

Evaluate the Socio-Economic Substances around Keoladeo National Park Bharatpur: A Geographical Gist

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Abstract

The Keoladeo national park or Keoladeo Ghana formerly known as the Bharatpur bird sanctuary in Bharatpur, Rajasthan, India's famous avifauna sanctuary that plays host to thousands of birds especially during the summer season. It is also a major tourist center with scores of ornithologists arriving here in the hibernal season. It was declared a protected sanctuary in 1971. It is also a declared world heritage site from 1985. Keoladeo Ghana national park is a man-made and man-managed wetland and one of the national parks of India. The reserve protects Bharatpur from frequent floods, provides grazing grounds for village cattle and earlier was primarily used as a waterfowl hunting ground. The need of this topic is based upon the decline natural wealth of KNP by different social and economic activities of surrounded residents that should be managed through study or research and its research study continues on surrounded area, growing pollution problems, increasing urbanization nearby area, excessive population and its pressure on KNP, decreasing wet area and ecosystem, uncertain rainfall and climatic changes and the lack of proper action plan for reconstruction of its ecological environment i.e. the effect of socio economic substances around KNP.

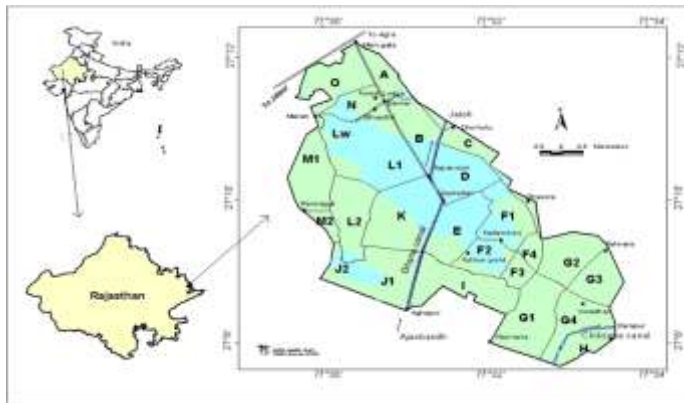
Keywords: Elicit, Demography, Prevention, Emancipation, Temporal changes

Methodology

This present study has been developed using a range of different techniques. Firstly, a comprehensive literature review in the broad fields of biodiversity conservation, ecotourism and ecological economics was carried out. Secondly, a number of grey literature reports such as policy documents, NGO reports, student's dissertations, tourism publications, internet publications and the like about the area of study were carefully examined. Thirdly, a combination of qualitative and quantitative primary data were collected through structured and semi-structured interviews with stakeholders who could be considered as having first-hand experience of the situation in the Bharatpur. In each village, the household survey was conducted from February to July 2016 using a detailed questionnaire rather an interview schedule, designed to elicit the details in a historical and geographic perspective. Sample surveys on visitors were

conducted during peak and off season to gather details on tourist profiles and attitudes towards the environment of Bharatpur. The secondary data has been collected from published as well as unpublished sources. The published data includes information from various publications of Central and State Governments, books, journals and newspapers. The unpublished data has been collected from different offices as Bharatpur Nagar Nigam, Census dept.

Location map of KNP-



The Socio-Economic Substances

Keoladeo National Park though being a small site yet has a very large interface with the village communities. Being a very important visitor destination a number of stakeholders have a direct interest in park management. Traditionally, the villages around the park were involved animal husbandry. The park provided for the fodder requirements and also the grazing ground for the domestic buffalo population. When the area was designated as a 'National Park', grazing was banned under the legal provisions and thus villagers came in conflict with the management. As it is imperative for maintenance of ecological characteristics of the area, PA management extracts extra biomass from the wetland that in turn meets the fodder requirement of the villagers. The villagers thus form an important group of stakeholders who help with the management of the World Heritage Site. Guides and Rickshaw Pullers are the group of stakeholders who are actively involved with management of visitors and their movement within the park. The rickshaw-pullers have been trained by the PA management in the art of communication and bird identification, which is a unique feature of this park. This group is thus heavily dependent on the park for their livelihood support. During off-season, they also volunteer for habitat management activities. The tourism sector is well

organized and sustains the economy of the Bharatpur town as a whole. A large number of people get employment in this sector and are actively involved in ecotourism activities. Scientific research organizations have played and continue to play an important part in study of various aspects of wetland ecology and management. NGOs have played an important role in conservation education and building of trust with the local people. NGOs have also volunteer assistance in habitat management activities.

Protecting the environment is everyone's responsibility. There is an increased awareness among the people towards the conservation of ecologically sensitive areas. There are many conservation movements and initiative in India, which have saved the precious natural resources. Despite all threats, diversity of the species and diversity within the species still continue to survive. Their continued existence is due to farmers and other communities living within the forest. Their cultural practices and knowledge systems have helped nurture biodiversity. Local communities have been involved in the removal of the invasive species, *Prosopis juliflora*; in some prevention of offences; education; and grassland management.

Data on demography, literacy, water sources, crops, livestock and land-use were collected from the line departments (irrigation, agriculture, and forest) of the Government of Rajasthan and the Census of India (2011). Aspects covered in the questionnaire during the household survey as background information, income and occupations, households, agriculture, livestock, health, fuel and fodder, water and sanitation facilities, irrigation, environment and natural resources and opinions and suggestions etc. To understand the current linkages and state of resource dependency between the neighboring human settlements and the Park, data on various aspects related to socio-economic status and natural resources dependency was subjected to comparative trend analyses, taking off from an earlier study (Azeez et al., 1992 and research article of Mohd. Zeeshan, B. Anjan Kumar Prusty) that examined issues relating to the dependency of the human settlements on KNP.

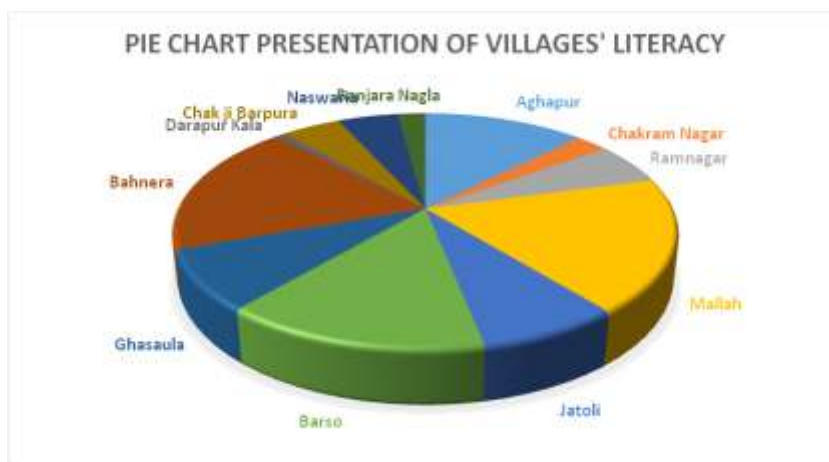
Table- 01

Name of villages	Population			Literacy		
	Male	Female	Total	Male	Female	Total
Villages						
Aghapur	1121 (65.8)	1097 (93.4)	2218 (78.4)	780 (221)	552 (1126.7)	1332 (362.5)
Chakram Nagar	341 (78.5)	292 (79.1)	633 (78.8)	201 (240.7)	77 (1825)	278 (341.3)
Ramnagar	549 (42.9)	513 (48.6)	1062 (45.7)	383 (190.2)	236 (2045.5)	619 (332.9)

Mallah	1840 (-17.6)	1644 (-9.7)	3484 (-14.1)	1286 (59.4)	678 (1440.9)	1964 (130.8)
Jatoli	693 (18.6)	682 (32.6)	1375 (25.2)	538 (96.4)	294 (740)	832 (169.3)
Barso	1221 (43.4)	1201 (71)	2422 (56)	921 (102)	622 (615)	1543 (178)
Ghasaula	798 (3.2)	696 (9.9)	1494 (6.3)	566 (68)	316 (2157.1)	882 (151.3)
Bahnera	1621 (44.7)	1409 (51.6)	3030 (47.9)	1207 (81.2)	760 (322.2)	1967 (132.5)
Darapur Kala	69 (53.3)	63 (46.5)	132 (50)	61 (144)	29 (480)	90 (200)
Chak Ji Barpura	544 (58.6)	471 (71.2)	1015 (64.2)	343 (NA)	138 (NA)	481 (NA)
Naswaria	398 (7.8)	349 (26.9)	747 (16.2)	330 (43.5)	172 (212.7)	502 (76.1)
Banjara Nagla	286 (NA)	264 (NA)	550 (NA)	167 (NA)	63 (NA)	230 (NA)

For comparison, the same parameters that were considered earlier and the same methodology for data collection was adopted here. Three villages (Chakram Nagar, Barso, and Chak Ji Barpura) that were not covered earlier were included in the present study. Furthermore, change in population from 1991 to 2011 in Darapur Khurd and Banjara Nagla, and literacy rate in Chak Ji Barpura could not be considered in the present analyses as the earlier details for those villages were not available. To ascertain the differences in the mean over time, we used rank test for literacy rate, source of income and fuel use in 2 years (1991 and 2011) households and population in 3 years (1991, 2001 and 2011). The study explores the changes in the state of the villages after the eventful ban of primarily grazing and fuel wood collection inside the KNP. It aims to elicit the changes in dependency of the villagers on the KNP subsequent to the ban basing on the parameters that are indicators of socio-economic changes. These parameters include population, literacy rate, households, income sources, fuel usage, water availability, agro inputs and local traditional vocations. Population, literacy from 1991 to 2011 given in percentage in parenthesis, based on Census of India, (Male, Female, Total) and Graphical presentation-

Pie chart presentation of literacy of villages around KNP-



As the table-01 shown that Mallah is more populated than other villages and it contains 19.78% population of total population of the studied villages and it has an important part for sustaining the female population in first position and the Bahnera is second one. Average literacy rate in the villages significantly increased (169%, $P < 0.05$), 94% for males and 67.8% for females (Table) during the last two decades. Bahnera is more literate (18.34%) than other villages which are included in the study. The village Mallah has the second position (18.33%) in literacy rate whereas Darapur Kala has the minimum literacy rate (0.84%) than others. We found no significant change in income from the major occupations - salary, agriculture and livestock ($P > 0.05$) from 1991 to 2011. The average income of a family unit in the villages during the survey was Rs 3000/- per month (44.41 USD), four times higher than that before 1992 (Azeez, 1992), yet lesser than the national average Rs 5729 (84.80 USD) per month during 2012 – 2013 (Press Trust of India, 2013).

The villages around the park have seen notable increase in the population. The population increase in the villages would have put pressure on natural resources, from rising demands especially for land, water, fuel and grains. Lands around the park are mostly agricultural (irrigated and un-irrigated) and privately owned. Human population growth has a direct bearing on the agricultural land and the number of houses in each village. Consequent to increasing number of people the per-capita parcel of land under agriculture has reduced. Rising population hikes the demand for quarters, as the joint families are giving way to the nuclear families, and increasingly family units (Husband, wife and kids) move out from the traditional joint family households. At earlier times, in the joint family system the male siblings, their wives, and children continued living in the same households. In the male-dominated families, the womenfolk rarely interact with elder males, even close relatives, covering their faces with their sari (a common apparel in India) while in public. The houses, based on construction and structure, are of three types. Kutcha houses made of mud, wood, straw, and leaves belong to poorer segments of the society. Pucca houses are strongly built with bricks, cement, steel, and wood, and are owned by middle to upper-class people. Semi-pucca houses are those houses built partially pucca and such houses belong to the lower middle class people. Of all the villages, Ramnagar has 100% pucca houses while Chak Ji Barpura has 100% semi-pucca houses. Almost all the pucca houses in the villages were built during the past two decades. The proportion of the pucca houses reflects better economic and social status of the villagers.

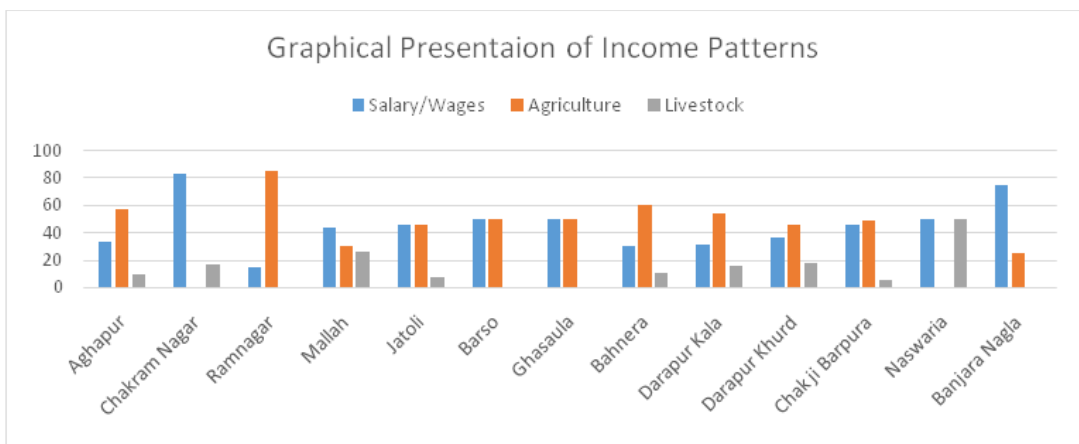
The high rate of increase in literacy among males actually reflects a continuing trend of education being recognized as need for better life-quality and the females reflect the socio-economic emancipation and mainstreaming (getting into salaried employment and other socio-economic activities rather than being restricted to household conventional chores) of the girl child happening in the villages. People are inclined to and can now afford to send children to schools rather than engaging them in cattle grazing, agriculture and other rustic chores, as was the practice earlier. Literacy and further education make the people cognizant of alternative livelihoods and better lifestyles with lesser direct dependency on the KNP ecosystem, their nearest common property, for resources.

Table- 02

Percentage of the villagers depending on salary/wages, livestock, and agriculture as source of income

Village	Salary/wages	Agriculture	Livestock
Aghapur	33.33	57.14	9.53

Chakram Nagar	83.33	0	16.67
Ramnagar	14.3	85.7	0
Mallah	43.47	30.43	26.1
Jatoli	46.15	46.15	7.7
Barso	50	50	0
Ghasaula	50	50	0
Bahnera	30	60	10
Darapur Kala	30.76	53.84	15.4
Darapur Khurd	36.36	45.45	18.19
Chak Ji Barpura	46	49	5
Naswaria	50	0	50
Banjara Nagla	75	25	0



Literacy, education and exposure incites people to change from being 'ecosystem people' to 'biosphere people' lesser reliant on the local ecosystem for their needs or the 'omnivores' of Gadgil & Guha (1995) who categorized Indian population into 'omnivores, ecosystem people and ecological refugees'. The education system in schools plays a vital role towards environmental awareness (Barthwal, & Mathur, 2012), although, the influence of the current curricula in India to make younger generation people

convinced about the need for long-term environment protection remains doubtful.

The major sources of income, during the present survey, were agriculture (45.3%), salary or wages (40.9%), and livestock (13.7%). As per the earlier study, the order in the source of income was salary/wages (42.8%), agriculture (42.05%) and livestock (15.2%). The growing awareness among the people about industrial, private and government employment opportunities shape their desire to switch occupations. They also realize that depending entirely on agriculture is risky because of the associated uncertainties. Nevertheless, in several villages, agriculture still is the main source of income; in Ramnagar, the highest number of people are engaged in agriculture (85.7%), while in Naswaria none is engaged in that sector.

It reflects that some of the livestock-rearing villages have stuck to their conventional occupation, while those with traditionally lesser livestock or agriculture have moved out of the profession relatively more. Of the 10 villages covered during the earlier study, the source of income for five villages has shifted from salary/wages to other occupations while in the rest of the villages the shift was towards salary/wages (table- 02). Traditionally, livestock has been an important source of livelihood in most of the villages. The villagers used to leave their cattle and buffaloes in the KNP for weeks and months. Since the entry of livestock into KNP for grazing was banned in the early 1980s, villagers were forced to take cattle to grazing lands in neighboring Dholpur district, a long journey that has increasingly become difficult. The inaccessibility to grazing lands and fodder being a major factor, conjointly with other developments in the area such as increasing tourism, education, and exposure, there has been a paradigm shift in the preference of villagers towards other means of income than their traditional ones. Agriculture is an important source of income and at times, villagers suffer loss due to erratic, low rainfall and power deficit for ground water irrigation. With the increasing cost for lifting ground water, the price yielded from crops is short to cover the expenses. Some environmental issues can be discussed through recent images as-



Figure Jatoli Ghana image 2009 by United States geological survey (USGS)



Figure Jatoli Ghana image 2016 by United States geological survey (USGS)

There are image of Jatoli Ghana that is situated in the north of KNP between the $77^{\circ}31'11.04''$ longitude and $27^{\circ}11'28.93''$ latitude and this is taken in 2009, 2016 by USGS. At a proper time interval i.e. by the use of 7 years, I have use the pictures of satellite images of that surveyed village area for showing the real situation of the ecosystem and biodiversity which is sustained or not in that region in a time scale or for knowing the temporal changes I used here two images of 2009 and 2016. For examine the situation I take some points as –invaded infrastructure, encroachment to border, unsettled urbanization, deforestation or lack of natural greenery, scattered rural settlements. The images which are presented here, are very expressive in their nature for knowing the temporal changes in the research area i.e. in the surveyed villages. The things which are easily seen in the images around the KNP, the villages are as the example of the unclassified and scattered settlement and that is increased between 2009 and 2016 years.

Results

Improvement in people's livelihood in the periphery of PAs remains debatable. A recent study concludes that job opportunities due to PAs are not always fairly distributed among the locals, with several factors coming into play. In the case of KNP, we found that priorities to ensure protection and conservation have forced a general change in the source of income of people living in the surroundings rather than directly improving their economic status. It is noteworthy that seriousness behind colonization near the area Keoladeo National Park is not seen so deeply that's why there are so many unsettled urban area has developed and effect of all these urban activities is really so harmful to the environment of this wetland area. There are so many activities of fast growing urban people nearby area of KNP which affect the normal routine of the migratory birds, other creatures, and its biodiversity.

Protection and conservation strategies played a vital role in biodiversity conservation of the KNP. It attracts researchers, nature enthusiasts and tourists from across the globe, which in turn, has helped the economy of the Bharatpur city. Several locals are engaged as tourist/nature guides, cycle-rickshaw operators, the field assistants and in hospitality services for tourists and others. There should be always done the geographical surveys or researches for the better results for sustaining the future.

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