

**REPORT TO ACCOMPANY THE ESTIMATE FOR THE FORMATION OF A TANK  
ACROSS JUNGLE STREAM NEAR KANAKKAMPALAYAM VILLAGE IN GOBI  
TALUK OF ERODE DISTRICT.**

**Est. Rs.6420.00 Lakhs.**

**SYNOPSIS**

The Kanakkampalayam Tank scheme is proposed across jungle stream which take its origin near Madapatti hill village in the midst of Gudialathur reserve forest land flows in the Southern direction for about 13.60 KM and joins with the Bhavani river finally. The proposed site is situated at Latitude  $11^{\circ} 33' 31''$  and Longitude  $77^{\circ} 26' 21''$  in Forest area near Kanakkampalayam village boundary of Gobi Taluk in Erode District. The tank is situated near Kanakkampalayam village of Gobi taluk and just at about 5 Km of Bungalow pudur-Kallipatti road. The site is connected by bus upto Bhagavathi Amman Koil from Gobi. The scheme comes in Bhavani Sub basin of Cauvery Basin..The Scheme has been prepared on the basis of petition received through the CM cell petition no. 031103 and 033138 (Petitioner Mr.Nallusamy and Mr. Samyraj, Bhagavatinagar, Kanakkampalayam village. The scheme envisages

1. Formation of a Tank of 0.814 MM<sup>3</sup> (28.75Mcft) with an annual storage of 1.221 MM<sup>3</sup> (43.12Mcft) in 1 ½ fillings.
2. Forming an earth bund 1250M length including uncontrolled Spillway for a length of 105 M (From L.S 400 M to 505 M).
3. Construction of two tower head sluices at L.S.572M and at 660 M i.e. one tower head for left side canal and at another for right side canal.
4. Excavation of right side canal for a length of 3.14 Km to benefit a dry extent of 350 Acres or 141.63 Hec.
5. Excavation of left side canal for a length of 2.15 Km to benefit a dry extent of 150 Acres or 60.70 Hec.
6. In addition to direct irrigation, 1800 acres of cultivable land will be indirectly benefitted through recharging the wells in Kanakkampalayam, Perumugai and Kondayampalayam village. There are 492 openwells and and borewells will be benefitted by implementation of the scheme,.

7. This estimate has been prepared on the basis of approved design given by the SE, Designs Circle, Chennai.

The cost of the scheme works out to Rs. 6420.00 Lakhs based on the current schedule of rates for the year 2017-2018. The net additional food production anticipated is 1942 tonnes. and the rate per tonne works out Rs. 3,33,000/-. The rate per acre and Hectare will be Rs.281500/- and Rs.695600/- respectively.

### **RIVER BASIN:-**

This jungle stream takes its origin near Madapatti hill village which is about 11 KM from the Kanakkampalayam village in the midst of Gudiyalathur reserve forest and flows Southern direction for about 13.50 km and falls into Bhavani river . The flow is available during both South West and North East monsoons.

There are no existing works across the stream either upstream or downstream of the proposed tank site. The stream at the proposed site has got a free catchment area of 20.30 Sq.KM or 7.93 sq.miles. The yield available at tank site is 2.012 MM<sup>3</sup> or 71.05 Mcft.

### **HISTORY OF THE SCHEME:-**

The proposal is to form a tank across jungle stream near Kanakkampalayam village in Gobi taluk of Erode District with a capacity of 0.814 MM<sup>3</sup> per filling. Assuming 1 1/2 fillings, the total annual storage works out to 1.221 MM<sup>3</sup> (43.12 Mcft). The water thus impounded in this tank proposed to be utilized for providing irrigation, facilities an extent of 500 acres (or) 202.42 Hec. of single crop dry lands below the proposed tank. By excavating right side and left side canals, these ayacut are proposed to be irrigated.

This tank scheme has been taken up for investigation as the ryots of Kanakkampalayam village have been repeatedly requesting for formation of a tank across jungle stream to provide irrigation facilities for the dry lands lying on both sides of the odai in Kanakkampalayam village limit. This proposal is there from 1963 onwards.

Originally a tank scheme was proposed under the Small Minor Irrigation Project. across the jungle stream near Bhagavathi amman koil in Kanakkampalayam village. The cost of the scheme was 28.55 Lakhs as per 1977-78 schedules of rates.

As per the proposal an extent of about 180 ac. of garden and patta lands have been proposed to be acquired. For the acquisition there were objections from the pattathars. Further as per this proposal even if the existing patta and garden to an extent of 180 acres to be acquired and a new extent of about 500 acres above can be given irrigation facilities. Hence this scheme site was inspected by the Superintending Engineer, Coimbatore, Nilgiris circle and necessary inspection notes was also issued by S.E..Lr.No.135/220/79 Dt.14.3.1979. In this inspection notes it has been instructed to shift the proposal in such a way that the entire water spread area inclusive of bund alignment will lie within the forest limit. It has also been instructed to propose the entire ayacut as dry instead of wet which is also the general policy of the Government.

Accordingly investigation was carried out within the forest limit and three alternative sites were analysed for the formation of reservoir, instead of a tank. Even though all three alignments were within the forest limit the scheme was considered due to the pressure of the Kanakkampalayam ryots. The Chief Engineer (Investigation) inspected the site on 23.12.1989 and analysed all the three alignments and selected the third alignment which is nearer to the forest boundary for the reason that the alignment involve minimum water spread area of forest land for maximum capacity of the reservoir. The Chief Engineer (Inv.) instructed to conduct geological survey for this alignment the geological test were conducted by the Ground water wing and they sent their report vide Lr.No. AG/2/ 108359/ JNJ/89/Dt.25.04.89. In this letter Chief Engineer(G.W) has suggested that one or two test holes may be got drilled to confirm the hard strata before formulating the proposals. Hence, bore holes were drilled in the third alignment. It was found that rocky strata was met at deeper depths. Hence, this alignment was dropped as per instruction of the Executive Engineer and the 1<sup>st</sup> alignment was chosen and the test bores were drilled and the bore log details were sent to Superintending Engineer (Designs) Madras. An estimate to form Reservoir along the alignment was prepared costing Rs.845 Lakhs without escalation (B.C.Ratio. 0.478:1) and submitted to Government. Further it was suggested, the Superintending Engineer (Inv.) Salem circle to propose a tank scheme with slight change in alignment. Frequently petitions were received from the Farmers and Publics. The Kallipatti firka in Gobi taluk of Erode District in which this Tank scheme is located is very backward area and need development. Hence this tank scheme is now proposed. The irrigable lands in this area mainly depending on rain and hence only dry crops are proposed for irrigation in this Kanakkampalayam area.

The estimate was revised to 2017-2018 schedule of rates for Rs. 6420 lakhs. by the Chief Engineer, Plan Formulation, Chennai and Administrative Sanction was accorded to Rs.6420 Cores with NABARD loan assistance under RIDF XXIII for the year 2017-18 vide G.O (D) No: 78 PW(W1)Department. Dt: 28.03.2018.

The Chief Engineer, Coimbatore, Region had reported that the design and drawing for the various components pertaining to the above work such as spillway, earth dam and other appurtenances had been evolved during the early 1990's by the plan formulation wing, hence the designs shall be evolved by Superintending Engineer, Designs, Chennai duly incorporating the latest concepts with new construction materials and techniques. Based on that new bore log details, grid levels and other site particulars were collected and submitted to Superintending Engineer, Designs, Chennai.

In revised design due to non availability of hard rock strata in odai portion for foundation of entire spillway the spillways location is now shifted to left flank of tank and two 3m drops and one 2m drop are proposed to negotiate the bed fall with natural odai. The left and right side canal tower head sluices are shifted to new location at Ls 572m and 660m respectively.

Now the Ayacuters of the proposed Tank are represent that all the farmers having small extant of land in that proposed open canal formation requires more area of land acquisition which causes huge loss to the farmers. In order to overcome these drawback, they requested that due to canal carrying capacity is very low, it may be carried through closed conduct pipes which required less area of land acquisition. Based on farmers representation and instruction given by the District collector it is proposed to provide the left and Right canals with closed conduct piped with diffuser for irrigation sluice cistern.

#### **EXISTING IRRIGATION SYSTEM:-**

There are no. irrigation scheme across this jungle stream from its origin on the upstream of the proposed tank site.. The total utilization of yield for the ayacut proposed is 1.221 MM<sup>3</sup> for 43.12 Mcft. Thus there is a surplus of 0.781 MM<sup>3</sup> or 28.89 Mcft of water available. Hence , there is lower down riparian rights does not affects.

### **PROPOSED IRRIGATION:-**

The tank is proposed to have a capacity of 0.814 MM<sup>3</sup> or 28.75 Mcft for one filling and the annual storage with 1.5 fillings will be 1.221 MM<sup>3</sup> or 43.12 Mcft . The proposal consists earthen bund for a length of 1250 m including an uncontrolled spillway for 100m from L.S.557 m to 657m to discharge the maximum flood discharge of 225.366 Cumecs or 7959 C/s for a “C” Value of 2000 for Hilly region.

The right side and left side canal irrigation will be 350 Ac. (or) 141.7 Ha. a 150 Ac. Or 60.72 Ac. respectively to a total extent of 500 Ac or 202.42 Ha. of single crop fully in Kanakkampalayam. In addition to direct irrigation, 1800 acres of cultivable land will be indirectly benefitted through recharging the wells in Kanakkampalayam, Perumugai and Kondayampalayam village. There are 492 openwells and and borewells will be benefitted by implementation of the scheme

### **SALIENT FEATURES:-**

The salient features of the tank schemes are furnished below:-

#### **I. Earthen Bund:-**

a. Length of bund including spill way	1250m
b. Maximum height of bund	13.335m
c. Deep Bed level	+249.665m
d. F.T.L	+260.000m
e. M.W.L	+261.000m
f. T.B.L	+263.000m
g. Capacity of the Tank	28.75 Mcft.
(or)	0.814 MM <sup>3</sup>
h. Annual storage	43.12 Mcft.
i. No. of fillings	1.5
j. Dead Storage	0.20 Mcft.
k. Free Catchment	.. 7.93 Sq.miles
	(or) 20.30 sq.Km.
l. Water Spread area	.63.13 Ac.

#### **II. Uncontrolled Spillway between L.S. 400M to 505M**

1. Length of Spillway	..105.00 M
2. Crest level of the spillway	..260.000
3. Maximum flood discharge	..7958.8 c/s
4. Designed max. flood discharge	..7981.0 c/s

### **III. Head sluice at L.S. 572m**

1. Sill level of the Sluice	+ 253.000
2. Length of the Barrel	45.65m

### **IV. Head sluice @ L.S. 660m**

1. Sill level of the Sluice	+ 253.000
2. Length of the Barrel	45.65m

### **V.Right side main Canal L.S.660m**

1. Length of the canal	..3140m
2. Ayacut benefitted	..350 Acres
3. Discharge required	..6.17 Cumecs
4. Discharge provided	..6.80 Cumecs

### **VI. Left side main canal**

1. Length of the canal	. 2150 m
2. Ayacut benefitted	. 150Ac.
3. Discharge required	. 2.65 C/s
4. Discharge provided	. 3.14 C/s

### **HYDROLOGY:-**

This jungle Stream has Catchment of 22.33 Sq.Km (or) 7.93 Sq.Miles at the proposed site. The Catchment is influenced by Gobi Rainfall station. The Yield/Sq.Mile of the rainfall station Gobi is 8.96 Mcft /Sq.mile. The potential available is 71.05 Mcft.(2.01 MM<sup>3</sup>). By implementing the above tank scheme, the lower down riparian rights will not get affected . So for no gaugings have been conducted, since, it lies in the reserve forest area.

### **MAXIMUM FLOOD DISCHARGE**

The catchment area of the stream at the proposed tank site 20.30 sq.km (or) 7.93 Sq.miles , which is mainly situated in hills. The maximum flood discharge computed by adopted RYVE's formula with "C" value of 2000 works out to 7959 cusecs. The spillway is proposed between L.S. 400m to 505m.

### **CROP WATER REQUIREMENT:-**

The total yield at the site per hydrology 71.05 Mcft.

Potential proposed to be utilized.

a. Dry crops single crop at the duty of 14 Acres/Mcft.

$$= 1 \times 500 \text{ Ac}/14 = 35.71 \text{ Mcft}$$

b. Flowing 17.5 % ( 12.5 % for Evaporation

Losses, 5 % Transmission Losses) the

full requirement at the head will be = 6.25 Mcft

Add for dead storage = 0.20 Mcft

The total Consumption in tank = 42.16 mcft.

The net surplus let down below tank site =  $71.05 - 42.16 = 28.89$  mcft.

Capacity of the tank = 28.29 Mcft.

### **HEAD WORKS:-**

The head works consists of an earthen bund for a length of 1250m with maximum height of 13.335m spillway between L.S. 400 to 505m is proposed to discharge 7959 cusecs (or) 225.37 cumecs using Ryve's formula adopting 'C' value of 2000. The head sluice at L.S. 660 M is proposed to feed the right side canal. The head sluice at L.S. 572 M is proposed to feed the left side canal. The total extent of 500 Ac (or) 202.42 Ha. of single crop of dry land in Kanakkampalayam village will be benefitted by this scheme. The length of Left side canal is 2150m and the right side canal is 3140m.

It is proposed to form an earthen bund as per latest standards for a total length of 1250 m including spillway portion for 105 M. It is fairly assessed that casing soil ( SPZ ) of 45000 m<sup>3</sup> is available in the water spread area of the proposed tank. Hence the balance quantity of casing soil (SPZ) is proposed to convey from near by PWD tanks of Appakudal Tank and Vempathy Tank. Due to non availability of good Hearting soil ( IPZ ) in the water spread and near by area proposed tank, It is proposed to convey from Ennamangalam Tank. The proposals have been formulated based on designs and drawings issued by the Superintending Engineer, Design Circle, Chennai.

The top width of the bund will be 4.5m and D/s slope will be 2:1 the U/s slope will be 2.5 :1. The U/s slope will be provided with revetment over the quarry rubbish packing of 10cm to 20cm thick. necessary Chutes with M15 concrete using graded metal and rock toe filter etc. are provided as per approved drawing received from the Superintending Engineer, Designs circle, Chennai.

## **SURPLUS ARRANGEMENTS**

It is proposed to construct an uncontrolled spillway to let out the surplus water to jungle stream directly. The catchment area is 20.30 Sq.Km or 7.93 sq.mile and adopting Ryve's formula and taking the "C" value of 2000, the maximum flood discharge works out to 225.37 Cumecs (or) 7959 Cusecs i.e as against the designed discharge of 226.03 Cumecs (or) 7981 cusecs i.e uncontrolled spillway capable of discharging 8780 cusecs. The entire discharge will be let off through spillway of 105m between L.S. 400 to 505m. spillway portion designed on hard rock strata. body wall is proposed in C.C. M15 downgraded metal, and coping concrete is provided with M20 concrete.

## **IRRIGATION SLUICES**

The ayacut proposed to be benefited by this scheme is about 500 acres (202.42 Ha) of single crop dry land on both sides of the stream. Head sluice left side and right of the spillway are proposed to be constructed at L.S. 572 M and L.S 660 M to irrigate a total extent of 202.42 Ha(500Ac) single crop through canals viz., right side canal and left side canal. The sluice shall be Head type with circular well and approach tunnel and cistern in the rear of the bund. Necessary approaches to the head sluice will be provided from the tank bund to facilitate easy operation of the sluice. The hydraulic particulars of the Head Sluice are furnished below.

Sill level of the Sluice	.. + 253.000
Size of the barrel	.. 0.90m x 1.50m
Length of the barrel	.. 45.65m

The ayacut extent proposed to benefitted under the scheme is 500 acres of single crop dry lands. Two canals are proposed on the right side and left side. The length of the left side and right side canals will be 3140m and 2150m respectively. The details of the two canals are furnished in the subsequent paras.

## **LEFT SIDE CANAL**

It is proposed to excavate left side canal to irrigate an extent of 50.72 Hec (150 acres). The bed fall of the canal is 1 in 2500. The canal is proposed to take off from the left side main sluice to be located at L.S. 572 m of the bund. The canal is divided in to two zones and is designed for a supply of 2" depth in 5 days for dry crop in each zone. The hydraulic particulars are furnished below



Reach	Section proposed	Discharge provided
0 to 300 m	400mm Ø DI pipe	3.14 C/s
300 to 935 m	350mm Ø DI pipe	2.29 C/s
935 to 1530 m	300mm Ø DI pipe	1.45 C/s
1530 to 2150 m	200mm Ø DI pipe	0.52 C/s

### **RIGHT SIDE CANAL**

It is proposed to excavate right side canal to irrigate an extent of 141.70 Hec (350acres). The canal is proposed to take off from the right side main sluice to be located at L.S. 660 m of the bund. The canal is divided in to two zones and is designed for a supply of 2" depth in 5 days for dry crop in each zone.. The hydraulic particulars are furnished below

Reach	Section proposed	Discharge provided
0 to 800 m	600mm Ø DI pipe	6.81 C/s
800 to 1350 m	500mm Ø DI pipe	5.48 C/s
1350 to 1750 m	450mm Ø DI pipe	4.34 C/s
1750 to 1850 m	400mm Ø DI pipe	3.32 C/s
1850 to 2250 m	350mm Ø DI pipe	2.72 C/s
2250 to 3000 m	250mm Ø DI pipe	1.27 C/s
3000 to 3140 m	200mm Ø DI pipe	0.56 C/s

### **COMMAND AREA:**

The area proposed to be irrigated lies in Kanakkampalayam Village. The proposed command area is generally dry and at present cultivation is being done only from monsoon rains. After the completion of the project the water table in sub soil gets raised and irrigation can be done by digging wells and also by canals. Further even more than dry crop can be raised and thereby increasing the additional food production.

### **CROPPING PATTERN:**

The existing cropping pattern in the command area is only dry crops such as maize, Ground nut and cholam by utilizing the sub soils and also by rain water. There is no other form of irrigation such as Tanks,etc.,. The proposed cropping pattern of irrigation will be the sugarcane vegetables, banana, coconut, Tapiaco etc. by implementation of this scheme. Anticipated additional yield from there dry crops are assessed as 497.14 tonnes. The soil is fit for wet and dry crops.

## **LAND ACQUISITION:-**

### **Reserve Forest Land Acquisition**

The details of reserve forest land acquisition in Guttiyalathur reserve forest for water spread, bund, canals, and are furnished below.

<b>Description of work</b>	<b>Area (Forest)</b>
a. Water spread area	- 63.13 acres
b Bund formation & surplus course	- 20.97 acres
c Right main canal	- 4.36 acres
Total	- 88.46 acres or 35.78 hectares.

The total area is to be acquired only from reserve forest area. The land acquisition cost for reserve forest area is arrived on the basis of guide lines for diversion of forest land for non forestry purposes under Forest conservation act 1980. Net present value is taken as Rs. 10, 43 ,000 lakhs per hectare and cost for 99 years lease is taken as 1% of nearest patta land guide line value. The tentative cost for afforestation in 177 acres of compensatory poromboke land is taken as Rs.10,00,000 lakhs per hectare . and maintenance of trees in the compensatory poromboke land is calculated as Rs. 1,00,000 lakhs per hectare. The cost involved in this estimate is arrived based on consulting with District Forest Offices of Sathyamangalam and Erode. However the actual cost of land and afforestation will be fixed only inspection by central and state government forest department. Cost of Reserve Forest Land acquisition is arrived as Rs.1064.00 Lakhs. Forest Land transfer proposal have been submitted through online to the Principal Conservator of Forest, Chennai and the proposal is under process.

### **Patta Land Acquisition**

An extent of 14.30 acres of patta land for is proposed to be acquired for the canals. formation Necessary compensation is proposed in the estimate for solatium charges, revenue establishment and interest on the land cost. The extent of land to be acquired spread in forest land and in Kanakkampalayam Village and entire extent is dry only. Cost of Patta Land acquisition is arrived as Rs. 174.50 lakhs. Action initiated to acquire the patta land through Revenue Department.

The total Forest land and Patta Land acquisition cost is arrived as 1238 lakhs.

## FINANCIAL ASPECTS:

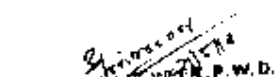
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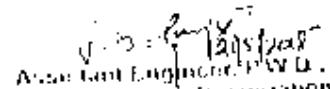
## CONCLUSION:

By implementing the scheme employment opportunity will be offered in plenty and the economical status and the condition of the people of that area. Further there are no existing riparian rights along the stream both on the upstream and downstream sides considering the overall benefit of this scheme is recommended for execution.

This Estimate is prepared based on the Revised Current schedule of Rates for the year 2017-18 and the estimate amount works out to Rs.6420 Lakhs and expenditure will be incurred under the head “ 4702 – 00 Capital outlay on Medium irrigation – 101 Surface water – States expenditure – JU Formation of Tank across Kattuodai in Kanakkampalayam village, Gobichettipalayam Taluk, Erode District with NABARD loan .”(DPC: 4702-00-101 JU-1607).

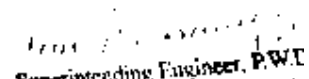
  
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