

Biodiversity vs Irrigation

Case of Keoladeo National Park

The conflict over the use of the waters of the Panchna dam for the Keoladeo National Park, in which upstream farmers in the command area of the dam have staged protests, is about rapidly decreasing water supply amidst a growing number of users. There is a need to increase the quantity of available water, though the government's plan to supply chemically-treated drinking water to the park, as part of a larger scheme, will condemn millions of fish, invertebrates and amphibian young to oblivion.

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Keoladeo National Park is situated in eastern Rajasthan on the edge of the Gangetic plains two km south-east of Bharatpur town and 50 km west of Agra. The park, known locally as 'Ghana', is a mosaic of dry grassland, woodlands, swamps and wetlands spread over 29 sq km. About 900 ha are divided into small, seasonally inundated reservoirs by a series of bunds and dykes. Bharatpur experiences climatic extremes – hot dry summers and freezing cold winters, with temperatures ranging from 0 to 2°C in winter to above 48°C during summer. The three-month monsoon is usually very wet and is followed by a post-monsoon spell. The mean annual precipitation is 662 mm, with rain falling on an average of 36 days in a year.

Designated a Ramsar site in 1981 and a world heritage site in 1985, Keoladeo was famous as a wintering site for a subgroup of the western population of the Siberian crane. Though this species is now locally extinct, extensive habitat management over the past century has resulted in exceptionally high biodiversity including over 370 species of avifauna. For a few years the park had a resident tigress (she died in May 2005) which highlighted its importance as a solitary natural habitat in a vast agricultural landscape.

Three-centuries old records describe a depression south of Bharatpur town that supported a thick forest subject to monsoonal flooding. To protect the town Suraj Mal, the then ruler of Bharatpur state constructed Ajan Bund sometime between 1726 and 1763, a kilometre from Keoladeo,

to restrain destructive floodwaters and store water for the lean season. The bund continues to supply irrigation water to adjoining regions. During the 1850s-1990s, inspired by British game reserves prince Harbhanji of Morvi state, Gujarat, during his term as administrator, Bharatpur, developed the depression into a duck shooting reserve by building bunds and dykes to create a series of reservoirs. Sustained by rich organic material, invertebrates, and millions of fish fingerlings that enter with the onrush of water during the monsoons, the area rapidly developed into a highly productive system of freshwater marshes attracting large populations of migratory waterfowl. The area was flooded for the first time in 1901 from Ajan bund via Ghana canal. Water was supplied into the reservoirs through a system of canals, gates and sluices. Ajan bund itself was fed by canals from two rivers, the now dry Banganga and the ephemeral Gambhir. Lord Curzon inaugurated the reserve with an organised duck shoot in 1902.

Game hunting was, however, only one of the reasons for the creation of Keoladeo; others included the provision of grazing facilities for village cattle and habitat for feral cows. This created a large and successful community of herders in surrounding villages who used the wetland area as a buffalo pasture and terrestrial area as a dry pasture for cows. With the creation of the national park however, usage of the park biomass was discontinued and the herding community gradually disappeared. Most shifted to other occupations, including agriculture and tourism related business. Milch animals are now stall-fed

while dry, old or diseased cows are dumped in the park, creating a large population of wild cows. Buffaloes on the other hand are precious and never left in the Park. Fodder however continues to be collected by many families.

Keoladeo is unique in that it is a rich man-made biodiversity zone in a predominantly arid and highly populated rural landscape. In pre-independence India the area was a common property resource used by local herder communities, but with independence the first expression of discontent surfaced, fuelled by a need for arable land and irrigation water. Since then the park has faced several threats – and survived, with its administration and interested groups continuing to learn how to manage high biodiversity under difficult conditions. Keoladeo is surrounded by 21 villages (total population approximately 15,000) and the adjoining Bharatpur town (population – 1,50,017). Under the circumstances it is inevitable that the issue of seasonal water requirement for the park and that of irrigation in the surrounding rural landscape has become a contentious one; and has, in fact, been a long-standing reason for discontent and conflict in the region.

Keoladeo's Water Requirement

The park's basic ecological water requirement is estimated at 9.5 mm³ (or 350.8 mcft) [Vijayan 1991]. However, to maintain the ecosystem at an intermediate phase of disturbance necessary to maintain high biodiversity in the wetlands, occasional high floods are required. It is now understood that water requirement stands at 15 mm³ (<http://www.unep-wcmc.org/sites/wh/keoladeo.html>), with a minimum of 9.5 mm³ and occasional high floods. In normal rainfall years the park receives at least 8.15 mm³ from the Panchna dam. Additions to this occur through an increase in the Gambhir's flow downstream of Panchna, from the catchment runoff, and from direct precipitation in the park area. Waters from the Panchna catchment are also rich in organics and organisms essential for the continued survival of the park. However, this in itself is not enough in the long run.

The usage of groundwater for the park is a purely temporary measure to allow resident species to survive the lean season, and is recognised as such by park managers. The groundwater is saline and lacks what it takes to sustain the park. Politicians speak to the media about needing funds for

developing groundwater resources for the park but their desire to provide a solution is not backed by biological facts, or by the existing hydrology and water quality of the region.

The Conflict

There were originally two principal sources of water to the park and the surrounding agricultural district of Bharatpur – the rivers Gambhir and Banganga, which fed water to Ajan bund. Canals from the bund distribute water in the surrounding region. However, the Banganga dried up several years ago as a direct result of catchment deforestation and water diversions, leaving the Gambhir as the sole water supplier.

In 1991 Panchna dam was constructed on the river Gambhir in Karauli tehsil, district Karauli, Rajasthan, to mitigate high floods and fulfil the irrigation needs of the local farming community. The dam is approximately 100 km from Keoladeo. Panchna (panch meaning five) was constructed at the confluence of five rivers. Live storage of the reservoir is 52.65 mm³. Intercepted catchment area is 31km²; average monsoonal rainfall is 724 mm. The dam itself is earthen, with full reservoir level (FRL) at 258.62 m.

There are two dimensions to the issue of conflict over water for Keoladeo National Park. One has been highlighted in the media, while the other has been a quieter but more persistent issue within Bharatpur district. The first and older dimension has been conflict over the water in Ajan bund. Every year water allocation for the park versus that for local farmers is an issue of contention. The dispute often escalates and forest fires occur in the park with unnatural regularity during the dry season. Every year the park administration has to lobby the state irrigation department for their quota of water from Ajan bund.

The second dimension surfaced in the post-monsoon season of 2004; this had to do with the demands of upstream agriculturalists. These are farmers in the command area of Panchna dam, which irrigates about 35 villages over a gross command area of 11,172 ha. There is no major difference in the demands of the two groups of farmers. The authorities need to work out a long-term solution that takes a holistic approach to providing for farmers in both regions.

The latest conflict developed in August 2004, after a third consecutive year of low rainfall. The agitation was precipitated by a decision of a Rajasthan state government

committee headed by chief minister Vasundhara Raje to release 8.15 mm³ water from Panchna reservoir to Keoladeo, which at the time had a storage of 35.7 mm³. The park had until then received a minimal 0.5 mm³ of water.

In September 2004 farmers from the command area of Panchna dam protested the release of water for Keoladeo. Men and women pitched tents on the dry riverbed below the dam and dared the Irrigation department to release water. The Vasundhara Raje government reversed its previous decision condemning Keoladeo to a dry year. The agitation was, according to some articles in the media, politically motivated. An article in *Outlook* (http://www.outlookindia.com/pti_news.asp?id=248925) said that Bhawani Singh Rajawat, parliamentary secretary of ministerial rank, alleged that farmers from Karauli (which falls in the Lok Sabha constituency of union minister of state for environment, Namo Narain Meena) had been instigated by local Congress leaders. He also said that though the park was important, the rights of the local farmers needed to be safeguarded, particularly during drought situations. According to Atar Singh, an advocate from Karauli who led the farmers' agitation against water release for Keoladeo under the banner of the Panchna Pani Bachao Sangharsh Samiti. The dam was constructed specifically for irrigation purposes with World Bank assistance. It is named Panchna Bandh Sinchai Pariyojana (Panchna Dam Irrigation Project).

The reversal of the committee's original decision kicked off a spate of pro-park protests and media articles. Organisations and individuals petitioned, agitated, sat on dharnas, led rallies and held prayers. These included the Tourism and Wildlife Society of India (TWSI) that petitioned the courts, the Ghana Keoladeo Natural History Society and the Protect Keoladeo National Park committee. Rajasthan legislators formed a green lobby group for the conservation of environment and wildlife in the state to exert pressure on the government to release water from Panchna. "We shall form a group of like-minded MLAs from all political parties to give voice to environmental issues like saving of Keoladeo National Park", Congress legislator CS Baid told reporters. Baid and his party colleague Harimohan Sharma said they would try to make policy-makers understand the need to protect fragile ecosystems like the Keoladeo National Park. The general secretary of the

Rajasthan Chamber of Commerce, K L Jain said the infrastructural resources of the chamber would be at the disposal of the TWSI to ensure the protection of the sanctuary. The TWSI has already launched a multi-pronged campaign demanding water, and the matter is also pending with the Central Empowered Committee (CEC) of the Supreme Court.

One of the best birding sites in Asia, Keoladeo attracts more than 1,00,000 visitors annually who range from serious bird watchers to school children and tourists – 45,000 of whom are foreigners. In addition, the location of the Park within the "Golden Triangle" en route from Delhi to Agra allows even low budget tourists to stop over. Local stakeholders include inhabitants of the 11 surrounding villages and Bharatpur town-rickshaw pullers, guides, tour operators, tourists, park staff, the royal family of Bharatpur, local businesses, shops and hospitals, and others who are linked to park-related markets.

However, apart from some hoteliers, most of Bharatpur's local stakeholders, though aware of the situation, are not seriously worried. A reason for this may be the fact that Keoladeo has seen consecutive years of water scarcity before and the biodiversity has always revived, though with subtle changes like the proliferation of weedy species. A second reason may be that the tourism sector has not yet been seriously hit. However, if the park is subject to long-term water shortage it will lose both biodiversity and tourism, jeopardising the Rs 500 crore it earns annually, apart from losing genetic diversity – something that cannot be easily valued.

Current Status

Following numerous complaints and after being approached by the TWSI, the Central Empowered Committee (CEC) of the Supreme Court held its first hearing on January 31, 2005. The Rajasthan state government officials expressed their inability to release water due to irrigation commitments in Karauli district. They mooted the possibility of providing water from Chambal river through a pipeline planned to bring drinking water to Bharatpur district. Submissions made by the Rajasthan irrigation and public health engineering department on behalf of the state government were opposed because they did not represent the government – the presentation did not carry the signature of the chief minister who was abroad.

The next CEC hearing was scheduled for February 21, 2005, when the state irrigation department was to appear before it with "alternative plans" for supplying water to the sanctuary. On March 10 a three-member special bench passed a notice subsequent to the submission of a 20-page report by the CEC. The court directed the government of Rajasthan to release water to the Park from Panchna dam (*Hindu*, March 12, 2005; *Indian Express*, March 12, 2005).

Fortunately, the monsoons have been good this year and as of July 25, 2005, Keoladeo has already received more than 8 mm³ of water. Hopefully it will receive an optimal amount by the end of the season. Though this makes the ongoing case temporarily redundant, there needs to be a policy that makes it mandatory for a certain amount of water to be set aside for the park, particularly during dry years.

Scope for Dialogue

The issue is one of rapidly decreasing water supply amidst a growing number of users who require larger quantities with every passing year. The need is to increase quantities of available water. In 1991, V S Vijayan (1991) noted that: "It is unlikely that the park will be able to continue to draw the required minimum of 9.5 million m³ water from the Ajan bund reservoir, and therefore a suggestion has been made to bring water from River Chambal". The state government has since begun a multi-crore scheme to supply drinking water from the Chambal to the Bharatpur region. According to media reports quoting state government officials this pipeline is also meant to supply water to the park. However, it is clear¹ that the water supplied through this scheme will be treated drinking water; it will be made available to 930 villages in Bharatpur district.

If used for the park, the chemically treated water, rid of organic matter will condemn millions of fish fry, invertebrates and amphibian young to oblivion. A more realistic solution is to revive the dead Banganga river and increase catchment afforestation and water movement in the Gambhir basin. Intensive watershed management and flood plain revival programmes in both catchments, particularly, in the stretch downstream of Panchna reservoir may be the solution. This, coupled with a decrease in demand from Panchna reservoir due to incoming water from the Chambal may be enough to allow the long-term

survival of park biodiversity. Any such project would require work on community and riparian lands (both private and common) and therefore necessarily involve the state government, the forest department and NGOs with the capability to mobilise the local population.

Meanwhile, it is imperative that people be educated on the park's global importance and its unique ecology. Knowledge has to come before any strategy can be successfully implemented. **EWI**

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Note

- 1 A press release of February 17, 2003, on the Essar website is titled – 'Essar Awarded the

Rs 137 Crore Chambal Dholpur Bharatpur Water Transmission Project'. The release states that: "Essar Projects Ltd has been awarded the prestigious Chambal-Dholpur-Bharatpur water supply project valued at Rs 137 crore by the Rajasthan government's public health engineering department. The project will supply treated water to the Bharatpur area with the Chambal river water as its source. The construction contract is worth Rs 128.35 crore while the operations and maintenance (O&M) contract is for Rs 8.65 crore. The time-frame for the project is 30 months for construction and the O&M contract is for five years. The project will cover 69 villages in Dholpur district and 930 villages in Bharatpur district."

Reference

- Vijayan, L (1991): *Ramsar Sites of India: Keoladeo National Park, Rajasthan*, WWF-India, New Delhi.