

PHYSICAL VERIFICATION REPORT
(Conducted by Dy. Director, Planning on 13-11-2010)

1. Name of Project: Construction of Weir on River Tawi.
2. Funding Agency: GOI (Accelerated Irrigation Benefit Programme) & State Plan (Agriculture Production Department)
3. Executing Agency: Irrigation & Flood Control Department
4. Year of sanction: July 2010
5. Year of Completion: July 2012 (2 years)
2013-14 (likely, if adequately funded)
6. Financial Status of Work:

(Rs. in Crores)

Particulars	Central Assistance under AIBP	State Plan	13 th Finance Commission	Total
Sanctioned Cost	25.00	20.00	25.00	70.00
Funds Released	*20.45	11.10	0.00	31.55
Expenditure Incurred (up to 12/2011)	8.91	8.19	0.00	17.10
% Releases	81%	55%	0%	45%
% Expenditure	36%	41%	0%	24%

* % expdt. is less because Rs 12.14 crore were released under AIBP in January 2012.

7. Physical Status of Work:

S. No.	Particulars	Ach.
1	Civil Works (Glacies, Piers and Cistern)	About 50% civil works completed in Waddi Tawi. Only earthwork for constructing right embankment in Nikki Tawi partially completed
2	Construction of RCC dia phargam wall/ sheet piling	
3	Construction of inverted filter on upstream and downstream of Barrage body	
4	Construction of coffer dams in Nikki Tawi and Waddi Tawi including dewatering	Work not yet taken up
5	Fabrication, erection and installation of gates complete including construction of	Welding work of embedded parts for the gates to be erected in Waddi Tawi is in progress

	Mechanically embedded parts monorails hosts, alarming system and generator sets	
6	Quality control and photography	Testing lab established on left bank of River Tawi
7	Construction of kutchra road along the bund	Work not yet taken up
8	Construction of operator quarters	Work not yet taken up
9	Strengthening/ improvement of created bund between Nikki Tawi & Waddi Tawi upstream super passage	Work not yet taken up

8. Necessity:-

The state of J&K has been an unending attraction for the visitors down the ages. Tourism trade has witnessed phenomenal growth in the state especially after independence. Tourism being an important industry in the state brings a number of social and economic benefits like promoting national integration, employment opportunities and income generation. The number of pilgrims visiting Shri Mata Vaishno Devi Shrine, Shiv Khori Shrine, Shadhra Sharief and other centres of religious importance in and around Jammu city is on a rise. As such, a number of developmental works under the tourism sector are being taken up across the state by the government to revive and promote tourism in the state. One such scheme is the development of a lake on river Tawi at Jammu which is the winter capital of the state and also known as the city of Temples. The creation of lake of about 1570 meters length and 450 meters average width on River Tawi has been envisaged for beautification of the city and development of aqua sports. This would not only give an aesthetic look to the city but also provide recreational facilities like boating, swimming, fishing, water skiing and other aqua sports.

9. Project Components

A pondage of 14,13,000 cum (0.0011 MAF) is to be created by obstructing the flow of Tawi by way of constructing auto mechanically cum manually operated fully gated barrage of 4 meters height. The surplus water shall be allowed to flow in the Tawi River again. The main components of the project are: -

- a) Construction of auto mechanically cum manually operated fully gated barrage
- b) River protection works

10. Field Observations & examination of DPR:

A Hyderabad based company; GVR Infra Projects Ltd. has been assigned on turn-key basis the task of constructing the barrage across river Tawi. The barrage having a length of 370 meters is to be constructed in two stretches since an island separates river Tawi into two distributaries, i.e., Waddi Tawi and Nikki Tawi. First stretch of 137 meters of barrage across Waddi Tawi between right bank of the river upto the island and the second stretch of 237 meters across Nikki Tawi from the island towards the left bank of the river.

At present construction work on first stretch of 137 meters of the barrage across Waddi Tawi is in progress. About 50% of civil works, such as, raising piers and developing the bed by way of constructing concrete blocks and concrete cistern with spillway and gangway along the alignment of the barrage is complete. The construction work of left and right embankments for this stretch of the barrage on Waddi Tawi is nearly complete. The piers of the barrage have been raised upto a certain level and stopped as after this level the auto-mechanical cum manually operated gates have to be installed. The welding work of the embeddings that would hold the gates to the piers is in progress at the workshop established on the island. It was apprised by the concerned Engineers that once the embeddings are ready, the piers will be raised upto the desired level along with installation of the gates which have already been procured.

The construction work on the second stretch of the 237 meters long barrage across Nikki Tawi is yet to start. However, some earth work has been done in order to construct the right embankment of this barrage on the island. A temporary bund which had been raised across the river to prevent water from entering into Waddi Tawi or towards the island where work is in progress had breached due to rains during a couple of days before the day of the field inspection. This had affected the earthworks to some extent and sand/mud had also covered the RCC flooring where the barrage is being constructed on Waddi Tawi.

On enquiring about the system adopted by the Department in maintaining quality of works under execution, the concerned Executive Engineer informed that the private company which has been assigned the job has established its office on the left bank of river Tawi where they also had a testing lab. The concrete samples are being tested randomly by the Engineers of the Private Company as well as the Irrigation Division on the days when mixing work is in progress.

One of the guidelines in the Government Order wherein administrative approval has been accorded to the project is that the project shall be put to execution after technical vetting of the "Design" by the Central Water Commission (CWC), GoI. However, it was informed by the Executive Engineer of Irrigation Division No II Jammu that the design and drawings of the project have been approved by Engineers of the Indian Institute of Technology (IIT) and not by CWC. The Engineer further elaborated that

technical vetting of the design was obtained from IIT because it was taking too long for the CWC to examine and vet the design. Although the project was approved in July 2010, the work started only in 2011 due to the obvious reasons.

Perusal of the DPR also indicates that the project has been designed after studying the manual of hydrological data of River Tawi available with the State Government Departments and the CWC.

It is also found recorded in the DPR that there is no violation of the Indus Water Treaty in obstructing the normal flow of river Tawi, a tributary of river Chenab. As per the provision of Indus Water Treaty of 1960, a total pond-age of 0.50 MAF (million acres feet) can be created in tributaries of river Chenab. After the construction of proposed barrage in Tawi a pond-age of only 0.0011 MAF shall be created which is well within the provisions of Indus Water Treaty.

11. Problem Areas/ Suggestions:-

a) Location of the Barrage:

The barrage is being constructed about 1040 meters down stream of Tawi Bridge in Jammu city. In the DPR it is mentioned that this is the ideal site for construction of the Barrage because minimum width of the river is 370 meters (237 m in Nikki Tawi & 133 m in Waddi Tawi) at this location. Further, it is mentioned in the same DPR that the width of river Tawi varies from 300 meters at Tawi Bridge to 600 meters near the start of central island where the barrage of 370 meters width is being constructed.

This indicates that, had the construction work of the barrage been taken up at Tawi Bridge its length would have been only 300 meters, i.e, 70 meters less than the approved length of 370 meters at its present location.

If there isn't any other reason to justify the location where the barrage is being constructed, the site selection is erroneous. Deducting 70 meters out of the approved barrage length of 370 meters would imply reduction of 19% of the barrage length. That is the cost of construction of the barrage by just changing the site could have been brought down by 19%. This excess financial implication which would be in crores, if not justified by the Irrigation & Flood Control Department, is indeed wastage of public money and a huge loss to the exchequer.

b) Need for conducting a thorough geological/hydrological study of the river vis-à-vis design of the barrage:-

An artificial lake is being developed on river Tawi near Jammu city the second most populous city and the winter capital of the state of J&K. The Engineers of I&FC Department informed that the river Tawi is mostly

flooded during monsoons and, as such, the initially envisaged option of constructing a bund across the river to develop a lake had to be given up and instead the design of constructing a barrage with auto-mechanically cum manually operated gates was approved. There was apprehension that the huge quantity of sand and gravel that the river carries with it during floods could breach the bund and hence it was decided to install gates which could be opened during floods thereby preventing damage to the barrage. All necessary precautions seem to have been taken by I&FC Department and the design of the project has also been approved by the Engineers of IIT.

However, the point to be noted here is that the design of the project has not been approved by the Central Water Commission (CWC) as prescribed in the guidelines issued by the Government. The CWC maintains the hydrological manual of all the rivers including river Tawi based on which the DPR has been prepared. Although the design has been approved by IIT on the basis of which work could be started, however, the I&FC Department also needs to ensure that the CWC also approves the designs so that any precaution if over-sighted in the urgency to start the work immediately for the project was getting delayed is also taken into account. Obstructing/ training the flow of perennial rivers especially in the higher reaches between hills where the flow is vigorous and the rivers carry considerable quantum of gravel and silt during floods is a challenging job and needs to be properly planned/ designed. Any lapse in the planning/design of this project would be disastrous for Jammu city.

c) Treating the liquid waste of Jammu city which flows into river Tawi:-

The entire liquid waste from the residential/ commercial areas of Jammu city is presently being drained through different drains/ nallahas into river Tawi. The concerned Executive Engineer informed that NBCC and ERA are improving/upgrading the entire sewerage system of Jammu city. The liquid waste of all the drains and nallahas flowing into the river will be diverted towards the Sewerage Treatment Plants (STPs) constructed at Bhagwati Nagar where the waste shall be treated before water is discharged into river Tawi.

The H&UDD needs to ensure that the drainage/ sewerage work which is under progress in Jammu city is completed at the earliest. Before the lake is developed it is necessary to divert the flow of entire liquid waste towards Bhagwati Nagar for treatment. Draining liquid waste into an artificial reservoir would be hazardous for the inhabitants of Jammu City.

d) Re-habilitation of household residing on the island:-

A scheduled tribe family was found residing on the island which is proposed to be developed into a tourist spot/ garden. The Deputy Commissioner, Jammu needs to see that the family is properly re-habilitated elsewhere so that the portion of the island which is to be developed as a

tourist spot is cleared. This would be much easier task today than at a later stage.

e) Slow pace of work: -

The I&FC Department needs to ensure that the execution of the work is expedited. Presently only the construction work of barrage has been taken up. The other works such as construction of embankments, reclamation of lands along the banks of Tawi from the bridge upto the barrage for developing these into green belts and construction of katcha approach path which are also part of the project also need to be taken up simultaneously. The other Departments, such as, Tourism, Floriculture, JDA, JMC, etc. which will also have to co-ordinate in developing the banks of the lake to develop the site into a tourist spot also need to keep necessary provision of funds in their Plan budget during the next couple of years. The works which these Departments could carry out simultaneously need to be taken up at the proper time for which advance planning is required. The Divisional Commissioner, Jammu could convene a meeting of the heads of different Departments to decide about the assignment of works to different Departments, the financial allocation required to execute the works and also fix a time-schedule for each Department to finalise and commence their respective component of work.

Physical Verification Conducted by:	Madan Gopal Sharma, Deputy Director Planning, Monitoring Cell, Chief Minister's Secretariat.
Officers of Executing Agency who accompanied:	Sh. Sunil Gupta, Executive Engineer, Irrigation Division No.-II, Jammu.