

APPEXDIX
(See Rule 6)

FORM - "A"

Form for seeking prior approval under section 2 of the Proposal by the State Government and other authorities.

Part I

(to be filled by user agency)

I. Project details

(i) Short narrative of the proposal and Project / scheme for which the forest land is required. : Tipaimukh H.E. (Multipurpose) Project with installed capacity of 6 x 250 MW is located about 500 m D/S of the confluence of river Tuivai with river Barak near Manipur - Mizoram border by constructing a rock fill Dam and a reservoir mostly along the river stream upstream of the dam.

The Project has been sanctioned by the Government of India and following clearances have been done (copy enclosed)-

1. TEC vide letter no. 2/NEEPCO/12/00-PCA/876.905 dt. 2nd July, 2003. (Annexure - I)
2. PIB vide letter no. 2(28)/PF-II/2005 New Delhi, dated the 10th February, 2006 (Annexure - II)
3. Environment clearance vide no. J-12011/63/2006-IA dt. 24.10.2008. (Annexure - III)

(ii) Map showing the required forest area boundary of adjoining forest on 1:50,000 scale map. :

83/D/16	83/H/3
83/H/4	84/E/1
Total Area 1551.60 Ha	
<i>All above sheets combined and prepared in one sheet in the 1:50,000 scale map.</i>	

(iii) Total cost of the project : The total estimated cost of the project, at Sept' 2008 PL is Rs. 8138.79 Crs. including IDC of Rs. 1570.73 Crs.

(iv) Justification for locating the project in the forest area. : Three alternative sites were studied and reasons for abandoned are as below :-

- 1st site selected at Mainadhar for an earthen dam and abandoned in 1964 due to unfavorable geological condition.
- 2nd site at Naraindhar found not attractive because of submergence of large area of cultivable land in Manipur and partial flood control in D/S.
- 3rd site at Bhuvandhar rejected due to soft friable and clayey foundation and submergence of large area of cultivable land and villages in Manipur.

(v) Cost Benefit analysis (to be enclosed) : 1 : 2.50(Enclosed as Annexure - IV)

(vi) Employment likely to be generated : Employment facilities (to be generated both under the department & various major contractors) during construction period.

- Executive class - 310 persons
- Non - executive class - 1530 persons
- Total - 1840 persons

2. Purpose wise breakup of the total land required. :

1	Reservoir Submergence	1489.00	111.00	1600.00
2	Dam including colony & approach	50.00	0.00	50.00
3	Land for diversion of National highway NH - 150 (Mizoram portion)	12.60	1.80	14.40
Total		1551.60	112.80	1664.40

Details of requirement is enclosed as Annexure - V

3. Details of displacement of people, due to the project, if any

- (i) Number of Families : Nil
- (ii) Number of Scheduled Caste / Schedule Tribe families : Nil
- (iii) Rehabilitation Plan to be enclosed : Nil

4. Whether clearance under Environment Protection Act, 1986 is required. : Yes

5. Undertaking to bear the cost of raising and maintenance of compensatory Afforestation as well as cost for protection and regeneration of safety zone etc, as per the scheme prepared by the State Government. (Undertaking to be enclosed) : Undertakings enclosed as Annexure - III

6. Details of Certificates / Documents :
1. Map Showing the required forest area on 1 : 50,000 scale original SOI toposheet.
 2. Cost Benefit Analysis.
 3. Undertaking to bear the cost of raising and maintenance of compensatory afforestation.

Signature :

(Name in block letters) :

Designation :

Address of User Agency :

Chief Engineer I/C (NHPC)

NHPC Ltd.
Tipaimukh HE (M) Project
Kom Keirap, Manipur

W.M.V.
14/08/11
(S. K. ...)
Chief Engineer I/C (NHPC)
Tipaimukh H. E. (M) Project
Kom Keirap, Manipur

Date

Place ... ~~AIJMAL~~ (Mizoram)

TIPAIMUKH HE (M) PROJECT

**Worksheet for Calculation of Cost Benefit Ratio of forest land under diversion in Mizoram
Evaluation of Loss of Forest**

Sl No	Parameters	Details of Calculations	Amount (Rs. In Lakh)
1	Loss value of timber, fuel wood and minor forest produce on an annual value basis, including loss of man hours per annum of people who derived livelihood and wages from the harvest of these commodities.	a) Fuel wood growing stock of 1551.60 ha forest land, @ 9 cum/ha = 13964.40 cum @ 1.20mt/cum = 16757.28mt @ Rs.500/- per mt. b) Timber value of 23696 trees, average girth = 51cm, average height = 9m, F.F =65% say, 2251. 10cum @ 1000/- per cum. c) Loss of man-hour of people derived livelihood from the harvest of these commodities	83.78 22.51 NIL
2	Loss of animal husbandry productivity, including loss of fodder	a) There will be no loss of animal husbandry productivity. b) Loss of fodder (estimated on proportionate basis)	NIL 42.45
3	Cost of human settlement.	NIL	There is no human settlement in the forest land to be diverted.
4	Loss of public facilities and administrative infra-structure (roads, buildings, schools, dispensaries, electric lines, railways etc) on forest land on which would require forest land if these facilities are diverted due to project.	i) Loss of public facilities and administrative infra-structure -Nil ii) Land of relocation of road=12.60 ha @ Rs. 62,000 / ha	7.81
5	Environmental loss (soil erosion, affect of hydrological cycle, wildlife habitat, micro-climate, upsetting of ecological balance)	Environmental value of 1551.60 ha forest land, @ Rs. 126.74 lakh for 50 years/ha = 196649.78 lakh / 50 years = Rs. 1321.01 lakh/year.	3932.99
6	Sufferings to Ousteers	NIL	There is no human settlement in the forest land of 1551.60 ha proposed for diversion. As such, no oustees are involved.
Total of Losses			4089.55


 Manager Civil (NHPC)
 Tipaimukh H. E. (M) Project
 Kom Kalrap, Manipal

Evaluation of Likely Benefit.

Sl No	Parameters	Details of Calculations	Amount (Rs. In Lakh)
1	Increase in productivity attributed to this specific project.	This is a multi-purpose project, where hydel-generation and flood mitigation at the d/s area are the main benefit envisaged. There is no direct benefit on irrigation aspect, either from reservoir or from tail water release. 1. From agro-socio economic =23100.00 lakh 2. Annual benefit from pisciculture =1,400 lakhs	@5.49% of total benefit = 0.0549 X 24500.00 = 1345.05
2	Benefits to the economy	1. Annual revenue from power generation (3805.70 GWH @ Rs:4.03/- per unit =153370/-lakhs. 2. Annual benefit from flood damages at d/s = 4,570.00/- lakh 3. Annual irrigation benefit from d/s proposed Fulertal Barrage (attributed to this project) = 1,500/- lakh Total = 159440.00	@5.49% of total benefit, based on the percentage proportion of the submergence in Mizoram due to the project = 0.0549X159440.00 = 8753.25
3	No. of population to be benefited		150 lakh population
4	Employment potential	Employment facilities • Executive class - 310 persons - Nil • Non - executive class - 1530 persons@ 30% = 459 Nos Unskilled labour - 1840 persons =1840 Nos Annual Salary = 459 x10000 x 12 = 550.80 1840 x 4000 x 12 = 883.20	@5.49% of total benefit = 0.0549 X 1434.00 = 78.72
5	Cost of acquisition of facility on non-forest land.. wherever feasible	Project colony will have Hospital, Bank, Post office, Roads and other public facilities which are estimated as Rs. 10000 lakh	@5.49% of total benefit = 0.0549 X 1000.00 = 54.90
6	Loss of (a) agricultural and (b) animal husbandry production due to diversion, of forest land.	No agricultural activity and animal husbandry programme have been taken up in this area	NIL
7	Cost of rehabilitation of displaced persons as different from compensatory amount given for displacement.	Nil	There is no displacement of human settlement as such, no oustees are involved.
8	Cost of supply of free fuel wood to workers Residing in or near forest areas during the period of construction.	The labour forces will be provided with alternate energy source at subsidized rate. A L.S. provision of Rs. 14.00 lakh for 7 years has been kept in the project estimate.	@5.49% of total benefit i.e. = 0.0549 X 2.00 = 0.11
	Total of benefit		10232.03
Cost : benefit Ratio = 4089.55 : 10232.03 =1:2.5			

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In the above computation of CB Ratio the following assumption were made:

- I. While computing the CB ratio, the enumeration report earlier submitted by the Forest department in July'2004 to the RCCF, Shillong for diversion of 1551.60 ha has been considered to the extent required.
- ii. The reservoir submergence in Mizoram due to the project is only 5.49% of the combine total submergence in Manipur and Mizoram. Hence the total benefit that would be accrued from the project to the state of Mizoram been limited to 5.49% of the combined total benefit to be accrued to the States of Manipur & Mizoram.


140311
Manager Civil (NHPC)
Tipaimukh H. E. (M) Project
Komi Karap, Manipur

PART- II (Construction of Tipaimukh HE(M)P)

(To be filled by the concerned Deputy Conservator of Forests)

State Serial No.of Proposal 37-----

7. Location of the Project/Scheme :

- i. State/Union Territory : *Mizoram*
- ii. District : *Aizawl*
- iii. Forest Division : *Darlawn Forest Division*
- iv. Area of forest land proposed for diversion (in Ha.) : *1551.60 Ha.*
- v. Legal status of forest :
- Forest lands required for submergent area of Tipaimukh HEP fall under Tuivai Riverine Reserve Forest(RRF), Tuivawl RRF, Tuiruang RRF and Inner Line Reserve Forest.
- vi. Density of vegetation :
- Mostly open and degraded forest with canopy density varies from 0.30-0.50.
- vii. Species wise (Scientific names) and diameter class-wise enumeration of trees (to be enclosed. In case of irrigation/hydel projects enumeration at FRL, FRL-2 meter & FRL-4 meter also to be enclosed) :
- Enclosed and marked as Annexure - IA & IB
- viii. Brief note on vulnerability of the area to erosion. :
- Area is not vulnerable to erosion.
- ix. Approximate distance of proposed site for diversion from boundary of Forest :
- As indicated under clause (v) above, the proposed site for diversion is well within different Riverine Reserve Forest (RRF) and Inner Line Reserve Forest (ILRF).
- x. Whether forms part of National Park, Sanctuary, Biosphere Reserve, Tiger Reserve, Elephant Corridor etc. (If so, the details of the area and comments of the Chief Wildlife Warden to be annexed) :
- The proposed site does not form a part of National Park, Sanctuary, Biosphere Reserve, Tiger Reserve, Elephant Corridor etc.
- xi. Whether any rare/endangered/unique species of flora and fauna found in the area- if so, details thereof :
- The proposed site does not have any rare/endangered/unique species of flora and fauna.

- xii. Whether any protected archeological/heritage site/defense establishment or any other important monument is located in the area. If so, the details thereof with NOC from competent authority, if required. :
 - *There is no protected archeological/heritage site/defence establishment or any other important monument located in the area.*

- 8. Whether the requirement of forest land as proposed by the user agency in col.2 of Part-I is unavoidable and barest minimum for the project. If no, recommended area item-wise with details of alternatives examined:
 - *The requirement of 1551.60 Ha. of forest land as proposed by the user agency in Column-2 of Part -I is unavoidable and barest minimum for the project.*

- 9. Whether any work in violation of the Act has been carried out (Yes/No). If yes, details of the same including period of work did, action taken on erring officials. Whether work in violation is still in progress:
 - *No work is carried out in violation of The Forest (Conservation) Act 1980.*

- 10. Details of Compensatory Afforestation Scheme.
 - i) Details of non forest area/degraded forest area identified for compensatory afforestation, its distance from adjoining forest, number of patches, and size of each patch:
 - *Vide letter No.K.15011/3/92-REV dt.4.2.2010, Department of Land Revenue & Settlement, Govt. of Mizoram has transferred and mutated 1648.94 ha of degraded forest land in lieu of forest land of area 1551.60ha. (and Non-forest land of area 112.80ha, Total area of land 1664.40 ha.) required for diversion to implement Tipaimukh HEM (M) project in Mizoram portion.*
 - The number of patches, size of each patch and their locations for taking up Compensatory Afforestation Programme are given below :-*

Sl.No.	Location	Area of patch
1.	Sawlung	62.13 ha.
2.	Chhanchhuahna	184.62 ha.
3.	Lailak	127.53 ha.
4.	Sunhluchhip	91.14 ha
5.	Sailutar	15.53 ha.
6.	Khawruhlian	158.05 ha.
7.	Hmunnghak	32.55 ha.
8.	Khanpui	45.84 ha.
9.	Pehlawn	34.64 ha.
10.	E.Phaileng	30.06 ha.
11.	Buhban	126.70 ha.
12.	Lungsum	36.00 ha.
13.	Suangpuilawn	108.48 ha.
14.	Zawngin	22.28 ha.
15.	Luangpawn	113.00 ha.
16.	Phullen	19.00 ha.
17.	Phullen	344.05 ha.
TOTAL :		1551.60 ha.

Total No. of patches = 17 nos.
Copy of the notification is enclosed.

- ii) Map Showing non-forest/degraded forest area identified for compensatory afforestation and adjoining forest boundaries:
 - *Map showing 17 patches of degraded forest land of different villages shown in Column - 10 (i), tentatively earmarked for compensatory afforestation and adjoining forest boundaries is enclosed and marked as Annexure - II.*
 - iii) Detailed compensatory afforestation scheme including species to be planted, implementing agency, time schedule, cost structure etc :
 - *Detail scheme for compensatory afforestation to be executed during 2011-2012 to 2016-2017 indicating cost structure and species to be planted is enclosed and marked as Annexure - III. Compensatory afforestation is proposed to be implemented by Forest Department of Darlawn Forest Division with the approval of state CAMPA. Detailed estimate for payment of Net Present Value of forest land is enclosed and marked as Annexure - IV. Detail estimate for marking, felling and transportation of trees is enclosed and marked as Annexure V.*
 - iv) Total financial outlay for compensatory afforestation scheme:
 - *Total financial outlay for compensatory afforestation scheme is Rs. 793.54 Lakhs.*
 - v) Certificate from competent authority regarding suitability of area identified for compensatory afforestation and from management point of view (to be signed by the concerned Deputy Conservator of Forests) :
 - *Certificate of suitability is enclosed and marked as Annexure VI.*
11. Site inspection report of the DCF (to be enclosed) specially highlighting facts ask above in col.7 (xi, xii) 8 and 9 above:
 - *Inspection report is enclosed and marked as Annexure -VII.*
12. District profile.
- a. Geographical area of the District - 3575.00 sq.km
 - b. Forest area of the District - 1538.00 sq.km
 - c. Total forest area diverted since 1980 with number of cases.
Tipaimukh High Dam Project. - 10 ha.
 - d. Total compensatory afforestation stipulated in the District since 1980 on
 - (a) Forest land including penal compensatory afforestation - Nil.
 - (b) Non-forest area
 - 10 ha at Teikhang Village area inside Champhai District (Champhai Forest Division).
 - e. Progress compensatory afforestation as on 09.08.2010
 - i. Forest land Nil
 - ii. Non-forest land Completed in 10 ha.

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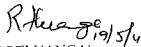
13. Specific recommendations of the DCF for acceptance or otherwise of the proposal with reasons:

- The proposal is recommended on the reason that, the project will produce the most important and basic need of eco-industrial development to the rural poor. Adequacy of power supply to the state itself as well as the neighboring state could be a boon for the overall development of entire region.

Date 19.5.2011

Place D. Selam.

Signature



Name :

(R. ROTLUANGA)

Official Seal

Divisional Forest Officer
Darlawn Forest Division
Darlawn : Mizoram