

SONKHEDI TANK PROJECT

District :- Barwani

Tehsil:- Varla

PROJECT AT A GLANCE


Sonkhedi Tank Project Project Is proposed to be taken up under Tribal Plan . The site is located in Sendhwa block of Barwani District . The project is located on local Nalla near village Sonkhedi which is approachable through 117 km By Tar road from Barwani district and then 3 Km by cart track near village Sonkhedi.


The net catchment area at the proposal tank site is 25.03 sq.km. as per Topo sheet No. 460/7 on Longitude 75°29'13.784"E & Latitude 21°24'12.727"N . Sendhwa rain gauge station has been considered for hydrological calculations being the nearest to the site. The rainfall record of 41 years (1974-2014-15) has been considered for hydrological calculations. The mean annual rainfall is 825.561 mm and corresponding mean annual yield is 5.494 MCM with diminishing factor of 0.9. The 75% dependable annual rainfall is 659.5 mm and corresponding 75% dependable annual yield has been computed is 3.412 M.cum. with diminishing factor of 0.9.

The estimated cost of the project is Rs. ¹⁸⁵³⁻¹⁰18,53,10,000 lakhs. The cost per Ha. is Rs. ^{3.48}3,48 lakhs/Ha. The benefit cost ratio at 5% interest is ^{2.49}2.49 and at 10% interest is ^{1.47}1.47.

The project seems to be economical looking to the poor agriculture villagers. Hence it is recommended to be taken up under Tribal Plan.

The project on completion will extend irrigation facilities to 533. of Rabi . The irrigation benefits will be drawn by 100 % Tribal cultivators . During construction the scheme will provide employment to 20 % Tribal local population.


Sub Divisional Officer
Water Resources Sub Division
Sendhwa


Executive Engineer
Water Resources Division
Barwani

SONKHEDI TANK PROJECT

Tehsil:- Varla

District :- Barwani

REPORT

Introduction:-

The proposed site is situated on the Local Nalla in the block of Sendhwa. The proposed site is situated Near Village Sonkhedi in Sendhwa block in Barwani district in Madhya Pradesh state.

Location:-

Sonkhedi Tank Project is proposed to be taken up under Tribal Plan. The site is located in Sendhwa block of Barwani District. The project is located on local Nalla near village Sonkhedi which is approachable through 117 km By Tar road from Barwani district and then 3 Km by cart track near village Sonkhedi.

Proposal:-

Proposed Sonkhedi Tank Project is proposed on Local Nalla Near Village Sonkhedi. The catchment area up to proposed site is 25.03 Sq. km.

The proposed dam is earthen embankment having length of 469.57 m. The surplusing arrangement having the overflow length of 67 m to route the flood discharge of 257.38 cumecs of discharge having a flood lift of 2 m is provide on Right side of the dam. The maximum height of earthen embankment is 26.46 m. on Dam axis.

Hydrology:-

The net catchment area at the proposal tank site is 25.03 sq.km. as per Topo sheet No. 460/7 on Longitude 75°29'13.784"E & Latitude 21°24'12.727"N. Sendhwa rain gauge station has been considered for hydrological calculations being the nearest to the site. The rainfall record of 41 years (1974-2014-15) has been considered for hydrological calculations. The mean annual rainfall is 825.561 mm and corresponding mean annual yield is 5.494 MCM with diminishing factor of 0.9. The 75% dependable annual rainfall is 659.5 mm and corresponding 75% dependable annual yield has been computed is 3.412 M.cum. with diminishing factor of 0.9.

Dam:-

An earthen dam of 469.57m earthen cmbankment been proposed. The maximum height of Earthen bund is 26.46 m. The earthen dam profile is proposed homogeneous with the recommendations as mentioned in Technical circular No. 40. Cutoff trench is provided from ground level at level where MWL touches.

The Cutoff trench is provided up to depth of (half the height of MWL to ground level) with minimum depth of 2.0 m.

Boulder toe height is kept one fifth of bund height with minimum height of 0.90 m. 22 cm thick dry stone pitching on upstream slope over 15 cm thick quarry spalls from MWL to LSL is provided.

Reservoir Principle Levels and Capacity :-

The following Principle Levels have been proposed for the reservoir after detailed study

Particulars	Level in M	Capacity in MCM
Lowest Nalla Bed Level (NBL)	382.8425	
Lowest Sill Level (LSL)	395.10	0.448
Full Resrevoir Level (FRL)	405.30	3.408
Maximum Water Level (MWL)	407.30	
Top Bund Level (TBL)	409.30	

Basin and Submergence :-

The Basin is surrounded by semi hillocks. An area of 47.55 Ha of Forest Land coming under submergence.

Cropping pattern :-

The following cropping pattern is proposed to serve 533 Ha of command.

Rabi	Area (Ha.)
Wheat (Hy.)	125
Wheat (Ord.)	262
Gram	146
Grand Total	533

Irrigation Sluice :-

Irrigation o Right side of the stream is proposed, necessitating an Unlined of only One sluice with a discharge of 0.993 cumecs.

Canal Alignment :-

Canal alignment is a countour canal and it is proposed an Unlined canal : having discharge 0.85 cumecs in the : beginning and 0.02 cumecs at the tail end : to irrigate 533 hectares of land.

Flood :-

The flood computation are made as per the maximum design discharge of 257.38 cumecs for a catchment of 25.03 Sq.Km. according to the value of "C" in Dickens formula is 23, $Q = CM^{3/4}$ the discharge worked out as 257.38 cumecs. A Flush bar is located on Right side of dam axis. 2 m. flood lift to route the flood discharge of 257.38 m³/sec with 67 m length of flush bar.

Estimate :-

The cost of project has been calculated on schedule of rates 2017 enforced from 01.09.2017. As it is Technical Sanction the major components of the project has been considered to estimate the cost of project such as 'L' Earth Work o Bund, 'C' Masonry, chute fall and "B" Land etc.

Unit I Head Work

"A" Preliminary : NIL

"B" Land :- Lakhs - - 820.68

"C" Masonry :- Lakhs - - 147.65

"L" Earthwork :- Lakhs - 575.998

Unit II Canal

"A" Preliminary : NIL

"B" Land :- 22.53 Lakhs

"C" Masonry :- 98.23 Lakhs

"L" Earthwork :- 38.19 Lakhs

Specifications :-

Specification shall be following as per the specifications of Govt. of Madhya Pradesh Water Resources Department.

Recommendations :-


1858-10

The proposed Sonkhedi Tank Project cost amounting to Rs 1858.10 Lakhs to provide irrigation of 533 Rabi with cost per hectare Rs 3.48 Lakhs/Ha. The submergence area of the scheme is fully in forest. There for the cost per hectare is increasing. Yet the scheme is viable. Hence is recommended for approval.


Sub Engineer


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