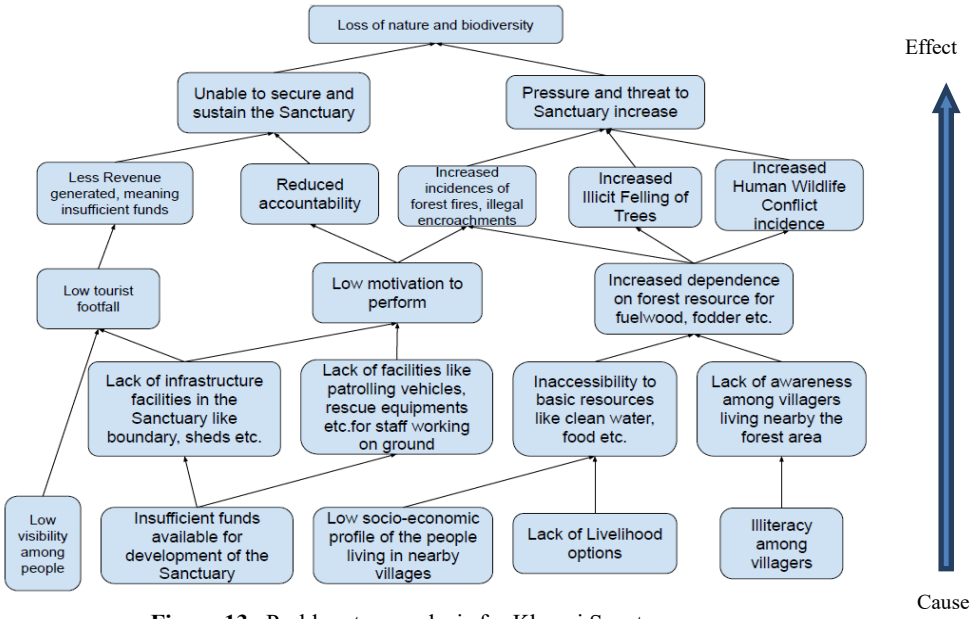

Figure 13. Problem tree analysis for Kheoni Sanctuary

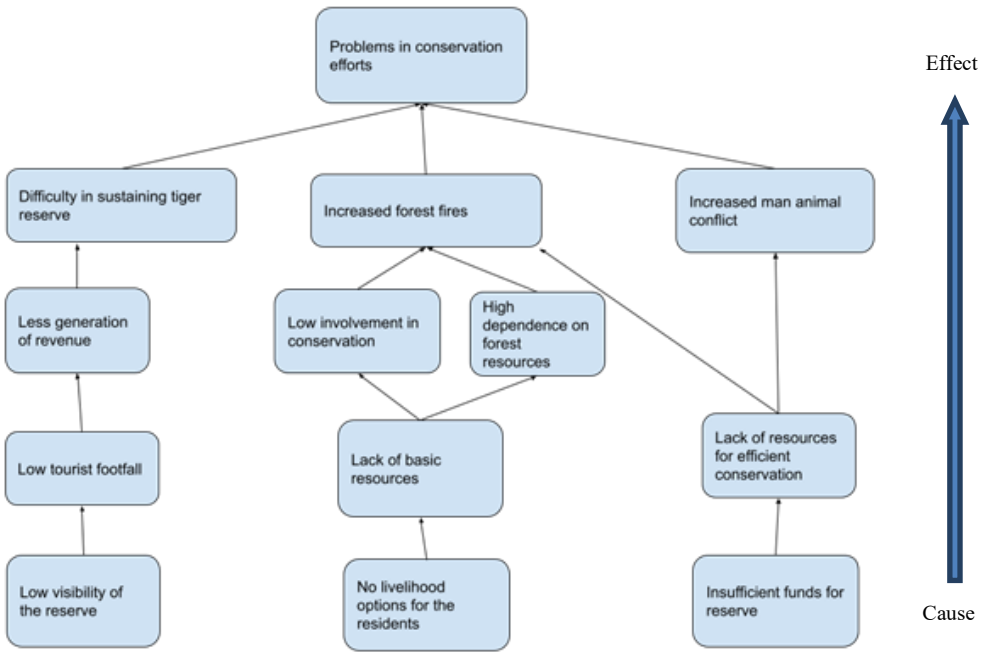

Figure 14. Problem tree Analysis for Sanjay Dubri Tiger Reserve

Challenges vis-à-vis- sanctuaries' development

All sanctuaries covered in our study face some site-specific management challenges and most common challenges being poor governmental support or paucity of budgetary grant from government side. On the other hand, revenue generation is not adequate due to low tourist arrival at most of the spots (except Ralamandal wildlife sanctuary, where urban area proximity attracts more tourists). Kheoni wildlife sanctuary attract on an average 1200 tourists every year, comprising mainly professional film makers and photographers who take delight in floral & faunal diversity of the area. Dinosaur Fossil National Park, Sardarpur Sanctuary and Gandhisagar Sanctuary receives very less tourists (few hundreds per year) and hence their exact figure is not available. On the other hand, Ralamandal sanctuary situated near Indore City received more than 2.6 million tourists during 2015 in comparison to mere 0.2 million ten years ago. Shortage of drinking water for wild animals during peak summer season was a common problem at all the spots (Figure 15).

Figure 15. A dried-up water hole for animals at GWLS

Some basic items have been identified by us to ensure smooth functioning and development of the sanctuaries, in general. They include- tube wells, four-wheeler patrolling vehicles, two-wheeler patrolling bikes, vehicle mount water tankers, computer set, animal rescue vehicle, GPS, animal rescue equipment, firefighting equipment, plantation drive in sanctuary area, and rescue cages.

Support to the wildlife management staff is needed to ensure better efficiency on their part, which would enhance their performance, and henceforth better management and conservation of the sanctuaries will take place. Some of the identified requirements of the management staff at all the spots are winter jackets, rain suit, umbrella, blanket, sleeping bag, mosquito net, rug sac, high beam torch, clean water facility, camp cot, gumboot, maintenance of solar panels, camp chair, camp table, camp storage box, and binoculars. Content analysis of various items showed potable quality drinking water facility, solar panels maintenance, high beam torches, binoculars as top items (Figure 16).

Various sanctuaries covered in our study, need the utmost support of all possible and genuine organizations as well as individuals for their development since they are the potential wildlife conservation sites. Many flora, as well as fauna, are found, of which some are on the endangered list. Some of the identified awareness initiatives which need to be urgently undertaken include - Nature Trail for school children, Poster printing and designing, Wildlife Documentary, T-shirt, Exposure visit for forest personnel, Wildlife photography/ videography competition. Content analysis of the five check-list requirements showed that the exposure visits of forest personnel as the essential requirement as the staff could help accelerate the development of the sanctuaries with proper exposure and training (Figure 17). Awareness can be made when new initiatives are taken up by the staff possessing good knowledge or expertise in the advanced techniques.

Figure 16. Requirements of the management staff at the Protected Areas

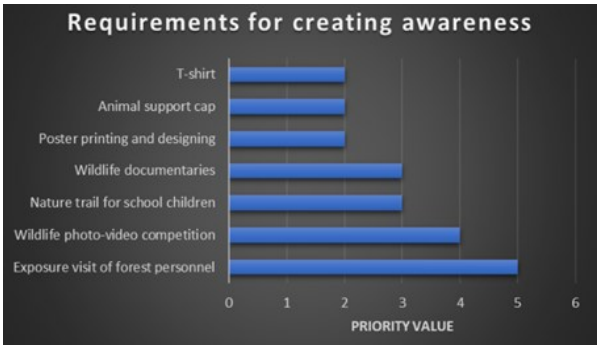

Figure 17. Requirements for creating awareness at various sites

RESULTS AND DISCUSSION

Wildlife conservation is a natural science subject which cannot be understood merely by teaching. It is an in-depth connect that we learn to love and work for, believing that the Earth does not belong to us rather; we belong to the Earth.

The results show that wildlife conservation in India can go a long way with the participation of all stakeholders involved. The forest staff of study area had strong support for the project and their only requirement was to avail basic facilities like clean drinking water which will help them keep us a good health in order to work efficiently.

During many of the meetings that were held with the institutions keen interest was shown to the project. Communities involved in this project had diverse opinions regarding support to conservation activities. Most of the communities supported the cause of conservation whereas some like communities in Sardarpur Wildlife Sanctuary were completely against the existence of the Wildlife Sanctuary as it was the reason that

they were not able to sell their land which falls inside the boundary of the Sanctuary. Whereas in case of Kheoni Wildlife Sanctuary, it was observed that nearby communities were neutral, and were neither in support of the sanctuary nor against it. In Sanjay Dubri Tiger Reserve, mixed opinions within the protected area were observed. While human-wildlife conflict was prevalent in Madwas Range on one side, the people living in core areas of Bastua Range, on the other hand, had no such issues. Gandhisagar Sanctuary was directly affected by the communities who directly depended on it for sustenance. The villagers did understand the damage that they were causing to the vegetation of the Sanctuary but being unskilled and uneducated left them with no other livelihood option. Overall, we concluded that awareness on wildlife conservation is of utmost importance for all conservation initiatives and participatory approach is required to ensure its success. With a positive mind frame for wildlife conservation and local livelihood generation, we approached nearby organizations/ companies (within 300 km distance) engaged in different sectors like resort/hotel chains, newspaper groups, hospital chains, cement and pharmaceutical industries, agro food processing industries, financial services, public sector undertakings like Power Grid Corporation etc. for seeking their help under Corporate Social Responsibility (CSR) initiatives under Companies Act, 2013 of India. Corporate Social Responsibility (CSR) initiatives are voluntary and ethical efforts by companies to address social, environmental and human rights concerns arising from business activities. Convention of Biological Diversity (CBD), 2002 also emphasized about a strategic plan that private firms were full partners in the Convention's efforts. Corporates are the recent actors on the conservation stage. Most of the reviews are mixed on whether they can be strong contributors to conservation (Robinson, 2011). There are some significant cases from India where corporate sectors have supported the cause of wildlife conservation e.g. Tata Chemicals Ltd has played an important role in protection of Whale Shark (a Schedule I mammal under Wildlife Protection Act,1972) at Gujarat coast with active participation of local people (Baroth and Mathur, 2019). Tata Chemicals have also played a pioneer role in saving Asiatic lions at Gir, Gujarat by getting parapet walls constructed around open wells in the national park to make them safe for the lions and other wildlife (Tata group, 2016). Aircel Limited, a mobile network company, launched an awareness programme in 2008 to educate school children about tigers of India (Aircel, 2016). Sony India Limited has been working for the conservation of Red panda and Snow Leopard in Sikkim and Arunachal Pradesh. In collaboration with WWF-India, the company focused on estimating population and generating baseline data for the two states (WWF, 2015). The Oil & Natural Gas Corporation (ONGC), the largest oil and gas Exploration Company in India collaborated with Wildlife Trust of India for the conservation and protection of eastern Swamp deer in Kaziranga National Park, Assam. The company contributed about 75.5 million USD for this purpose in 2010 (WTI, 2010). ONGC also worked in association with Bombay Natural History Society (BNHS) in Gujarat and Maharashtra for restoration of about 200 ha of degraded mangroves (BNHS, 2007). Rio Tinto group, an Anglo-Australian metals and mineral corporation with headquarter at London, and BNHS have partnered since 2014 with the objective to protect the Indian vulture population by setting-up a 'vulture safe zone' of about 32,000 sq. km in Madhya Pradesh. They have adopted a multipronged approach in which apart from monitoring and tracking of vulture population, awareness among local people about vulture conservation was also raised (Rio Tinto, 2016).

In our case, 34 % of the organizations contacted, gave positive response for diverting their funds under CSR budget head for the cause of conservation and development of wildlife management sector (Figure 18). This shows that companies are sensitized towards the conservation of nature and Madhya Pradesh Tiger Foundation Society (MPTFS) needs to take appropriate steps to approach them for support in conservation activities. About one fifth of the companies denied spending their CSR funds for the cause of conservation. This shows that even today when so many species have become extinct and many others on the verge of extinction, businesspeople are not sensitized to conserve them.

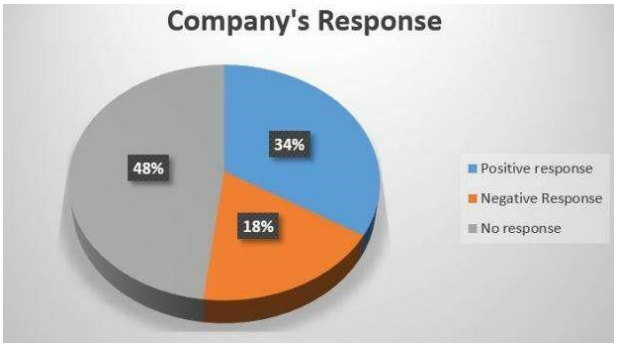

Figure 18. Company responses- Statistics

CONCLUSION

Wildlife sanctuaries, biosphere reserves and national parks constitute a significant segment for ecotourism based on natural resources and local culture (Surendran and Shekhar, 2011). Conservationists have advocated ecotourism as an integral tool of conservation of natural resources and development of indigenous communities (Stronza, 2007). Promotion of local community development and their livelihoods through ecotourism has been widely considered as an important policy instrument for biodiversity conservation (Lai and Nepal, 2006; Scheyvens,2007).

But there is another school of thought who feels that the present policies of ecotourism benefit neither conservation nor local communities (Banerjee, 2010). The concept remains poorly understood and much abused. Lack of funding, mismanagement, biotic pressures and bureaucratic nature of forest department in India and other developing countries have distorted the very concept of ecotourism. Environmental degradation, wildlife habitat destruction, economic inequity, instability, negative socio-economic and cultural changes within local communities are some of the few problems associated with the introduction of ecotourism (Gulinck *et al*., 2001). Some researchers feel that tourism in a sensitive and fragile ecosystem may not come without incurring costs (Kumar, 2002; Sekhar, 2003). As such the idea of ecotourism is highly contentious and a hotly debated topic ever since it has been implemented across different countries.

The stories of Galapagos Islands, Costa Rica's ecotourism spots, Chitwan National Park (Nepal), Sundarbans (India), Periyar Tiger Reserve (India), Kilum-Ijim National Park (Central Africa), Cuyabeno Wildlife Reserve (Ecuadorian Amazon region), community-based tourism in Indonesia etc. are examples of some success stories in community involvement in wildlife conservation. These stories reflect properly organized ecotourism, which enables local people to augment their livelihood security through employment in ecotourism related activities and small enterprise development (Das and Chatterjee, 2015).

There are some cases of failure also like that of Keoladeo National Park and Sariska Tiger Reserve, both from India, where local community is not adequately benefitted from ecotourism. All these cases, including some foreign cases like that of Komodo National Park (Indonesia), Gonarezhou National Park (Zimbabwe), and Puerto Princesa Subterranean River National Park (Palawan, Philippines), reflect the failure of ecotourism to espouse the underlying principles of biodiversity conservation. According to Das and Chatterjee, (2015), the reasons behind the problems associated with ecotourism are numerous like (1) human labor is drawn from urban sector instead of focusing on training of unskilled or less-skilled locals, (2) inequitable distribution of income among the locals, (3) compulsory displacement for the creation of national parks leading to large scale loss of land, homelessness, food insecurity and loss of lives(4) damage to crop and livestock by wildlife, (5) sticking only to gun and guard approach for preservation, (6) insensitive attitude of the tourist, (7) lack of education for visitors as well as locals and (8) policy gap in terms of poor planning and improper and unethical management of ecotourism. All above issues create negative attitude in the minds of the locals and ecotourism as a policy fails.

But there remains always a ray of hope and the Indian wildlife authorities can learn a lot from above success stories and the underlying principle of management should be “economic incentives play a major role at number of locations leading to partial success of ecotourism and leaving much scope for socio-cultural betterment and environmental conservation”. Involvement of the local people through alternative livelihood generating programs and creating awareness will develop their interest in policies of conservation and they will consider themselves as genuine stakeholders. On the other hand, educating local community and tourists about conservation and infusing awareness in them will also help in conservation policies. Relocation of villages should be well planned before execution and all necessary facilities for the villagers should be made available at the new location. Being one of the biggest stakeholders, Government should also take positive steps through proper monitoring and evaluation of the ecotourism sites at regular intervals. It was also found in our study that some organizations were interested to spend their funds under CSR budget for wildlife management and local community development purposes provided some monitoring mechanism was there in place to ensure proper utilization of funds for the desired purpose.

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