

## **Chapter 15**

### **Other Aspects**

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#### **15.0 General**

All the pertinent aspects related to the detailed project report (DPR) of the Bedti– Varadalink project as per the DPR guidelines -2010 are discussed in the relevant chapters. This chapter is dedicated to those aspects or issues which are worthy to be taken note of but could not find place in the previous chapters.

#### **15.1 Scope of the link project**

The main objective of Bedti - Varada link project is to augment the existing irrigation in the drought prone Raichur district under Tungabhadra left bank canal command. The GCA, CCA and designed annual irrigation under Tungabhadra Left Bank Canal (TLBC) are 364686 ha, 324213 ha and 244381 ha respectively, utilizing a quantum of 2605 MCM of water allocated as per KWDT award for use under TLBC. Accordingly, the existing intensity of irrigation works out to 75% only. By diverting surplus waters from the west flowing Bedti river to augment the irrigation under the TLBC in Raichur district, not only the drought prone areas could be brought under irrigation, but the intensity of irrigation under TLBC could be increased by bringing additional area under irrigation through assured water supply.

#### **15.2 Study of the link project**

The locations of weirs/barrage and the alignment of the conveyance system are marked using SOI toposheets and DEM. The various components

are required to be firmed up based on detailed field surveys & investigations while taking up the link project for implementation.

### **15.3 Dams vs. weirs/barrage**

The dams at Pattanadahalla and Shalamalahalla the two locations are replaced by weirs whose pond area is confined to river banks only. Thus, the total submergence at the two locations has reduced to just 118 ha only against 1005 ha, as proposed in PFR. In addition, in the present proposal, a barrage at Suremane at Bedti river is proposed with water spread area of 60 ha. Thus, the submergence at the head works has significantly been reduced to 178 ha in the current proposals by proposing weirs/barrage and confining their submergence to river banks.

### **15.4 Requirements of EAC of MOEF & CC**

The PFR of Bedti- Varada link project was submitted by the Govt. of Karnataka to the Expert Appraisal Committee (EAC) for River Valley and Hydroelectric projects of MOEF & CC for consideration of ToR for the proposed CEIA studies. The EAC in its 93<sup>rd</sup> meeting held on 2<sup>nd</sup> May, 2016, after detailed deliberations on the link proposal, sought the following information to reconsider the proposal.

1. The hydrology details of Tungabhadra river, Varada river along with Bedti river to accommodate additional 8.55 TMC (242 MCM) of water.
2. Impact of adding additional 8.55 TMC of water to Varada river on river morphology and downstream structures already planned / constructed on Varada and Tungabhadra river.

3. Presently, Tungabhadra Left Bank Canal is facing a deficit of 29.42 TMC of water. Substantiate such huge volume of deficit with suitable study reports.
4. The project proponent presented the pre-feasibility report prepared by NWDA in 1995 and hence it is advised to finalize the technical aspects of the project (DPR) to ascertain the project specific ToRs by EAC.

In this context it is to state that the sufficiency of the Tungabhadra reservoir has been checked with present status of the reservoir to accommodate 524 MCM of water planned to transfer from Bedti river. Varada being a natural stream have got much scope to accommodate any kind of flood that is witnessed in the past. However, the same will be rehabilitated to accommodate the additional waters during the preconstruction stage.

The spillway of existing Dharma reservoir on Dharma river has a discharging capacity of 708 cumec whereas the daily diversion envisaged from Suremane to Dharma river is 6 MCM only which works out to about 70 cumec. This being just 10% of the discharging capacity of the Dharma reservoir, it is presumed that the link diversion can be very well accommodated in Dharma river. Moreover, the contemplated diversion through the Bedti - Varada link project is by pumping and whenever the Dharma or Varada or Tungabhadra rivers are in spate, the link diversion can always be withdrawn at short notice.

The CCA under Tungabhadra LBC is 324213 ha with a corresponding annual irrigation of 244381 ha. The designed water utilization (as allocated

by the KWDT award) for TLBC is 2633.45 MCM (2605.13 for left bank low level canal + 28.32 for left bank high level canal). However, the average utilization under Tungabhadra left bank canals (from 2012-13 to 2019-20) is found to be of the order of only 1456.87 MCM against the allocation of 2633.45 MCM as per the details furnished at **Annexure 5.14**. Thus, it could be seen that there is a deficit of about 1177 MCM in the actual utilization under Tungabhadra left bank canals. Keeping in view the above, 524 MCM of water is proposed to be diverted through Bedti - Varada link project to benefit water short areas under Tungabhadra left bank canal command.

### **15.5 Tunnelling method**

The tunnelling is proposed by drill and blast method. However, project areas surrounded by the Western Ghats Eco-Sensitive Zone, the Shalamala Riparian Ecosystem Conservation Reserve and the Bedti Conservation Reserve. The CEIA study will reflect the extent of impact the project will have on the Western Ghats Eco-Sensitive Zone in the vicinity of the project area. In case of any restriction on the blasting activity in the eco-sensitive zone, the tunnel boring machine will be used for tunnelling.

### **15.6 Modernisation of Tungabhadra project**

The diverted water is required to be stored and needs to be regulated in existing Tungabhadra reservoir to further utilize in its left bank canal. The storage capacity of the existing Tungabhadra reservoir is stated to be reduced considerably due to continuous siltation as per Govt. of Karnataka. However, the capacity of the reservoir is checked with the latest available weekly average storage of the past ten years and found that the reservoir can

accommodate the 524 MCM without any strain. However, the rehabilitation of the reservoir if needed have to be taken up during preconstruction stage.

### **15.7 Change in scope of project**

The Government of Karnataka proposes an alternative plan to divert the combined waters of Bedti from Pattanadahalla, Shalamalahalla and Suremane diversion sites totaling about 595 MCM(21 TMC) towards eastern side of Western ghats and to take further along the ridge between Tungabhadra and Malaprabha sub basins for supply of drinking waters and filling up of existing minor irrigation tanks (as the area is severely drought affected) by storing the diverted water near Hirevaddatti village in a proposed reservoir.

The proposed benefitted areas are in the vicinity of the Tungabhadra reservoir only and the Govt. of Karnataka can utilize the waters from Tungabhadra through suitable lifting arrangements to serve above mentioned needy areas. This will help in improving the flexibility of operation at Tungabhadra depending upon the priority conditions. Further, this will avoid a new reservoir and long conveyance system while maintaining the static lift more or less at same magnitude.

### **15.8 Solar power potential**

The canal top solar power potential of the Bedti - Varadalink project is considered to be negligible since the conveyance system is proposed mostly through raising main & tunnels only. However, the possibility of solar power generation in the project area will be explored at the implementation stage.

### **15.9 Memorandum of Understanding amongst Centre and concerned States**

The DPR is prepared for Bedti-Varada link project (Link I: NPP) which includes the additional component suggested by Govt of Karnataka (Link II: Intrastate). The link project interferes the KWDT Clauses and may need entering an MoU amongst the states at the time of implementation unless the KWDT and the inter-basin water transfer seen in different perspective.

### **15.10 Financial resources**

The detailed project report (DPR) along with the necessary CEIA studies, needs the following clearances by Govt. of India and the respective agencies.

<b>Sl. No.</b>	<b>Clearance</b>	<b>Agency</b>
(i)	Techno-economic	Central Water Commission, TAC of Ministry of Jal Shakti
(ii)	Forest Clearance	Ministry of Environment, Forest and Climate Change (MoEF&CC)
(iii)	Environmental clearance	Ministry of Environment, Forest and Climate Change (MoEF&CC)
(iv)	Wildlife clearance	Central Empowered Committee

After obtaining the above clearances, the Detailed Project Report will be submitted to the Ministry of Jal Shakti/NITI Aayog for investment clearance. The year wise requirement of funds for the construction of the project is furnished in **Chapter 12: Construction Program, Manpower Deployment and Plant Planning.**

### **15.11 Future utilization of facilities created (Buildings)**

Various facilities and assets shall be created during the construction period as required in the project such as buildings, roads, heavy equipment and machinery. In order to facilitate the office accommodation, stores and residential accommodation for the construction teams, two categories of buildings i.e. permanent and semi-permanent/ temporary are proposed to be constructed at various construction colonies/ sites and also in the near vicinity of the project. After commissioning of the project, the permanent buildings will be utilized for operation and maintenance of the project while the remaining infrastructure can be utilized for the future projects likely to come up in the vicinity or for offices of other state/Central Govt. organisations.

### **15.12 Public co-operation and participation**

The project will provide impetus to all-round development of the region in the proposed command area and reduce the socio-economic imbalance by enhancing agricultural production and employment opportunities. Hence, co-operation and whole hearted participation is anticipated from the stakeholders of the benefited areas.

However, opposition to the diversion of Bedti water may come up in the project area in the vicinity of the diversion sites mainly on environmental considerations. This opposition can be resolved by comprehensive EIA study with appropriate remedial measures to address the environmental issues providing suitable compensation package for the project affected people, whose lands are to be acquired.