Social Impact Assessment in protected areas of Panna National Park, Madhya Pradesh

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Abstract— According to The International Ecotourism Society, Ecotourism is defined as "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education". Some recent studies strongly suggest ecotourism as a tool for environmental conservation and the socio-economic development of the local community. India being a biodiverse nation, has various potential destinations for ecotourism development, such as Panna National Park, India. This study focuses on understanding the local community of Panna National Park by conducting a social impact assessment and the effect these tourist places have on the development of these communities. The assessment will help develop recommendations and strategies that will help maintain environmental integrity and sustainability with the involvement of the local community of this ecotourism destination. The study describes the perceived benefits and costs of ecotourism mainly depend on the level of community participation in ecotourism activities and the availability of resources. In this context, the study aims to critically explore the local environmental issues, dynamics of tourism planning, and its relationship with and contribution towards sustainability in the Protected Areas of Panna National Park.

Key words: Eco-tourism, Local community, Sustainability, National Parks, Protected areas.

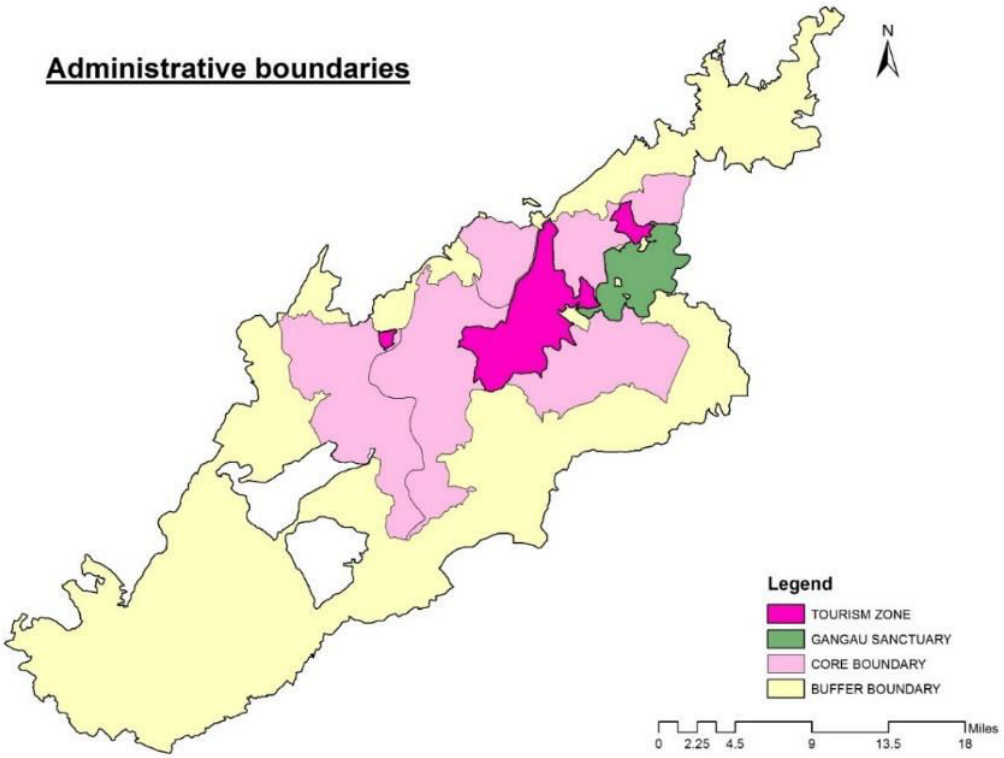
I. INTRODUCTION

Tourism employs around 7.5 percent to 15 percent of the global workforce and is the most important service business on the planet. Eco-tourism is the fastest-growing tourist sector in the tourism business, especially among nature lovers and travellers who want to feel confident and comfortable travelling responsibly and ethically. According to the WTO (World Tourism Organization), eco-tourism is developing seven times faster than the rest of the tourism industry. At the same time, other authors claim that the industry is increasing at a rate of 10% to 30% faster than the rest of tourism. Nature tourism and ecotourism together account for up to 20% of foreign visitor travel. Eco-tourism is a relatively recent notion that dates back to the nineteenth century. Romeril was the first to use the term "eco-tourism" in English-language academic literature in 1985. The tourism industry understood the financial potential of eco-tourism in the 1990s, and travel agents began using the term "eco" to make their travel packages more appealing. Ecotourism societies such as the International Ecotourism Society (TIES) and the Ecotourism Society (TES) were eventually created. While some authors may use the terms "eco-tourism" interchangeably with "nature tourism," "adventure tourism," "responsible tourism," "ethical tourism," and "green tourism." Ecotourism has certain traits that set it apart from other parts of the tourism business. Eco-tourism is a relatively new concept in India's tourism industry, which has largely grown within the last 20 years. However, because India is rich in biodiversity, it has a well-established cultural and ecological potential for eco-tourism. Eco-tourism is a key to economic generation with a conservation and sustainability approach. Though eco-tourism seems to be a sustainable approach, it has its drawbacks also. Negative impacts of eco-tourism have been seen in many places; the situation becomes worst with global environmental problems like global warming, mean sea level rise, climate change, etc. [2] analyzed that the reason that every family member will be employed and busy, the health monitoring of elderly people and patients has become very crucial. In the proposed methodology caretakers can get the information of the temperature and the pulse rate of the people being monitored at home.

The study evaluates social impact assessment at (Panna National Park) PNP using various data collection techniques like focus group discussion, observation survey, questionnaire, and secondary data collection from various urban offices. Structural interviews were also conducted among the administrative department of the Panna district. The data collected is used for evaluation, and tools like GIS is used for analysis.

II. ABOUT PANNA NATIONAL PARK

The Vindhyan mountain range in northern Madhya Pradesh, India, is home to PNP (Panna National Park). The park is located in the Madhya Pradesh districts of Panna and Chhatarpur. Large plateaus and



gorges characterise the landscape of PNP. The park contains a tiger reserve as well as a number other

Fig. 1 Administrative boundaries of PNP

endangered species. The Ken River, which flows from south to north, cuts through the reserve. The Ken River is a tributary of the Yamuna River and is one of the least polluted rivers of India. The Ken Gharial Sanctuary and the PNP woods make up a large part of the river Ken's catchment basin.

The river is one of Madhya Pradesh, India's sixteen perennial rivers. The park covers a total size of 1645.08 square kilometres. PNP has a core area of 542.66 square kilometres, a buffer area of 1002.42 square kilometres, the Ken ghariyal Sanctuary of 78.53 square kilometres, and the Panna (Gangau) Sanctuary of 45.20 square kilometres. The tiger, chinkara, leopard, chital, nilgai, sambhar, and sloth bear can all be found here. Birds such as the bar-headed geese, honey buzzard, king vulture, blossom-headed parakeet, changeable hawk-eagle, and Indian vulture can be found in the park. Panna National Park was designated as one of India's Tiger reserves in 1994 and it is part of Project Tiger, which aims to Information Classification: General safeguard forest tigers. Eco-tourism and adventure activities in PNP shall be carried out in the notified areas under "Madhya Pradesh Forest (Entertainment and Wildlife experience) Rule 2015" to ensure participation of the private sector and create employment opportunities.

Major portion of the park is covered with dense forest. Various trees being Chesham, Sal and Sagon. A total of 1255 species of lower & higher plant have been reported from the area. Ken river passes through the park which is home for gharials and creates magnificent views. 79% is dense forest, 10% is open forest, 1% is scrub, 4% is non forest and 6% is water bodies.

Tourist arrival depends upon the number of tourist and the travel experience of the destination. A spot which provides with the scenic, safety, security, facilities and services at affordable prices to the tourist becomes famous tourist spot. In context to Panna national park the tourist arrival very much depends on the Tiger population. Tiger population was in 30's during 1990's but it suddenly dropped to 0 during 2009 due to menace and with successful introduction program tiger population reached to 34 at present. Tourist population has increased to 36000 in the recent years as tiger sighting is easily seen. Tourism dropped during 2005-2009 due to decreased number of tigers in reserve. Revenue depends upon tourist flow. Revenue dropped in 2015 due to lack of facilities, it again increases and presently it is 184 lakhs. Though the percentage of tourist has increased over the years but there is less percentage of international tourist due to less exposure to place and lack of tour facilities.

III. SOCIAL IMPACT ON LOCAL COMMUNITY

There are negative and positive impact on local community because of ecotourism destination. The prospects of these ecotourist places creates ample opportunities for local people, only if the local people are involved and engaged in the management plan of the park.

A. Positive impact of ecotourism on society-

1) Preserves local culture and community.
2) Understanding and knowledge of indigenous flora and fauna in people. The knowledge of the local community helps in better understanding for management of park.
3) Increase in revenue due to tourism.
4) Creation of job opportunity for locals.

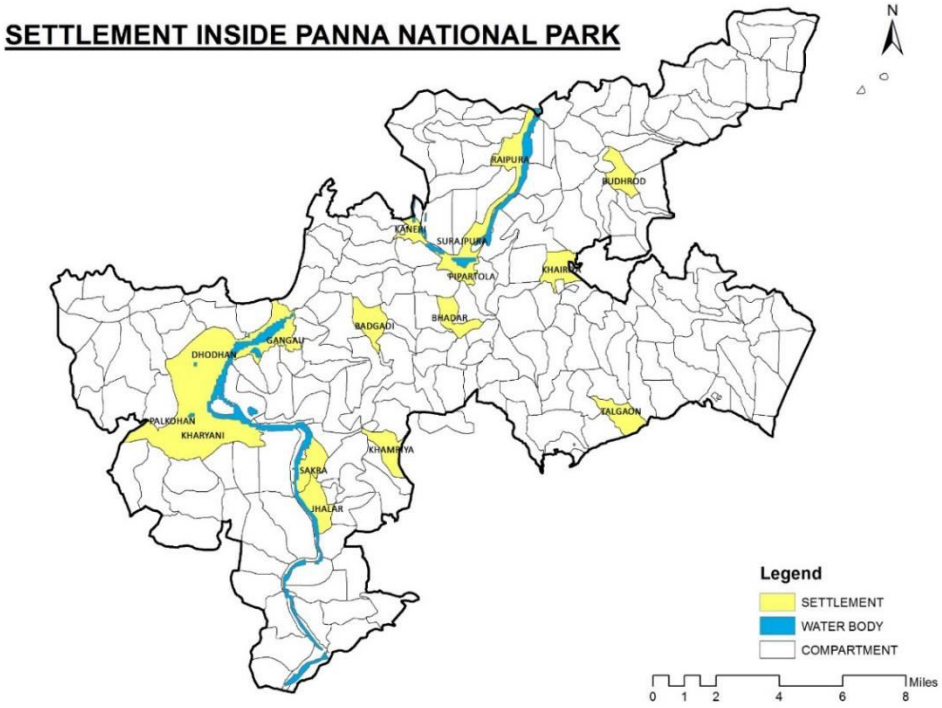
B. Negative impact of ecotourism on society-

1) No viable long-lasting employment opportunities with scope for growth are provided to the locals.
2) Development in the form of industries and infrastructure are often problem in these areas.
3) Displacement of people living in the vicinity of the park for creation of various infrastructure like hotels, motels etc.
4) Tourist often leave garbage in the form of plastic, papers etc, creating mismanagement of waste and degrading environment.
5) Conflict arises between locals and park authority over grazing land for their cattle.
6) No EDC, NGO working in these areas for raising issues of local community.

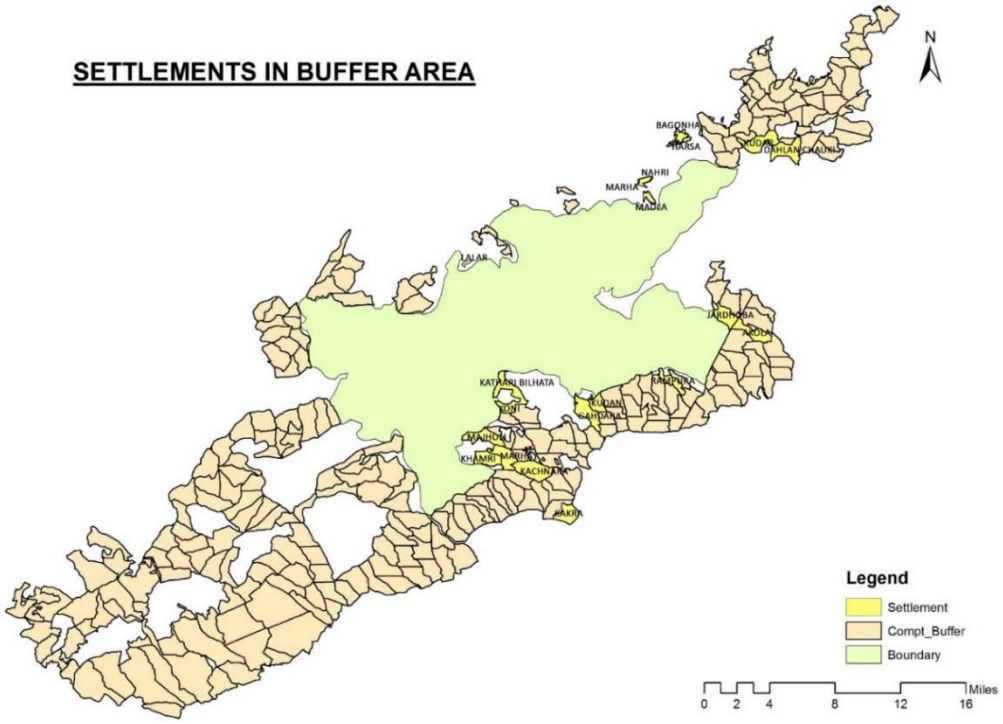
There are 19 villages in the buffer area of PNP with a total population of 14844 in Panna division of Panna National Park. During Tiger reintroduction program (Phase 1), 17 villages were relocated from the park as the committee recommended that the people are causing significant impact on the wildlife by hunting and poaching. The assessment was done on local community living in the buffer area of park. Primary survey was conducted using questionnaire and focus group discussion. The data was collected and analysed using tools like GIS, excel etc. [3] brought out an invention which discloses a system and method of representing health data of a patient. The invention comprises of a device 100 including a display module 102, a three dimensional sensor camera 101, a processor 107, a temperature sensor, a plurality of modules configured in the device including a template module 103, a healthcare provider module 104, a patient module 105, a processor 107, a server 108 connected to the device 100. The three dimensional sensor camera 101 is configured for capturing a three dimensional image of the patient, the template module 103 is configured for storing three dimensional graphical anatomical templates, the healthcare provider module 104 is configured for providing access to a healthcare provider and the patient module 105 is configured for providing access to a patient. The results are discussed below.

TABLE I: LIST OF VILLAGES IN PNP

S.No	Name of villages(buffer)	Name of villages (relocated from core)
1	Madla	Pipartola
2	Rampur	Raipura
3	Lalar	Surajpura
4	Dahlan Chauki	Motachauk
5	Jardhoba(Indragarh)	Kaneri
6	Kudar	Gangau
7	Gahdara	Sakra
8	Koni	Jhalar
9	Kakra	Badgadi
10	Harsa	Khamariya
11	Kathari Bilhata	Khairiya
12	Kudan	Budhrod



13	Marha	Dhodhan
14	Bagonha	Dalkohan
15	Khamri	Kharyani



16	Nahri	Talgaon
17	Majholi	Bhadar
18	Kachnara	
19	Akola	

Figure 2 Settlement inside the park

Figure 3 Settlements in the buffer area of PNP

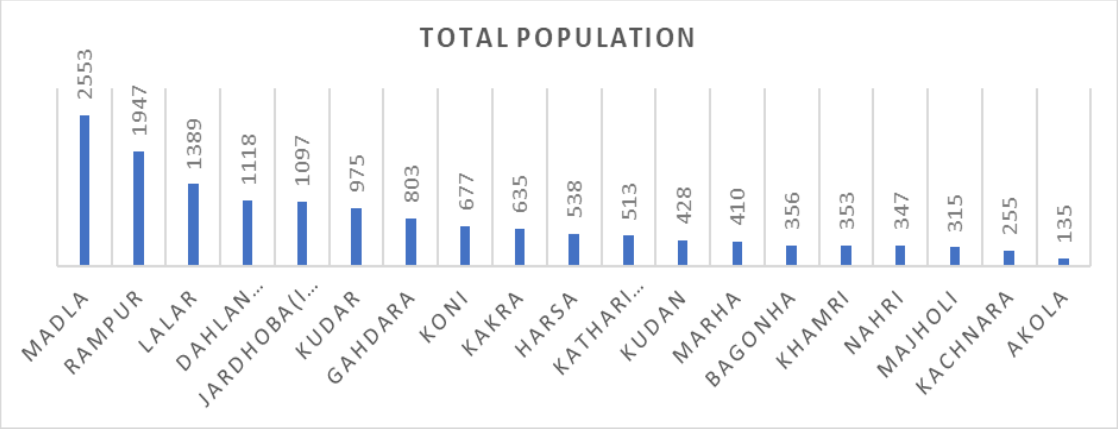


Figure 4 Population in buffer villages

Total of 0.14% population of the district resides in these villages. The average of 780 residents in these villages which soon going to increase by 15625 in 10 years.

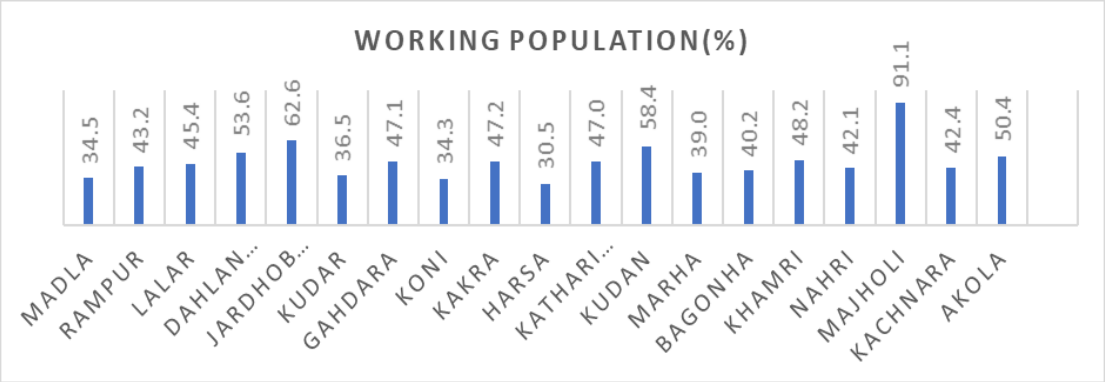


Figure 5 Working population in buffer villages

Only 0.44% of the population is working in these villages which suggests that the standard of living in these villages are poor and they do not have permanent source of income.

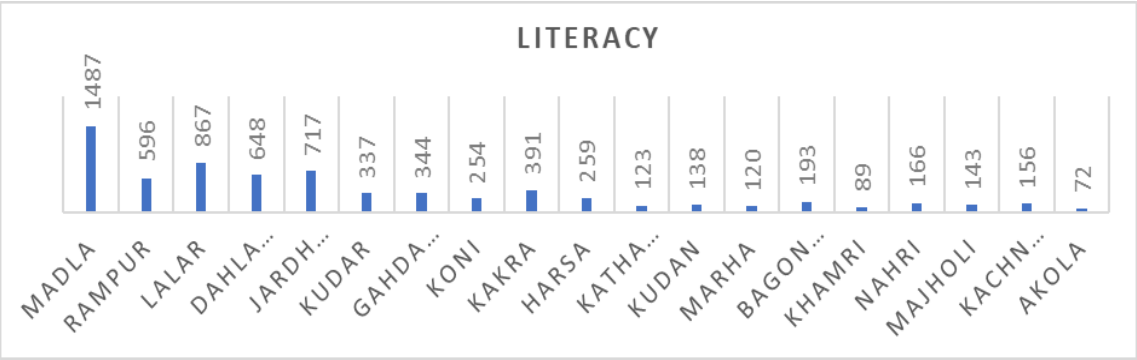


Figure 6 Literacy level in buffer villages

The average literacy level of the villages being very low i.e. 47% which is very less when compared to literacy level of Madhya Pradesh which is 59%.

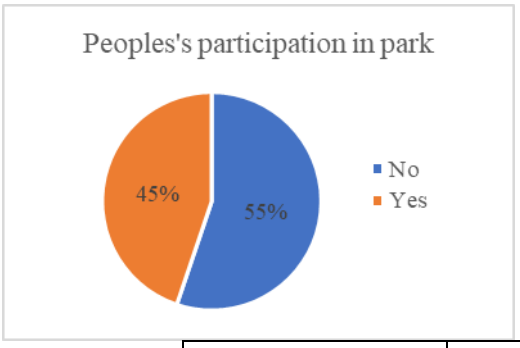
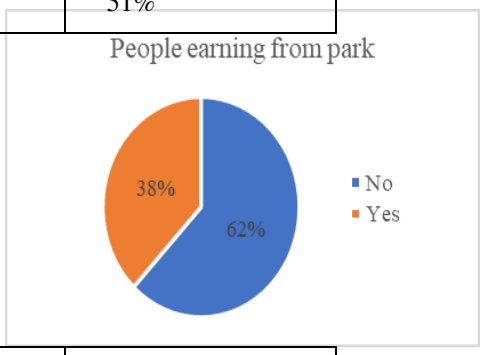
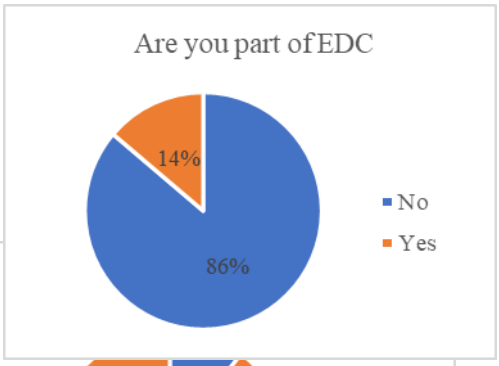


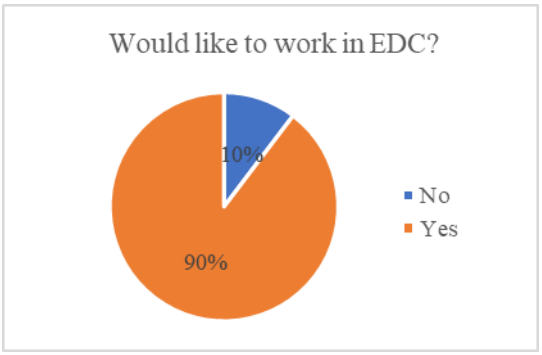
TABLE I: COMPARISON OF VILLAGES OF BUFFER VILLAGES AND RELOCATED VILLAGES. THE RESULTS INDICATE LOW LITERACY RATE AND WORKING POPULATION FOR BOTH KINDS OF VILLAGES.

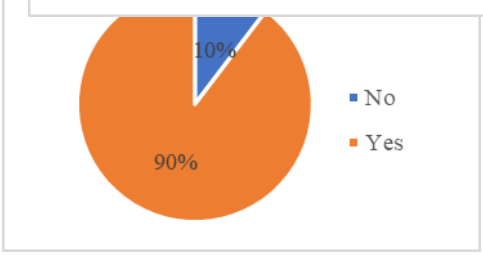
Indicators	Buffer villages	Relocated villages
Total villages	19	17
Literacy level	59%	51%

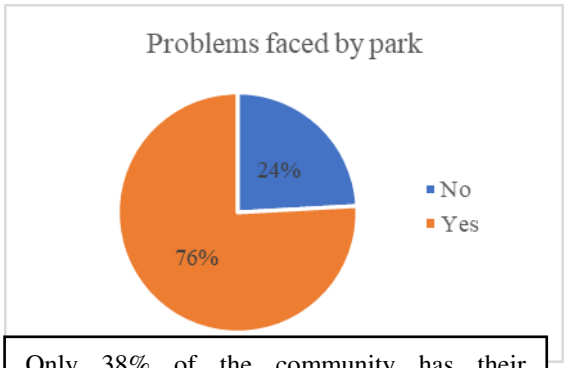


Working population	44%	47%
Male Female ratio	1.12	1.07









ple are involved in the
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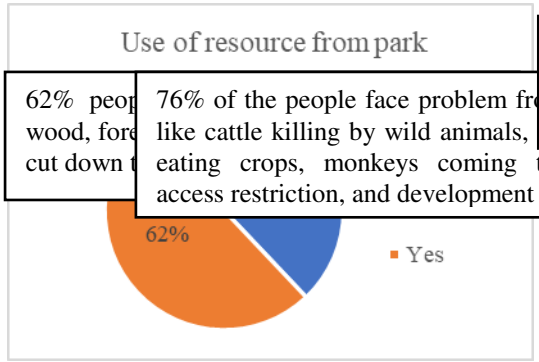
Only 38% of the community has their livelihood from employment like guides, car hiring, and security guards. This population is mainly concentrated in Madla and hinnauta village of the buffer.



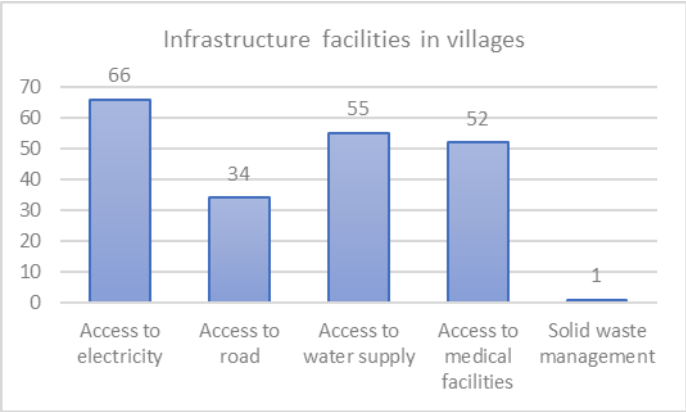
62% peop
wood, fore
cut down t

76% of the people face problem fr
like cattle killing by wild animals,
eating crops, monkeys coming to villages,
access restriction, and development restriction.

There
village

62% people use products from park like wood, forest produce, fodder etc. They even cut down the trees for collection.

90% of the community agreed that they would like to participate in the EDC if given good facilities and help.



Common facilities like electricity, roads, water and medical facilities have been problem in some of the villages. Roads being the foremost problem for people with 66%. Water supply being the second problem for the people as 55% of the people lack water scarcity especially during summers. Most of the people are dependent on tube wells and hand pumps for their daily needs. Hospitals are only available at Panna district and 52% of the people lack primary health care facilities. Electricity is not available in some of the villages. There are even no electricity poles.

IV. SWOT Analysis

A. *STRENGTH*

1) Well defined boundaries and administrative control.
2) Free from any illegal activity inside forest.
3) Ken river being a source of water for flora and fauna.
4) Healthy and diverse ecosystem.
5) Effective security and safety management inside park.
6) Successful tiger reintroduction program.

B. *WEAKNESSESS*

1) Reduced dependency on MFP.
2) Lack of awareness among people about programs & EDC.
3) Lack of accessibility and circuit.
4) No active EDC.
5) Lack of international tourist hence less revenue generation.

C. *OPPURTUNITIES*

1) Willingness of local people to work for park.
2) Surrounding public and private land could be used for development of infrastructure.
3) Buffer area tourism.
4) Ample tourism opportunity for circuit tourism.

D. *THREAT*

1) Tourism beyond carrying capacity of park may create negative impact on environment.
2) Ken Betwa link project will cause significant loss to tiger habitat.
3) No employment opportunity for local people.
4) Development is restricted of the place due to forest area.

V. Conclusion

The development in the protected areas is often a challenge specially when it is a national park. Due to the high diversity of the park the development and economic activity in the form of industries, roads, railways take a backseat. The people of the vicinity seldom depend on the park for their livelihood which gives the people limited options for employment. The villagers in buffer area do not have any permanent and regular source of income for livelihood apart from cattle and labour work. So, to improve the overall experience of the tourist as well as to improve the livelihood conditions of the villagers Buffer area tourism is encouraged with the support of local people and in their own villages. A national resource like national park should provide benefits rather than becoming an obstacle for local people. A management plan created with involvement of local community is key to the problem.

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