

whereas the remaining 21 villages in the reserve and those situated outside it are still posing serious threats to the natural resources of the Sariska forests?

The villages located in the national park, are less populated compared to those outside the park. The national park inhabitants with more awareness and concern about their surroundings like the dwindling population of tigers, destructive impacts of forest resource collection, importance of forest and wildlife, have a positive approach towards the reintroduction of tigers in the area and other conservation issues despite their dependence on the forests. Also, they show a healthier perception towards the Forest Department and concerned authorities and play an active role in various conservation programmes. Though the communities residing in the park are allowed to

collect wood and other materials from the forest, the sale of the forest products is strictly prohibited. Education plays a crucial role in conservation programmes and all the national park villages are provided with primary schools, thus having a much higher literacy rate among the population below 14 years than the outside villages. But, the lack of proper infrastructure restricts their education to primary level, which if continued can be used for better conservation and development of the area.

Thus the national park villages are not that big a threat to the tiger reserve as the villages located outside it. The relocation of all the national park villages, though not an easy task, can be accomplished in a given time span. But, even if all the villages are relocated, what about the villages located in the sanctuary and even

outside the tiger reserve who will continue to exploit the forest resources? Lack of viable alternatives compels the people to rely heavily on the park resources for their livelihood. Also, the illiteracy among them makes them unequipped to look for alternative sources of income.

Thus efforts should be made to look for alternatives both for the national park villages and the outside villages, specifically those of the sanctuary, to reduce their reliance on the forest resources for their livelihood requirements. Therefore, better education facilities up to higher levels should be provided to the local communities, so that their dependency on forests resources is reduced. Also, eco-development programmes must be initiated, including educational programmes, awareness towards major conservation issues and importance of wildlife training programmes for alternative livelihood sources both for men and women. The forest benefits should be shared with the local communities and preference in forest employment should be given to them. This may inculcate in the local communities the awareness, enthusiasm and courage to look for other alternatives of earning their livelihood with a positive approach, thus resulting in successful conservation with due support and cooperation of the local people.

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Village Kankwari located in Core zone I (National Park) of Sariska Tiger Reserve.

Endangered Asiatic wild dog (*Cuon alpinus*) needs conservation in eastern India

Asiatic wild dog or dhole (*Cuon alpinus*) is one of the top predators in the wild. In spite of being a predator it has so far got poor attention from ecologists and conservationists. Due to the severe anthropogenic pressure and habitat fragmentation, it has lost much of its range all over the world, especially northeast India. So far globally 11 subspecies have

been described. Among these, four are thought to be occurring in India. Earlier, this species was widespread across the Americas, Europe and Asia. Later it was restricted to only Asia after the mass extinction during the Pleistocene period¹. Due to habitat fragmentation, decline in prey species and increased human activities, this species currently occurs in south

and southeastern countries like India, Indonesia, Bhutan, Cambodia, China, Malaysia, Myanmar, Nepal, Thailand and Vietnam.

The world conservation union estimated dhole population at less than 2500 individuals and has accorded it endangered status². In India, dhole is classified under Schedule II animals and also

placed in Appendix II by CITES (Convention on International Trade in Endangered Species).

Dhole has been well studied and conservation issues have been identified in central and southern India but no information is available from the eastern region. Recent genetic studies show two haplotypes coming closely in northeastern India¹ but no data is available regarding the extinct subspecies of this region. In this region, studies on the dhole are few due to the remoteness, cerebral malaria, frequent landslides and unfriendly nature of people³.

In eastern part of India, dholes are rather rare⁴, with the exception of the Garo hills area of Meghalaya (Assam) where they are common. Arunachal Pradesh has rich faunal and floral diversity and has been recognized as one of the 34 biodiversity hotspots⁵ as well as a global ecoregion. Around 26 indigenous communities are involved in active hunting of wildlife for

food, medicinal and cultural purposes³. The wild dogs are already extinct in eastern parts of Arunachal Pradesh whereas they are on the verge of extinction in other parts of Arunachal. Dholes are frequently sighted⁶ in Itanagar Wildlife Sanctuary and Namdapha⁷. In 2006, the Wildlife Institute of India camera trapping group confirmed dhole population in Pakkai Tiger reserve in western Arunachal Pradesh and lower Subansiri and Tawang. Due to the livestock deprivation, local people kill the dholes⁶ by trapping and poisoning. Conservation is a major concern due to the heavy dependency on forests by local people especially by shifting cultivation and hunting. Hence there is an urgent need to study, conserve and protect this species in the eastern Himalayan range.

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Recharging the floodplain

Vikram Soni *et al.*¹ explain a scheme for large-scale natural water storage in the Yamuna floodplains near Delhi.

If the water is made to percolate in the aquifer by construction of several barrages and tens of kilometres of bunds, then it cannot be called a 'natural' water storage scheme. That apart, the idea as presented seems workable only because the authors have ignored the following.

- They have completely overlooked/ignored the 1994 MoU for sharing of the waters of Upper Yamuna, i.e. Yamuna from its origin up to Okhla. The Mean Annual Flow (MAF) up to Okhla has been estimated as 13 bcm and keeping aside 0.32 bcm for environmental flows and 0.68 bcm as inevitable flood flows, the remaining 12 bcm has been allocated amongst the six party states, viz. Uttarakhand, Himachal Pradesh, Uttar Pradesh, Haryana, Rajasthan and Delhi.

- Thus, irrespective of what the actual flood flow at Okhla presently is, the unallocated flood flow at Okhla is only 0.68 bcm. (Even this would be claimed by the environment, as a necessary annual flushing pulse.) An allocation based on MAF can be actually used only by

storing the entire monsoon flow. At present there are no storages in the upstream catchment, and therefore some states are unable to utilize fully their allocated share. Three storages are planned upstream of Delhi, Renuka, Lakhwar-Vyasi and Kishau. When these are constructed, the upstream states will be able to store and use more water, as per their allocated share.

- The progress on construction of these storages; the usual arguments for and against the storages; their costs vis-à-vis cost of presently suggested scheme; all these issues are irrelevant in the present context, as none of them can alter the water sharing MoU.

- Soni *et al.* propose to 'create several barrages with embankments from the entry point of the Yamuna river into Delhi, at Palla, through Wazirabad till Okhla'. Essentially, they propose to create a reservoir about 50 km long and 4.5 km wide (2 km on either bank + width of the river). The impact of such a reservoir on local drainage; its environmental impacts – like malaria; displacement of people living within 2 km from river bank; none of this has been evaluated.

- A crucial issue is – unless matched by 100% interception and tertiary level treatment of the sewage produced by Delhi, Gurgaon, Yamuna Nagar, Kurukshetra, Panipat, Sonapat, etc., this reservoir will become a 200 sq. km cesspool of dirty water that will pollute the aquifer forever.

- Another reason the scheme seems workable is, because although Soni *et al.* have estimated the benefits, they have not estimated the cost of 'several of such barrages', bunds, resettlement and rehabilitation, cost and source of energy to pump out this water, etc. With no costs and only benefits, any thing looks attractive.

- Finally, the valuation of the stored water at Rs 6000–9000 crore using the tanker rate per m³, and thereby concluding that their scheme will save Rs 6000–9000 crore, is absurd. People often confuse between cost of water and cost of its supply. In tanker supply, the main cost is for the capital cost and operational cost of the tanker, the cost of water itself is negligible. (Even nil, if the tanker draws supply from a private tubewell.) Source of water and mode of its supply are two