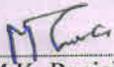
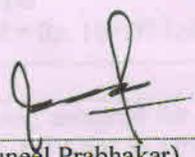


Cost Benefit Analysis for
TENDUA NALLA TANK SCHEME
On the Basis of Guideline for Forest land diversion 2017

Table-A Cases Under which a cost benefit analysis for forest diversion are required

S.No.	Nature of Proposal	Applicable/Not Applicable	Remark
1.	All categories of proposal involving forest land upto 20 Ha. In plains and upto 5 Ha. In hills.	Not Applicable	
2.	Proposal for defence installation purpose and oil prospecting(Prospecting only)	Not Applicable	
3.	Habitation, establishment of industrial units, tourist lodges complex and other building construction.	Not Applicable	
4.	All other proposals involving forest land more than 20 ha. In plain and more than 5 Ha. In hills including roads transmission lines, minor medium and major irrigation project hydro, medium and mining activity, railway lines, location specific installations like micro-wave station, auto repeater centres, TV towers etc.	Applicable	These are cases where a cost benefit analysis is necessary to determine when diverting the forest land to non-forest use of overall public interest. The Tendua Nalla Tank Scheme falls under this category.

 (M.K. Rusia) Sub Divisional Officer Water Resources Sub Division Chhatarpur (M.P.)	 (Suneel Prabhakar) Executive Engineer Water Resources Division Nowgong (M.P.)
--	---

TENDUA NALLA TANK SCHEME

Table-B Estimation of Cost of Forest Diversion

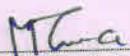
S.No.	Parameters	Remarks
1	Ecosystem Service losses due to proposed forest diversion	Ecosystem services due to diversion of forest land suggested by the forest classification report of proposed, TENDUA NALLA TANK SCHEME is Rs. 8.03 Lakhs/Ha Cost of land = 45.278 × 8.03 = 363.58 Lakhs Eco class III consisting of tropical dry decided forest dams.
2	Loss of animal husbandry productivity including cost of fodder.	As per the cost benefit guideline i.e. 10% of N.P.V. 0.803 Lakh per Ha. = 45.278 × 0.803 = 36.35 Lakhs
3	Cost human resettlement	There is no human settlement due to proposed TENDUA NALLA TANK SCHEME. Hence cost of human resettlement is Nil.
4	Loss of public facilities and administrative infrastructure (Road, Building, Schools, dispensaries, electric lines, railways etc.) on forest land if these facilities were diverted due to the project.	There is no loss of public facilities and administrative infrastructures of forest land due to construction of TENDUA NALLA TANK SCHEME. No cost has been added on this account.
5	Possession value of forest land diverted.	The possession value of forest land diverted is taken 30% of the N.P.V. due to loss of forest i.e. Rs. 2.409 Lakhs/Ha = 45.278 × 2.409 = Rs. 109.07 Lakhs
6	Cost of suffering to oustees	Not applicable
7	Habitat fragmentation cost	Forest land is being acquired for submergence of TENDUA NALLA TANK SCHEME There is no amount is taken under this account.
8	Compensatory afforestation and soil and moisture conservation cost.	The cost @ Rs. 4.00 Lakhs per Ha is taken for compensatory afforestation, and soil moisture conservation. Hence amount will be = 45.278 × 4.00 = 181.11 Lakhs
9	Total cost due to forest land diversion	Total cost due to forest land diversion for Tendua nalla tank scheme will be = 363.58+36.35+109.07+181.11 =690.11 Lakhs

 (M.K. Rusia) Sub Divisional Officer Water Resources Sub Division Chhatarpur (M.P.)	 (Suneel Prabhakar) Executive Engineer Water Resources Division Nowgong (M.P.)
--	---

TENDUA NALLA TANK SCHEME

Table-C Existing guidelines for estimating benefits of forest diversion in CBA

S. No.	Parameters	Remarks
1	Increase in productivity attribute to the specific project	The crop production benefit due to TENDUA NALLA TANK SCHEME will be Rs. 217.68 Lakhs in designed life of 50 years and water level will be increase economy growth of the project. Project also reserves the water for drinking purpose for adjacent villages.
2	Benefits to economy due to the specific project	TENDUA NALLA TANK SCHEME will trigger economy development and also influence with irrigation facility to a land of 340 Ha in the surrounding area. Irrigation is proposed by Gravity flow system.
3	No. of population benefitted due to specific project	Project is located in backward area of the village. After completion of project 340 Ha. Cultivators will be benefitted and water level will be increased in surrounding area. This project will also facilitate drinking water supply to adjacent villages.
4	Economic benefits due to of direct and indirect employment due to the project	The project will be provided direct employment for approximate 100 people (24 month) during construction period.
5	Economic benefits due to compensatory afforestation	An economic benefit due to compensatory afforestation has considered as per the benefit of C.A. guidelines of ministry for N.P.V. estimation.

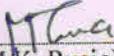
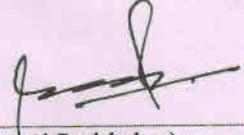
 (M.K. Rusia) Sub Divisional Officer Water Resources Sub Division Chhatarpur (M.P.)	 (Suneel Prabhakar) Executive Engineer Water Resources Division Nowgong (M.P.)
--	---

TENDUA NALLA TANK SCHEME

4

COST BENEFIT ANALYSIS

Total Cost due to forest land	-	690.11 Rs. Lakhs
Total benefit due to project	-	217.68 Rs. Lakhs
Benefit ratio of Scheme	-	1.53

 (M.K. Rusia) Sub Divisional Officer Water Resources Sub Division Chhatarpur (M.P.)	 (Suneel Prabhakar) Executive Engineer Water Resources Division Nowgong (M.P.)
--	---

5

TENDUA NALLA TANK SCHEME
BENEFIT COST RATIO

Project Cost : Rs. 1314.36 Lakhs
Irrigation : Rabi 340 Ha.

Predevelopment (Economics of Tank Irrigation Scheme)								
S.No.	Name of Crops	Area under Cultivation	Cost of cultivation	Total cost of cultivation	Yield/Ha	Rate per qtel.	Total Yield	Total Value of produce Rs.
1	2	3	4	5	6	7	8	9
1	Rabi							
	Ord. Wheat	80	5000	400000	10	1600	800	1280000
	Gram	40	6000	240000	8	3500	320	1120000
	Total			640000				2400000

Postdevelopment (Economics of Tank Irrigation Scheme)								
S.No.	Name of Crops	Area under Cultivation	Cost of cultivation	Total cost of cultivation	Yield/Ha	Rate per qtel.	Total Yield	Total Value of produce Rs.
1	2	3	4	5	6	7	8	9
1	Rabi							
	Ord. Wheat	85	6000	510000	26	1600	2210	3536000
	Gram	85	8000	680000	18	3500	1530	5355000
	Hy. Wheat	170	9500	1615000	32	1800	5440	9792000
	Total	340		2805000				18683000
2	Fisheries Benefits @1500-kg/Ha of Submergence area @ Rs. 120/kg.				15	12000	680	8160000
	G.Total							26843000

A- Benefit:-

1-Value of total agriculture produce before irrigation Rs :2400000
Cost cultivation to economy Rs. : 640000
Net production before irrigation Rs. : 1760000
2-Value of total agriculture & Fisheries Benefit after irrigation Rs :26331128
Cost cultivation to economy Rs. :2805000
Net production After irrigation Rs. : 24038000
Net Benefit Rs. 240.38 Lakhs - 17.6 = 222.78

B- Annual Cost :

	5%	10%
(i) Project Cost 5% interest	65.72 Lakhs	131.43 Lakhs
(ii) Depreciation @1% on Project Cost	13.14 Lakhs	13.14 Lakhs
(iii) Administrative expenses @Rs. 250 per Ha. (Designed irrigation ×250)	0.85 Lakhs	0.85 Lakhs
Total 'C' = (i+ii+iii)	79.71 Lakhs	145.42 Lakhs
Benefit Cost Ratio	2.79	1.53

 (M.K. Rusia) Sub Divisional Officer Water Resources Sub Division Chhatarpur (M.P.)	 (Suneel Prabhakar) Executive Engineer Water Resources Division Nowgong (M.P.)
--	---