

MEKEDATU BALANCING RESERVOIR AND DRINKING WATER PROJECT

BRIEF JUSTIFICATION ON SELECTED SITE PARTICULARLY HIGHLIGHTING ENVIRONMENTAL CONSIDERATIONS

A study has been carried out to identify the locations which can be considered for selecting the site to locate the balancing reservoir was undertaken using available data, topographical maps and inspection of selected reaches of the rivers. Nearly 3 locations were identified along the Cauvery River between Shivanasamudram and Makedatu since locating any reservoir in the upstream of Shivanasamudram would deviate the project objectives. The details of the options worked out are given below;

Table 1- Details of the alternative Balancing Reservoirs

No.	Particulars	Balancing Reservoir - 1 (Downstream of proposed Reservoir)	Balancing Reservoir - 2 (Proposed Reservoir)	Balancing Reservoir - 3 (Upstream of proposed Reservoir)
1.	Name of the River	Cauvery	Cauvery	Cauvery
2.	Geographic location	12°15'33.49"N 77°26'51.87"E	12°16'20.91"N 77°26'25.88"E	12°17'16.03"N 77°25'37.30"E
3.	Location of the site as regards to District / Taluk	(1) Kollegal Taluk, Chamarajanagar District (2) Kanakapura Taluk, Ramanagara District (3) Malavalli Taluk of Mandya District		
4.	Elevation of the River bed with respect to Mean Sea Level (m)	348.00	352.00	375.00
5.	FRL (m)	440.00	440.00	470.00
6.	MWL (m)	441.20	441.20	471.20
7.	Height of the Dam (m)	92.00	95.00	95.00
8.	Storage capacity in TMC	68.00	67.16	61.00
9.	Total Land required for the project (Ha)	5807.40	5267.59	5897.40
10.	Cost in Crores.	9900	9000	10500

In case of Balancing Reservoir -1, the river course is narrow and flows very rapidly due to steep bed fall. The accessibility to the project site is quite difficult due to irregular geological formations. The maximum designed flood discharge of 8 Lakh Cusecs would submerge the historical Makedatu site located at a distance of 500 m downstream of the proposed dam site. The presence of hillock in between obstructs the construction activities thereby widening the submergence of forest area.

Whereas in case of Balancing Reservoir -2, the site is accessible and there will be less submergence of forest land. The site is also having favorable geological formation and availability of founding strata at shallow depth. The site is maintaining safest distance with historical Mekedatu site which is about 1.8 Km downstream. In other words even during the peak flood discharge of 8 Lakh Cusecs, the probability of submergence of historical Mekedatu site will be remote. At this location the river course is normal and wide. The capacity of water storage at this site is in line with hydrological studies to store 67.16 TMC of water.

Further in case of location of Balancing Reservoir – 3, the downstream flow of the water is turbulent flow due to the influx of floods from Arkavathy river which is joining the River Cauvery downstream of this site. Moreover, there might be afflux due to backwater effect in Arkavathy river resulting in temporary submergence of additional forest land when there is a release of heavy floods of 8.0 Lakh cusecs. The water level at this location would reach up to Shivanasamudram and will submerge major portions of the existing power house affecting the generation to a great extent. This may call for complete relocation of the power house if it has to meet the original power generation. The forest area submergence at this location is more in view of maximum water spread. At this site there is no rapid fall in the natural bed slope required for hydroelectric power generation.

Considering the above merits and demerits of each location, the Balancing Reservoir -2 location would be ideal in terms of techno economic feasibility, less forest submergence with good geological formation to store the available water. Hence, this location has been selected as a part of DFR for which the CWC had accorded in-principle approval and directed the Government of Karnataka to proceed further for preparation of DPR.