

# Assessment of Forest Cover in Adjoining Areas of the proposed Link Canals and Water Reservoirs

## Background:

On behest of the Ministry of Water Resources, The FSI took up a study on assessment of forest cover likely to be affected by the Great Indian Canal Project which envisages linking all the rivers in the country. The study was started in 2003 and funded by the National Water Development authority.

## Study Area:

The various link canals that were studied during the process included Ken-Betwa, Parbati-Kalisindh, Ghagra-Yamuna, Sarda-Yamuna, Sone-Dam, Gandak-Ganga, Par-Tapi-Narmada, Daman-Ganga-Pinjal, Yamuna-Rajasthan, Rajasthan-Sabarmati, Manas-Sankosh-Tista, Ganga-Farakka-Sunderban, Ganga-Damodar-Subarnarekha, Subarnarekha-Mahanadi, Kosi-Mechi, Kosi-Ghagra, Chunar-Sone, Mahanadi-Dowlaiswaram, Godavari-Krishana-Vijayawada, Godavari-Nagarjunasagar, Godavari-Pulichintala, Krishna-Somasila, Krishna-Srisailem-Pennar, Krishna-Almatti, Pennar-Cauvery, Cauvery-Kattalai-Gundar, Pamba-Achenkovil-Vaippar, Bedti-Varada and Netravati-Hemavati. Forest cover in the area of submergence of 38 reservoirs which were part of the project were also studied.

## Data Used:

1. Forest Cover Maps based on Satellite data of the year 2000 were used. These maps show forest cover in two classes namely dense forest with crown density of more than 40% and Open forest with crown density between 10% and 40%.
2. Survey of India toposheets on 1:50,000 and 1:250,000 of corresponding areas of study.
3. Maps (drawings) provided by the NWDA on 1:250,000 and 1:50,000 scale showing canals and reservoirs.

## Methodology:

The methodology involves following steps.

1. *Canal submergence Area Determination:* The drawings provided by NWDA for **Canal Submergence Area** were scanned and geo-referenced with respect to corresponding topographic sheets. From the digital drawings the canals were digitized. This vector information is used as the primary input for the submergence area estimation. The digital forest cover layer of respective States obtained from the forest cover maps on 1:50,000 prepared by the FSI using satellite data of 2000 was overlaid on the maps of link canals. As the canals are passing through more than one state, the forest cover maps of the concerned States were mosaiced. The vector layer corresponding to the specified top width of the canal and its associated buffer zone of 250 m on either side was developed. Forest cover within the buffer area vector layer was extracted and analyzed to

determine the forest cover likely to be submerged loss due to submergence.

2. *Reservoir Submergence Area Determination:* The drawings provided by NWDA for **Reservoir Submergence Area** of the reservoirs are scanned, geo-referenced to standard topographic sheets. The areas of the reservoirs were delimited by digitizing it from digital drawing. The said vector polygons were used to extract the area from the respective regions of the classified forest cover map and the forest cover within the area of submergence was calculated.

An example of output produced showing part of Ken Betwa Link Canal passing through Madhya Pradesh is shown in Fig.33

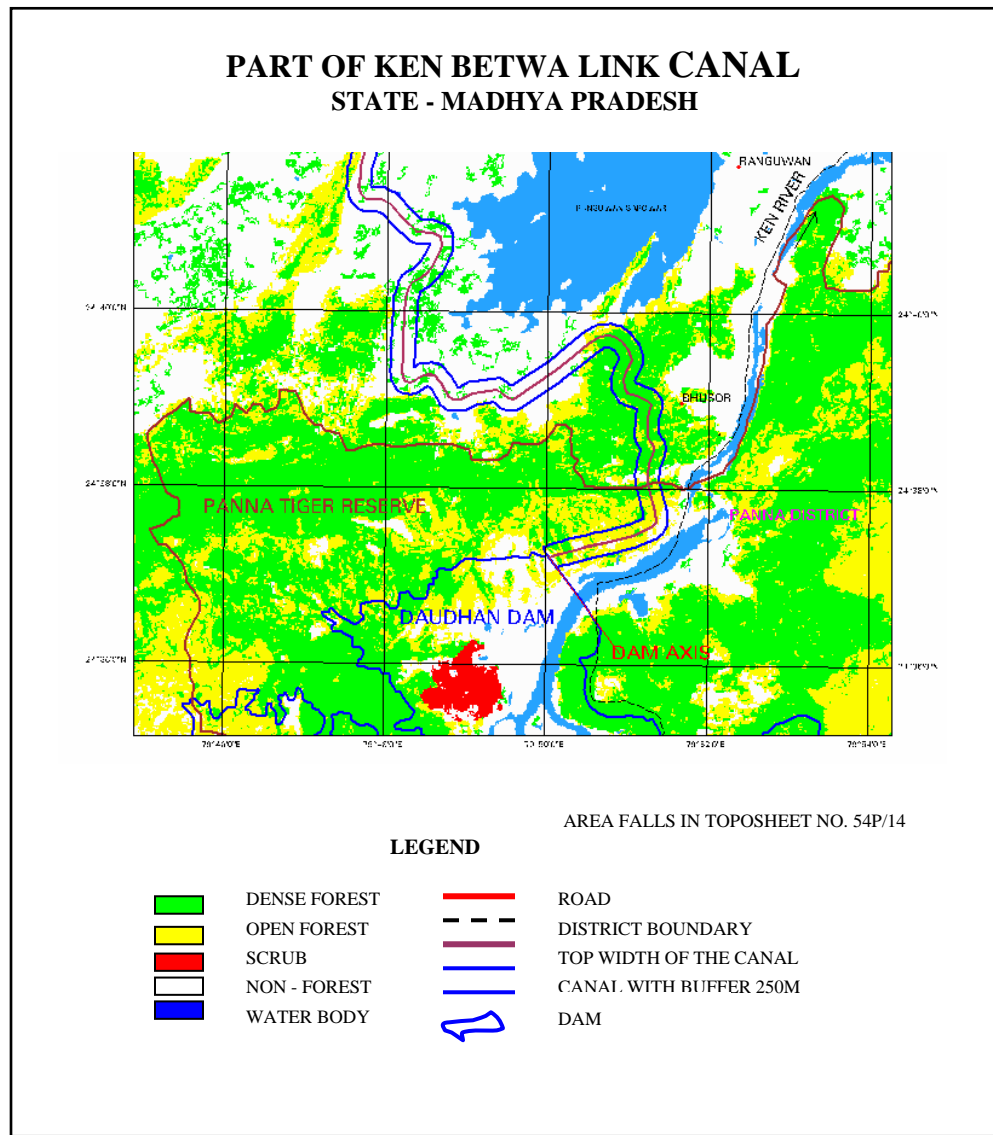


Fig. 33: Part of Ken Betwa Link Canal (MP)