

HATHIADH IRRIGATION PROJECT

TEHSIL : KISHANGANJ

DISTRICT : BARAN

Agenda note for Administrative and financial Approval

1.0

INTRODUCTION AND GENERAL

1.1

INTRODUCTION AND HISTORY

Hathiadeh Medium Irrigation project is proposed on Hathiadeh nallah, a tributary of Kul River to provide irrigation facilities to 37 villages of Kishanganj Tehsil of Baran District. Baran is an important district Rajasthan State from the agriculture point of view. The Geographical area of Baran district is 6955.40 SqKm which is 2.0324 % of the total area of Rajasthan State. Out of the total area of Baran District, 4230 SqKm area is culturable and the irrigation facilities to an area of 1130.62 SqKm out of the total C.C.A. is at present available by existing Medium & Minor projects and the existing canal system from Kota Barrage. Thus only 26.72% of total C.C.A. is at present having irrigation facilities. The on going projects i.e. Bethil in Chhabra Tehsil and Parwan lift in Baran Tehsil shall provide irrigation facilities to an area of 14144 Ha. The proposed 6 Nos. Medium projects and 46 Nos. Minor projects as per master plan 1993 shall also provide irrigation facilities total area of 436.16 SqKm i.e. 10.31 % of total C.C.A. Thus 62.97 % of the total C.C.A. shall remain unirrigated while the land of area are most fertile and productive and the cultivator of the area are very hard working and are very anxious for fulfillment of their keen demand of the proposal of Hathiadeh Irrigation Project. Hathiadeh irrigation project is also one project of the proposed projects as per Master plan 1993

A Study of Irrigation schemes on streams and nallas flowing in Baran District has been carried out and Hathiadeh Irrigation project is one of the most feasible Scheme to provide Irrigation facilities in C.C.A. of 6885 Hect. (17006 Acres) in the estimated cost of the project is Rs. 23253.00 Lac.

Hathiadeh Irrigation project is proposed about 5 K.M. D/S of M.P. - Rajasthan boundary near village karwari khurd in Kishanganj Tehsil on Hathiadeh nallah tributary of kul River. The Hathiadeh nallah originates from Telni projected forest (about 5 km west of village Ganeshpura) and flows East - West for about 18 km before joining river kul near village Daulatpura. River kosam flows about 5 km North of this proposed Hathiadeh nallah in the East-West direction and joins kul parbati River. The water of kosam river and Hathiadeh nallah are going waste at present though the soil of the command area is fertile and suitable for all types of crop. The cultivators of the area are hard working and progressive for implementation of project, they are likely to take an intensive cultivation when Irrigation facilities are made available in the area. It is proposed to utilise full yield from the catchment of Hathiadeh and kosam river from providing Irrigation facilities to them by construction a reservoir and canal system for the same.

1.2

LOCATION OF SITE

Proposed site of dam is near village Karwari khurd, Tehsil Kishanganj Distt. Baran and is about 9 km North-West of Garada. The coordinates of site are Latitude 25°17' and Longitude 76°43'. The site is approachable from Baran shahabad road by bitumen road upto village karwari khurd and thereafter 1 km long kaccha Road.

CATCHMENT AREA

As most of the catchment area is covered by protected forest and has been classified as "Mean of Average & "Good" as per strange's classification. Catchment area at dam site is 269.31 Sqkm. (105.2 Sq. Miles) and total catchment area of kosam river at site of diversion weir is 118.78 Sqkm. (46.4 Sq.Miles) out of which 66.56 Sqkm. (26 Sq.Miles) is in M.P. State and rest of 52.22 Sqkm. (20.39 Sq.Miles) in Rajasthan. Catchment area of this project has been classified as mean of good and average.

SELECTION OF SITE

The dam site was initially selected by close examination of G.T. sheet of survey of India on scale 1:50000 and finally by site inspection a few meters D/S of the junction of three small nallas with main Hathiadeh nallah after taking into account all the relevent factor as under:-

- 1 Site for spillway of low height is available on the left side with exposed hard rock on the surface.
- 2 site is easily approachable.
- 3 Good soil for construction of earthen bund is available on upstream of proposed dam site and other construction materials are also available within reasonable hauling distances.

RAINFALL

There is no, rain gauge station located in the catchment. The rain gauge stations located in near vicinity of the catchment are Kishanganj, Mangrol, Shahbad and Sheopur. The rainfall data of these four statios from the year 1970 to 2003 has been collected and same has been consolidated for calculation of yield. The yield has been calculated from catchment area of Rajasthan and regeneration from M.P. catchment @ 10% (Appendix - 1). The only three rain gauge stations i.e. Mangrol, Kishanganj and Shahbad effects the catchment area of Hathiadeh Irrigation project.

RUN OFF

No observed run-off data at the site is available, therefore, by regression analysis observed run-off of Khatoli gauge site has been transposed. On the basis of monthly rainfall data since June to October of said gauge stations for year 1973 to 1997 and by drawing a Thisen's polygon, weighted rainfall has been calculated for computation of yield from the catchment. The rainfall - runoff co-ralation for parbati river at khatoli gauge and discharge site (The nearest guage and discharge site of CWC Dehli) has been transposed to Hathiadeh catchment after developing relationship in between weighted rainfall at Khatoli gauge site and rainfall stations on periphery of the catchment of the Project. Monthly inflows at project site have been computed on basis of above relationship and thus the monthly yield has been calculated at Hathiadeh project since year 1973 to 1997. The 75% dependable yield has been worked out, by arranging the annual yield in decending order. The yield calculated comes to 48.83 Mcum from catchment of Rajasthan and condidering 10% regeneration from M.P. catchment but storage has been

LIFE OF THE RESERVOIR

No observed silt data are available. The silt level of the head out let sluice is proposed at R.L. 253.5 which gives a dead storage of 4.00 Mcum (141.26 Mcft) According to empirical formula given by Dr. A.N. Khosia the rate of silting is 1/40 Mcft per year Sq.miles of the catchment area.

Therefore, silt received per year = $1/40 \times 105.2 = 2.63$ Mcft of free catchment area. However, silt data is being observed by Water Resources Survey Division No. 7 of Ganga Water Basin for Parwati River at Khtoli site. The observed data is as under:-

Period	Name of site	Period
7/1978 to 6/1979	Parwati river at Khatoli site	7/1987 to 6/1979

The type of catchment area of the proposed Hathiadeh dam is not different from the catchment area of Parwati River and hence the natural site will be approx., 1/69 Mcft per simile/per year. However to be on safer side it is proposed to consider silt load of 1/69 Mcft per Simile/per year. However to be on safer side it is proposed to consider silt load of 1/30 Mcft per year per sqmile of the free catchment and thus total silt load in 50 years will be 4.96 Mcft as calculated below:-

Total silt in 50 year = $1/30 \times 105.2 \times 50 = 175.33$ Mcft or 4.96 Mcum.

Total distribution of total silt recived in assumed life of 50 years for the reservoir has been done as per ISI code No. 5477 (Part-II) 1994 and enclosed herwith as Appendix XI (silt storage table) Thus dead storage of 4.00 Mcum provided is sufficient for considering 50 years life of the dam

WATER LOGGING

The depth of water table in the area varies from 6 meter minimum and 10 meter maximum during summer season, which is quite safe. As per local enquiry the rise in water table is 1.5 to 2 M. after rainy season. Which means that depth of water table variation is very less and quite below the root zone of plants. Further the overall slope and drainage of the area quite good therefore no problem of water logging is anticipated after the introduction of Irrigation in the area.

However to meat any contingency, provision of Rs. 10,00,000/- for drainage work has also been included in the project estimate.

SEISMOLOGICAL CONDITIONS

Earth quakes of serious nature have not been experienced in the area and no serious damages even from local tremors have been reported. Therefore earth quake forces have been neglected in the design of the dam.

GEOLOGY OF DAM SITE

The geo-technical investigation for or the proposed dam site across Hathiadeh nallah has been carried by Geological survey of India. The bed rock is expected at shallow depth all along the dam alignment Due to availability of bed rock at shallow depth positive cut off trench for earthen dam would be feasible.

The whole dam site is underlain by quartzite sand stones and covered ground the exposures of sand stones are confined to nallah bed and in the right bank of nallah.

However a provision of 10Lacs has been taken for foundation treatment.

A reconnaissance Geotechnical report on this proposed Hathiadeh Irrigation Project in the field season 1979-1980 is prepared by R.B. Nag (Sr. Geologist) & C. Paul (Jr. Geologist) Geological Survey of India has been received and enclosed.

TEMPERATURE & HUMIDITY

Data about temperature and humidity at kota are available From year 1975 to 1977 and are shown in Appendix - The normal maximum and minimum temperature are 41.90C° & 61.10C° and relative humidity maximum 91% and minimum 12%.

COMMAND

The gross command area of the project is 10,091 Hect. Out of which 6885 Hect. (17006) is culturable as per revenue records Further details of classification of command area is as under:-

1)	Chahi (Well Irrigated)	43.5 Hect.	107.44 acres
2)	Baruni (Un Irrigated)	3962.5 Hect.	9787.37 acres
	Beed+padat (Fallow and posture		
		396.5 Hect.	979.35 acres
	Govt. owned culturable waste land		
		2482.5 Hect.	6082.37 acres
3)	Private un-culturable waste land.		
		2.0 Hect.	4.94 acres
	Government owned un culturable waste land		
		800.00 Hect.	9889.88 acres
	Total	10091.0 Hect.	24925.00 acres

Whole command is taken between Parwati river and kosam river and soil of the command area is black cotton in some area and brom or yellow loam in remaining areas. It is fertile and suitable for growing all type of crops. The entire command area will be served by two canals R.M.C. & L.M.C. keeping intensity of Irrigation as 89%.

1.13

SURVEY AND INVESTIGATION

The survey of command area, the canal alignment and reservoir area have been carried out in detail. Survey of canals for commanded area have also been carried out to finalise particularly of earth for earthen dam have also been carried out, to locate them within minimum possible leads.

1.14

LAND TO BE SUMERGED AND RESETTLEMENT OF DISPLACED PERSONS

It is proposed to give compensation for land coming in submergence up to 75% of live capacity, of the dam as the rest will be exposed after first watering for bed cultivation. For other properties such as houses wells etc. the compensation is proposed to be paid for their submergence up to M.W.L. Apart from payment of compensation necessary measures will be taken for their rehabilitation also in nearby areas.

1.15

INTER STATE ASPECT

Rajasthan State is attached with Madhya Pradesh state and its South-Eastern boundary covering maximum length of Baran district form the inter state boundary. Most of the rivers of Baran district enter in Baran District after flowing primarily through M.P. State and they meet with the Chambal river or its tributaries ultimately.

The Nallah on which the project is proposed is one of them. This nallah originates in form of a small nallah near village Jokonia and joins the Kul river which ultimately joins the river Parwati.

The only interstate aspect is that out of the total catchment area of the nallah upto dam site 269.31 Sq.km. 66.56 Sq.km. fall in M.P. and 202.75 Sq.km. in Rajasthan.

It has been studied and observed on latest G.T. Sheets of the scale of 1: 5000 (No.54C/11) that there is no possibility of dam in M.P. If however M.P. state intercepts their total catchment area. The yield accounted for proposed project will not be effected as the yield available at dam site has been computed considering the available catchment of Rajasthan plus only 10% regeneration from M.P. catchment. The project parameters have been computed accordingly. Considering 75% dependable yield available only as per norms classified above. The interstate aspect regarding use of 10% regeneration of M.P. catchment has been regularised vide M.P. state vide his order No. 94/19/31M.D.S./90/2218 BHOPAL Dated 12.10.99

This project is proposed to be funded by state Government under state plan Anicut there is no interstate aspect associated with this project because in 12th meeting of M.P. Rajasthan interstate control board held on 03.06.1999 at Jaipur under Item no. (3). It was decided that " For any project could use yield from its own catchment plus 10% of the yield of the catchment in the territory of other state subjected to the following conditions- (a) There is no submergence in other state, in such cases no clear rain other state will be necessary and it will be presumed that other state has no object to the project. (b) The implementing state shall not start construction of such project till it submits the detailed survey report in all such cases to other state daily certificate that there is no submergence in interstate. In this project there is nil submergence of M.P. state and project parameters have been computed considering 75% dependable yield available only as per norms clarified, provision for 10% regulation yield of MP catchment has been taken in completion of the yield of the project.

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(a) There is no submergence in other state , in such cases no clearance from other state will be necessary and it will be presumed that other state has no objection to the project.

The implementing state shall not start construction of such project till it submits the detailed survey report in all such cases to other state duly certified that there is no submergency in otherstate.

In this project there is nil submergence of M.P. state and project parameters have been computed considering 75% dependable yield available only as per norms clarified. Provision for 10% regeneration yield of MP catchment has been taken in computation of o yield of the project.

The entire land coming under submergence is of Rajasthan state and no village of either Rajasthan or M.P. is coming under submergence. The provisions for compensation of land of Rajasthan coming under submergence has been taken in project report.

The detailed project report for this was prepared by S&I Division Baran and last updated in the year 2006 based on the prevailing BSR. Again the DPR has been revised based on BSR 2014 of WR Circle Baran and the details for estimates, submergence area, compensation for forest and private land all arte based on the previous DPR. Hence it is required to get the detailed survey of this project to be conducted before implementation. Also budget of Rs 20.00 lacs will be required for this work.


Executive Engineer Engineer
Water Resources Division III
Baran