

Chapter 3

Interstate Aspects

3.0 General

The Bedti (Pattanadahalla & Shalamalahalla) - Varada link project envisages diversion of 302 MCM of monsoon surplus waters of Bedti basin from Pattanadahalla and Shalamalahalla diversion sites to Varada, a tributary of Tungabhadra river for augmenting irrigation in left bank command of Tungabhadra dam. Bedti (Suremane) - Dharma - Varada link envisages diversion of 222 MCM of monsoon surplus waters of Bedti river from Suremane diversion site to Varada river to be utilised in the Tungabhadra left bank canal command. The Bedti basin lies entirely in Karnataka and no interstate aspects are involved. However, Tungabhadra sub basin of Krishna basin is interstate, having area in more than one state. The present chapter deals with the interstate aspects in respect of Bedti - Varada link project.

3.1 States traversed by the rivers

3.1.1 Bedti river

The Bedti river which is also called “Gangavali” in lower reaches, is one of the principal west flowing rivers of Karnataka. The two streams Shalamalahalla and Bedtihalla originate at an elevation of +700 m from the hill ranges in the west and south of Darwar district, join near Kalghatgi town and form as Bedti river. The same is popularly known as Gangavali river and joins the Arabian sea after its confluence with Sonda river.

The total length of the river from its source to its confluence with sea near Gokarna is about 152 km. The catchment area of the Bedti river basin

is 3902 Sq.km and lies between east longitudes of 74° 17' and 75° 12' and north latitudes of 14° 32' and 15° 27'. The basin lies in Dharwar, Haveri and Uttara Kannada districts of Karnataka. The index map of Bedti basin is shown in **Plate 1.2**.

The water availability studies are carried out at diversion points viz. Pattanadahalla, Shalamalahalla and Suremane. The details are furnished in **Table 3.1**.

Table 3.1
Water availability in Bedti basin

Sl. No	Diversion point	Catchment area (Sq.km)		Yield at 75% dependability (MCM)	Proposed diversion	
		Area (Sq.km)	% of basin area		Quantity (MCM)	% of total basin yield
1	Pattanadahalla	52.80	1.35	184	114	1.94
2	Shalamalahalla	169.42	4.34	286	302 (Combined)	5.14
3	Suremane	2078.00	53.26	583	222	3.78
Total				1053	524	

3.1.2 Dharma & Varada rivers (The tributaries of Tungabhadra river)

The river Tungabhadra is formed by the confluence of the Tunga and Bhadra rivers. The rivers Tunga and Bhadra rise together in the Western Ghats on the Varaha Parvata hills at Gangamula at an elevation of about 1198 m. The catchment area of Tungabhadra sub-basin spreads over Bellary, Raichur, Chikmagalur, Shimoga, Uttara Kannada, Koppal, Gadag,

Haveri, Davangere, Dakshina Kannada, Chitradurga, Bagalkot and Udupi districts of Karnataka; Kurnool district of Andhra Pradesh and Mahbubnagar district of Telangana. The sub-basin is bounded in the north by Lower Krishna and Middle Krishna sub-basins, in the east by Pennar basin and Vedavathi sub-basin, in the south by Cauvery basin and in the west by Bedti, Aghanashini basin and Malaprabha sub-basin and lies between Lat 13⁰08'N and 16⁰17'N and Long. 74⁰50'E and 78⁰20'E. The river Tungabhadra flows for about 531 km in a generally northeast direction through Karnataka, Andhra Pradesh and Telangana and joins the Krishna river beyond Kurnool at an elevation of about 264 m. The Tungabhadra river drains a catchment area of 47827 Sq.km, of which 38790 Sq.km lies in Karnataka, 7481 Sq.km lies in Andhra Pradesh and the remaining 1556 Sq.km lies in Telangana. The Varada and Hagari are two important tributaries of the Tungabhadra. The Varada river originates at Varadamoola, 6 km from Sagara in Shimoga district and after flowing for about 220 km joins the Tungabhadra at an elevation of about 509 m near Galaganath, about 161 km below the confluence of Tunga and Bhadra. The Dharma river, originating in the Western ghats, with a drainage area of about 625 Sq.km is a tributary of Varada river. The state-wise drainage area in Tungabhadra sub basin is shown in **Table 3.2**.

Table 3.2

State-wise drainage area in Tungabhadra sub basin

Sl No	State	Catchment area (Sq.km)	% of the sub basin
1	Karnataka	38790	81.11
2	Andhra Pradesh	7481	15.64
3	Telangana	1556	3.25
		47827	100.00

On the broader perspective, the state wise drainage areas in Krishna basin are furnished in **Table 3.3** below.

Table 3.3
State-wise drainage area in Krishna basin

Sl No	State	Catchment area (Sq.km)	% of the sub basin
1	Maharashtra	69425	26.81
2	Karnataka	113272	43.74
3	Andhra Pradesh	51651	19.95
4	Telangana	24600	9.50
		258948	100

3.2 Various legal aspects on the link project

The aspects of inter-state agreements on sharing of waters, submergence, PAPs, R&R, existing and sanctioned projects and other aspects of legal nature are discussed in the following paras.

3.2.1 Sharing of waters

The surplus waters from Bedti basin are proposed to be diverted via Dharma / Varada rivers to the water short Raichur district for augmenting the irrigation use in the command of the left bank canal of Tungabhadra project in the Krishna basin. The Bedti is a west flowing river basin in Karnataka and Dharma / Varada are the streams contributing to the Tungabhadra river which is a major tributary of Krishna river.

The Bedti basin lies entirely in the state of Karnataka and so there are no water sharing agreements as far as Bedti basin is concerned. However,

the water sharing aspects prevail in Krishna basin of which Tungabhadra sub basin along with Dharma and Varada streams constitute major part of the catchment. Hence, sharing of waters needed in Krishna basin.

Krishna Water Disputes Tribunal-II (Yet to be notified) assessed the yearly yields in the Krishna and determined the state-wise allocation on the basis of the yearly yield at 65% dependability which was assessed at a total of 2,293 TMC. The average yield of the basin is estimated to be 2578 TMC.

State-wise allocation of waters in Krishna basin

The Tribunal allocated the assessed annual yields among the riparian states as indicated in **Table 3.4**.

Table 3.4

State-wise allocation of water as per KWDT II Award (TMC)

Sl.No.	State	KWDT Allocation	KWDT II	KWDT II 2010
		75% dependability	65% dependability	Average Yield
1	Maharashtra	560+25	628	666
2	Karnataka	700+34	799	911
3	Andhra Pradesh	800+11	850	1001
	Total	2060+ 70*	2277+16**=2293	2578

*Regeneration flows

** Made available for maintaining minimum flow in the stream

The 65% dependability flows which is over and above 2130 TMC that was distributed in KWDT works out to (2293-2130=**163 TMC**) and the surplus flows of (2578-2293 = **285 TMC**) are further distributed among the basin states as furnished in **Table 3.4 (a)**.

Table 3.4 (a)**State-wise further allocation of water as per KWDT II Award**

Sl.No.	State	65% flow over and above 2130 TMC	Surplus flow (2578-2293= 285 TMC)
1	2	3	4
1	Maharashtra	43 +3	35
2	Karnataka	65+7	105
3	Andhra Pradesh	39+6	145
	Total	147+16*	285

*Made available for maintaining minimum flow in the stream

State-wise allocations under KWDT- I & II in Tungabhadra sub basin

The state wise allocation of water in Tungabhadra basin as per awards of KWDT-I & II is furnished in the **Table 3.5**

Table 3.5**Project wise allocation of water in Tungabhadra sub-basin**

Sl. No.	Name of the Project	Water allocation as per KWDT-I Award	
		(MCM)	(TMC)
1.	Karnataka state		
	Bhadra anicut	88	3.10
	Tunga anicut	326	11.50
	Ambiligola	40	1.40
	Anjanapur	71	2.50
	Dharma project	62	2.20

	Tungabhadra project RBLLC	637	22.50
	Tungabhadra project LBLLC & HLC	2605	92.00
	Tungabhadra project RBHLC stage-I & II	495	17.50
	Hagari Bommanahalli	57	2.00
	Bhadra reservoir	1747	61.70
	Vijayanagara channels	341	12.06
	Rajolibanda diversion scheme	34	1.20
	Minor Irrigation	1705	60.21
	Sub total	8208	289.87
2.	Andhra Pradesh state (including Telangana state)	(MCM)	(TMC)
	Tungabhadra project RBLLC	835	29.50
	Tungabhadra project RBHLC stage-I & II	920	32.50
	Gajuladinne	57	2.00
	Rajolibanda diversion scheme	450	15.90
	K.C Canal	1130	39.90
	Minor Irrigation	183	6.46
	Sub total	3575	126.26
	Grand total	11783	416.13
		Additional allocation as per KWDT-II Award	
	Karnataka state	(MCM)	(TMC)
	Upper Tunga	340	12.00
	Upper Bhadra	283	10.00
	Singatalur LIS	510	18.00
	Grand total	1113	40.00

3.2.2 Submergence, PAPs, R&R etc

The link is proposed to take off from the proposed canal is proposed Pattanadahalla & Shalamalahalla and Suremane weirs/ barrages. The submergence at headworks is confined to river portion. Though some land is required to be acquired for headworks, conveyance system, pump houses etc., no displacement of persons is involved and hence there are no project affected population. Land to the extent required, would be acquired after payment of appropriate compensation under relevant rules. Since there are no Project Affected People (PAP), no rehabilitation measures need to be taken up.

3.2.3 Effect on project and of the project on the interstate adjudication, if any.

There is no interstate adjudication effecting the present project proposal to divert water from Bedti basin to Tungabhadra basin.

3.3 Effect on project and of the project on the existing and sanctioned projects.

There are no existing, ongoing or proposed projects located downstream of the proposed diversion structures in Bedti basin. All the projects (existing, ongoing and proposed) located upstream of the proposed diversion structures have been accounted for while working out water availability at the diversion sites. As such, there is no effect on any projects in the Bedti basin due to the proposed diversion. However, since the diverted water is used for augmenting the irrigation requirement under the left bank canal command of the Tungabhadra project, there would be a positive effect on annual irrigation under the TBLBC command and other downstream projects.

3.4 Interstate agreement/ Legal instruments / Tribunal awards

Bedti basin lies entirely in the state of Karnataka and so there is no need of any interstate agreements and not guided by any Tribunal award. The Varada and Dharma rivers are tributaries of Tungabhadra river, a major tributary of river Krishna and flowing in the states of Karnataka, Telangana and Andhra Pradesh. Thus, it is influenced by the Krishna Water Disputes Tribunal (KWDT) award and its stipulations.

Various Clauses under KWDT I &II

Various clauses of the awards of KWDT I & KWDT II, concerning Tungabhadra basin are reproduced below and appropriate measures would be taken up while implementing the link project in accordance with the said provisions.

Clause-IX (E) (5) of final order of KWDT-I

The states of Karnataka and Andhra Pradesh may by agreement, without reference to the state of Maharashtra, alter or modify any of the provisions for the utilisation of the water available in the Tungabhadra dam mentioned above in any manner.

Clause - XIV (B) of final order of KWDT-I

In the event of the augmentation of the waters of the river Krishna by the diversion of the waters of any other river, no state shall be debarred from claiming before any authority or Tribunal even before the 31st May, 2000 that it is entitled to a greater share in the waters of the river Krishna on account of such augmentation nor shall any state be debarred from disputing such claim.

Clause-X (2) (a) of final order of KWDT-II

Karnataka shall not utilize more than 360 TMC from K-8 Tungabhadra sub-basin in a 65% dependable water year (it includes allocation of 40 TMC for Upper Tunga, Upper Bhadra and Singatalur projects) or in an average water year.

3.5 a) Impact of water diversion on interstate water sharing agreement

The link project envisages diversion of surplus waters available from the proposed Pattanadahalla and Shalamalahalla ponds across Pattanadahalla and Shalamalahalla rivers of Bedti basin and the Suremane barrage across Bedti river, which otherwise go waste into the sea. There is no inter-state water sharing agreement in respect of Bedti basin. However, the diversion of water from Bedti basin into the Krishna basin may attract the **Clause - XIV (B) of final order of KWDT-I** *“In the event of the augmentation of the waters of the river Krishna by the diversion of the waters of any other river, no state shall be debarred from claiming before any authority or Tribunal even before the 31st May, 2000 that it is entitled to a greater share in the waters of the river Krishna on account of such augmentation nor shall any state be debarred from disputing such claim”* and the same needs to be addressed at appropriate time.

b) Impact of water diversion on peninsular component

1. Since the water is proposed to be diverted from underutilized west flowing Bedti basin to the overexploited east flowing major river basin Krishna, this proposal will be an excellent example of inter basin water transfer.

2. The link project stabilizes the areas of command under Tungabhadra LBC which are suffering from low inflows in Krishna river.
3. The link canal irrigates 104900 lakh ha of area annually, thus contributing significant growth in food grain production.
4. No major reservoirs are proposed except weirs and barrages with submergence confined to river portion.
5. The link canal serves the upper reaches of Krishna basin, and this will help in improved reliability of flows to downstream command areas viz under K C Canal, Telugu Ganga canal etc.
6. Balanced development of all the regions is an essential feature of Indian planning process. The link canal is supporting this idea and is envisaging to serve the areas lying in upper reaches of major river basin.