

Subject: Revised proposal for diversion of 1165.66 ha (including 91.331 ha underground area) of forest land for construction of Eatalin Hydro Electric Project (3097 MW) in Dibang Valley District of Arunachal Pradesh by M/s Eatalin Hydro Electric Power Company Limited, Arunachal Pradesh.

1. The State Government of Chhattisgarh vide their letter No. FOR.279/CONS/2010/10012-18 dated 27.10.2014 (**Pg.68-184/c**) was submitted a *revised proposal* seeking prior approval of the Central Government under Section-2 of the Forest (Conservation) Act, 1980. Proposal envisages construction of Eatalin Hydro Electric Project (3097 MW) in Dibang Valley District of Arunachal Pradesh by M/s Eatalin Hydro Electric Power Company Limited, Arunachal Pradesh.
2. **Justification for locating the project in the forest area giving alternatives examined and reasons for their rejection.**

The capacity addition requirement during 12th plan on All-India basis is 75,785 MW comprising of 9,204 MW from Hydro sector. The likely Hydro capacity addition of 9,204 MW during 12th plan includes 4,177 MW in North East Region (NER) and Sikkim (2,810 MW capacity additions in NER and 1367 MW in Sikkim). This includes 2,710 MW for Arunachal Pradesh. Also, the capacity addition requirement during 13th plan is 93,456 MW, comprising of 12,006 MW from Hydro sector.

Arunachal Pradesh state plans to harness its enormous natural resources like forests and hydro power and exploit its mineral wealth to usher in an era of economic development.

Considering the Projected Hydro capacity addition programme during 12th plan (9,204 MW) & 13th plan (12,006 MW) (Source: CEA), new schemes have to be taken up immediately and implemented to derive timely benefits. The most important source of power development in the north-eastern region is Arunachal Pradesh and other sister states.

Considering the growth of peak demand and anticipated addition of generating capacity in the state, the region and the country, and also from the current status of development of hydro power potential of Arunachal Pradesh, it is pragmatic that earnest efforts are made for developing the hydro power sector of the state. Implementation of Eatalin Hydroelectric Project of 3097 MW capacity would contribute significantly towards meeting this objective.

The project is viable not only due to the reasonable tariff of Rs. 4.91-1st year tariff & Rs. 4.32-tariff for 35 years but also because the project is run of the river scheme and affects no other projects or catchments. The project has the support of the local populace and has no major environmental issue. In addition, it has remarkably favourable geological conditions for the region.

3. The facts related to the proposal as contained in the State Government's letter dated **27.10.2014** (**Pg.68/c**) are given below in the form of fact sheet:

FACT SHEET

1.	Name of the Proposal	Revised proposal for diversion of 1165.66 ha (including 91.331 ha underground area) of forest land for construction of Eatalin Hydro Electric Project (3097 MW) in Dibang Valley District of Arunachal Pradesh by M/s Eatalin Hydro Electric Power Company Limited, Arunachal Pradesh
2.	Location (i) State (ii) District	Arunachal Pradesh Dibang Valley

3.	Particulars of Forests: (i) Name of Forest Division and Forest area involved. (ii) Legal status/Sy.No. (iii) Map	Anini Social Forest Division, 1165.66 ha Unclassified State Forest (USF) SOI Toposheet - Pg-93/c Digital DGPS map- Not enclosed Forest Cover map- Not enclosed 10 Km radius DGPS map- Not encl.									
4.	Topography of the area	-									
5.	(i) Geology (ii) Vulnerability to erosion	- Due to the presence of vegetation in the nearby areas, the vulnerability of the forest area to erosion will be minimum.									
6.	(i) Vegetation (ii) Density (iii) No. of trees to be felled	Bola, Mekai, Wild walnut, Champa, Titasopa, Hollok, Mandhani, Siris, Birch, Sida, Amboke, Jatipoma, Poma, Jutuli, Urium, Hingori, Pichola, Paroli, Madhridima, Dalchini, Mauhita, Hinuwo, Khinuwo, Gohra, Neem, Mahuwa, Moliata, Depari, Chulatro, Putta, Utis, Rang Bang, Gogun, Tree Fern, etc. <table border="1"> <thead> <tr> <th>Forest Type</th> <th>Area ha</th> <th>Density</th> </tr> </thead> <tbody> <tr> <td>Moderate Dense Forest</td> <td>1004.849</td> <td>0.6</td> </tr> <tr> <td>Devoid of Vegetation/ river body etc</td> <td>69.480</td> <td>0</td> </tr> </tbody> </table> Total = 280677 Below 60 girth – 138823 Above 60 girth - 141854	Forest Type	Area ha	Density	Moderate Dense Forest	1004.849	0.6	Devoid of Vegetation/ river body etc	69.480	0
Forest Type	Area ha	Density									
Moderate Dense Forest	1004.849	0.6									
Devoid of Vegetation/ river body etc	69.480	0									
7.	Whether area is significant from wildlife point of view	No									
8.	Whether forms part of National park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, Elephant Corridor, etc. (if so, details of the area and comments of the Chief Wildlife Warden	The proposed area does not form part of National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, etc.									
9.	Whether any RET species of flora and fauna are found in the area. If so details thereof	Though it was not sighted during the inspecton/enumeratinn period, the adjacent/fringe area's are the habitat of some of the rare/endangered/unique species of flora and fauna, and therefore, there presence is not ruled out. But the diversion will have negligible impact on the species.									

10.	Approximate distance of the proposed site for diversion from boundary of forest.	The distance of the proposed site from the boundary of the notified forest area (Dibang Wildlife Sanctuary) is around 12 KM.
11.	Whether any protected archaeological/ heritage site/defence establishment or any other important monuments is located in the area.	There is no protected archaeological/heritage site/defense establishment in the proposed area.
12.	Whether any work of in violation of the Forest (Conservation) Act, 1980 has been carried out (Yes/No). If yes details of the same including period of work done, action taken on erring officials. Whether work in violation is still in progress.	No
13.	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.	Yes, the requirement of land is unavoidable and barest minimum.
14.	Whether clearance under the Environment (protection) Act, 1986 is required?	Yes
15.	Compensatory Afforestation	The forestland proposed for diversion for the above project is 1165.66 ha which includes 1074.329 ha of surface forest land and 91.331 ha of underground area. CA has been proposed over an equivalent area to the forest land proposed for diversion i.e. surface area 1074.329 ha or say 1074.30 ha (11.66 ha – underground area of 91.331 ha) in the degraded community forest land at bleteng proposed VFR.
	(i) Details of non-forest area/degraded forest area identified for CA, its distance from adjoining forest, number of patches, size of each patches.	Area identified at Tawang as per letter of Chief Conservator of Forests, Western Arunachal Circle, Banderdewa vide his letter No. WAC/PS/2013/126-29 dated 02/07/2013. <u>Therefore the details will be submitted by the Divisional Forest Officer, Tawang Socal Forestry Division.</u>
	(ii) Map showing non-forest/degraded forest area identified for CA and adjoining forest boundaries.	-do-
	(iii) Detailed CA scheme including species to be planted, implementing agency, time	(pg.-150-153/c)

	schedule, cost structure, etc.	
	(iv) Total financial outlay for CA	19,64,56,700.00
	(v) Certificate from the competent authority regarding suitability of the area identified for CA and from management point of view.	<u>Deputy Commissioner, Dibang Valley has submitted that suitable degraded non-forest land is not available in Dibang Valley to carry out compensatory afforestation.</u> (Pg-165/c)
16.	Catchment Area Treatment	Not enclosed
17.	Rehabilitation of Oustees a) No of families involved b) Category of families c) Details of rehabilitation plan	No. of project affected families 265 (tentative), No. of affected families under displacement 95 (tentative) All the families are Scheduled Tribe Not Enclosed
18.	Compliance of Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	<u>DC, Dibang Valley District, Anini has initiated the process of Settlements of Rights under FRA, 2006. DC has assured that all other formalities will be completed before the final approval of the diversion proposal.</u> (Pg-159/c).
19.	Cost Benefit Ratio	Pg-95-99/c
20.	Total Cost of the Project	Rs. 25,296.95 Crores
21.	Recommendation i. DFO ii. CCF iii. Nodal Officer iv SG	Recommended (pg-104-106) Recommended (pg-168) Recommended (pg-169) Recommended (pg-170)
22.	District Profile (i) Total Geographical area of the district (ii) Total Forest area/Divisional Forest area	9655.52 Sq. Km. 1. Notified Forest Area: 4216.215 Sq. Km a. Dibang Wildlife Sanctuary: 4149 Sq Km b. Proposed Eya Ane RF : 302.5 ha c. Proposed Echanli VFR : 4424 ha d. Proposed Nulimbo VFR : 525 ha e. Proposed Biyanli VFR : 1470 ha 2. USF with community owned homestead/ agriculture area: 5439.305 Sq. Km

	(iii) Total area diverted since 1980	425.65 ha. (5 number of cases)
	(iv) Total CA stipulated since 1980 (Forest land)	81.80 ha.
	a. Forest land including penal CA	
	b. Non Forest Land	
	(v) Progress of Compensatory Afforestation	81.80 ha.
	a. Forest land	
	b. Non Forest land	

SITE INSPECTION REPORT FOR THE DIVERSION OF 1178.59 HA FOR CONSTRUCTION OF ETALIN HYDRO-ELECTRIC PROJECT AT ETALIN UNDER ANINI SOCIAL FORESTRY DIVISION OF ARUNACHAL PRADESH BY THE REGIONAL OFFICE, SHILLONG.

Introduction: This is a Site Inspection Report of the Proposal for diversion of 1178.59 ha of forest land for the construction of the 3097 MW Eatalin HEP located at Eatalin in the District of Anini under Anini Social Forestry Division of Arunachal Pradesh.

State Government of Arunachal Pradesh decided to develop Eatalin HEP in the Private Sector / Joint Sector on Build, Own, Operate and Transfer (BOOT) basis. Hydro Power Development Corporation of Arunachal Pradesh Limited (HPDCAPL), a public sector undertaking set up by the State Govt, of Arunachal Pradesh for development of Hydro Power Projects in the State was allotted the project by State Govt, of Arunachal Pradesh for its implementation under Joint Venture (JV) with Jindal Power Limited (JPL). Accordingly, a Memorandum of Agreement (MoA) to develop the project was executed between Government of Arunachal Pradesh, HPDCAPL and JPL.

Eatalin HEP is proposed to be developed as a combination of two "run-of-the-river" schemes having diurnal storage which are being developed purely for hydroelectric power generation purpose. The Project envisages construction of concrete gravity dams on Tangon and Dri rivers and diverting the water through two separate waterway systems to utilize the available head in a common underground powerhouse located just upstream of the confluence of Dri and Tangon rivers. Heights of dams, as envisaged for diversion of Dri and Tangon rivers, are 101.5m and 80 m respectively. The Installed Capacity for the scheme proposed on Dri limb is 1861.60 MW, comprising of a small hydro scheme of 19.60 MW at the toe of the dam on Dri River and six units of 307 MW each in the common underground powerhouse. The Installed Capacity for the scheme proposed on Tangon limb is 1235.40 MW, including a small hydro scheme of 7.40 MW envisaged at the toe of the dam on Tangon River and four units of 307 MW each in the common underground powerhouse. The total Installed Capacity of the project is 3097 MW. Energy generation from the project in 90% dependable year with 95% machine availability is estimated to be 12,991.52 MU.

The forest area in which the project was proposed is in luxuriant USF forests which is in very steep slopes and remotely located. The site inspection was carried out on the 3rd & 4th December 2014 accompanied by Shri Mori Riba, DFO, Anini Social Forestry Division, Basanta Taye, Forester, in the presence of Shri V.B. Gupta, Head Of Project and other Officials of the User Agency. The dam axis of both the dams on the Dri river and the Tangon river were visited along with the area of

submergence (photographs attached as Annexure-3) etc whichever were possible within the limited time.

The detailed SIR (Pg. 174-184/c) is as under:

- Legal status of the forest land proposed for diversion:** The forest land proposed under this proposal is Unclassified State Forest (USF).
- Item wise break-up details of the forest land proposed for diversion:**
The purpose-wise break-up of the land is given in the following abstract

Description	Surface Area (Ha)	Under Ground Area (Ha)	River Area (Ha)	Total Area (Ha)
Dri Limb	454.994	6.984	24.642	486.62
Tangon Limb	496.123	6.431	12.456	515.01
Notional Area	0	35.500	0	35.50
Power House	96.284	42.416	2.760	141.46
Grand Total	1047.401	91.331	39.858	1178.59

From the detailed break-up of the land it is seen that the User Agency/ State Government has proposed:

- 5 sites of Stone/ Shoal Quarries over an area of 27.856 ha. It is felt that this area could be reduced if the quarries are located inside the submergence areas itself. This option may be explored.
- 13 sites exclusively for dumping area which amount to 100.774 ha. The destruction of forests of this scale for dumping may be reconsidered for reduction of the same.

- Whether proposal involves any construction of buildings (including residential) or not. If yes details thereof:** Yes, construction of building is involved which include the following:

Land Area (as classified by the U/A)	Sl.No	Name of the Component (as per	Surface Area (Ha)	Under Ground Area (Ha)	River Area (Ha)	Total Area (Ha)
DRI LIMB						
LA-1 (58.02 Ha)	1	Contractor/Owner site office and store	2.00	0.00	0.00	2.00
	2	Labour Camp -5	1.00	0.00	0.00	1.00
LA-2 (56.53 Ha)	1	Work Shop, Warehouse, Store & Parking Space -3 (Left Bank)	4.40	0.00	0.00	4.40
LA-4 23.98	1	Labour camps	1.00	0.00	0.00	1.00
LA-4A 67.74 ha	1	Store/work shop for package-B	1.00	0.00	0.00	1.00
	2	Batching plant /main workshop	1.20	0.00	0.00	1.20
	3	Contractors camp and owners camp office/residences	3.50	0.00	0.00	3.50
LA-6 (39.79 Ha)	1	Batching plant /main workshop	2.00			2.00
	2	Labour Camp-4	1.00	0.00	0.00	1.00

TANGON LIMB						
LA-10 (11.31 Ha)	1	Owners temporary colony and office	2.00	0.00	0.00	2.00
LA-11 A (17.20 Ha)	1	Contractors colony and office and facility areas	5.00	0.00	0.00	5.00
LA-12 (52.79 Ha)	1	Labour camps for Contractors Colony -EM, HM & Civil Works	3.00	0.00	0.00	3.00
LA-13 (8.33 Ha)	1	Site office and work shop	1.00	0.00	0.00	1.00
LA-13A (1.50 Ha)	1	Provision of facility Area	1.50	0.00	0.00	1.50
LA-14 (67.78 Ha)	1	Main Project Office and Residential Campus including school and hospital (Left Bank)	15.20	0.00	0.00	15.20
LA-14 A (31.49 Ha)	1	Main work shop and batching plants	2.00	0.00	0.00	2.00
	2	Labour camps for contractor (Right Bank)	1.20			1.20
LA-14B (6.99 Ha)	1	Contractors colony	1.49			1.49
LA-15 (79.18 Ha)	1	Labour Camp-2	1.00	0.00	0.00	1.00
LA-16 (23.27 Ha)	1	Workshop and construction facility areas (Right Bank)	2.00	0.00	0.00	2.00
LA-18 (57.65 Ha)	1	Contractor & Departmental Office Space -1	1.50	0.00	0.00	1.50
LA-19 (32.82 Ha)	1	Workshop, Warehouse, Store & Parking Space-1	1.00	0.00	0.00	1.00
POWERHOUSE						
LA-8 (120.65 Ha)	1	Contractor & Departmental Office -2	1.50	0.00	0.00	1.50
	2	Labour Camps	2.50	0.00	0.00	2.50
	3	Main Store, Workshop and facility areas	3.00	0.00	0.00	3.00
LA-9 (20.81 Ha)	1	Dumping yard, Storage, Workshop, Warehouse, store parking	3.00	0.00	0.00	3.00
	TOTAL AREA UNDER CONSTRUCTION					64.99

Huge area under construction has been proposed which include 5 labour camps of 6.5 ha, 2 sites of labour camp for contractors' colony of 4.2 ha, 6 sites of Contractor/ Owner site office etc of 15.5 ha, apart from the other sites of main office, residential colony, contractors colony etc..

It is seen that the area can be drastically reduced if the colony areas were combined for both the contractors and the labour by centralizing their camps. Moreover in view of the Ministry's Guidelines 2004 Para No. 4.5, the User Agency/ State Government may be asked to minimize the forest land use for such house constructions especially when it

comes to labour camps, temporary offices etc.. Area of such house construction should ideally be in non-forest land which the Project proponent and State Government should explore.

4. **Total cost of the project at present rates:** The total cost of the project is approximately Rs 25,296.95 crores.
5. **Wildlife:** Whether forest area proposed for diversion is important from wildlife point of view or not: The proposed area for the HEP is not recorded to be having important/rare/ endemic species of wildlife. However, given the biological richness of the state and the scanty research and investigation in the area, the presence of such rare/ endemic/ endangered species cannot be ruled out.
6. **Vegetation:** The land in which the project is proposed is in pristine forests with riverine growth that once cut cannot be replaced. There is thick vegetation in all the area except for few patches near the villages.
 - (a) **Total number of trees to be felled:** The number of trees to be felled is kept at 280677 nos.
 - (b) From the enumeration list the numbers of trees to be felled of girth below 60 cms is 138823 numbers.
 - (c) From the enumeration list the numbers of trees to be felled of girth above 60 cms is 141854 numbers.

The area proposed as mentioned above, is mostly in thick forests that are truly irreplaceable. The type of forests appears to be predominantly Subtropical Evergreen broad-leaved forest and Subtropical rain forest. The vegetation is of multi-strata and can truly be said to be irreplaceable. While treading through the forests, it is seen that many of the areas are inaccessible due to the thick vegetation and the terrain of the area varying from gentle slope to very high slopes from 450 to almost vertical. While such area may be ideal for the dam axis location and construction of the dam but the access to such area is very difficult.

ENUMERATION ABSTRACT OF THE SAMPLING PLOTS: To assess the area of diversion and the veracity of the enumeration prepared by the State Government/ User Agency, the undersigned has visited the following sampling plots and measured the size of the trees, their members and verified the same against the field notes/registers maintained by them. The sizes of the sampling plots as mentioned in the records were not measured except for one which on ocular estimate appear to be less, this on measurement, it is found to be so as recorded below.

Date	Sl. No.	Particular of Land/LA	Size of Plot. (Mts)	Slope	No. of trees	Remarks
1	2		3	4	5	6
3/12/2014	1	L.A.- 10A.	20x10	Steep	24	The measurement tallies with the records of the Deptt/ UA.
	2	L.A. -6 A.	30x50	Gentle	---	Area of the plot is much smaller than the size mentioned, On ocular estimation. It is found in actual measurement along the slope to be 27m x 44.5mts, less by about 300sq mts. Hence number of trees not counted.

	3	L.A.-20A.	25x33	Gentle	56	The measurement was checked with the one in the records of the field work, and found matching. In this plot there were two trees of 832 cm and 802 gbh which were also recorded in the field book/register(Photos of trees and field book attached as Annex-II). However on the enumeration list of trees under LA – 20A, no tree of this spp or any other species is mentioned to be above 390cm gbh and for <i>Toona ciliata</i> the trees of maximum gbh were shown to be in the girth class 91 – 120 cms.
4/12/2014	4	L.A. – 21 (LB).	30x15	Steep	17	This is a steep area but plot is in somewhat gentle slope spot. Measurement tally with records.
	5	L.A.-21 (RB)	30x40	Steep	62	This is a steep area but plot is in somewhat gentle slope spot. Measurement tally with records.
	6	L.A.-19A.	40x40	Steep	44	Measurements match with records. Sample plot is near Aunli village
	7	L.A.-15A.	60x20	Gentle	54	Measurements match with records.

From the above checking of the sampling plots, it is seen that the enumeration is wanting/faulty in the following points:

- 1) As mentioned above in Sl. No. 3 of the above table, some huge trees of > 800cms gbh have not been reflected in the Enumeration List of LA-20. Such omission in other areas cannot be ruled out as most areas have trees having gbh of more than 400 cms but the enumeration lists have not reflected that.
- 2) The size of one of the sampling plots at Sl. No. 2 above, which was measured on the field, was found to be much less than actually recorded. Actual measurement was not done for all plots for lack of time.

Moreover, the measurements of these plots have been taken along the slope, which is actually higher than the actual area. (In one of the sampling plots the slope was more than 50o). Since this small sampling area is extrapolated over a very large area, such calculation is going to bring huge cumulative difference.

- 3) The sampling intensity adopted for the enumeration on sample check was found to be less than 4% in one case (i.e. LA-2, 83.32 ha.) which is very less.

In view of the above, though the effort of the User Agency/ State Government to carry out sampling in such difficult area is appreciated, the enumeration list in its current form cannot be accepted;

7. **Background note on the proposal:** As in the Introduction above.
8. **Compensatory afforestation:** The Compensatory land was inspected by the Chief Conservator of Forests (C).

9. **Whether proposal involves violation of Forest (Conservation) Act, 1980 or not. If yes, a detailed report on violation including action taken against the concerned officials:** No violation of Forest (Conservation) Act, 1980 was observed at the time of the inspection.

10. **Whether proposal involves rehabilitation of displaced persons. If yes, whether rehabilitation plan has been prepared by the State Government or not:** The project involves the displacement of about 95 families. But till date the State Government is yet to prepare the Rehabilitation Plan.

11. **Reclamation plan:** Details and financial allocation: Not Applicable

12. **Detail on catchment and command area under the project:** Catchment area treatment plan to prevent siltation of reservoir .The State Government is yet to make any Catchment Treatment Plan

13. **Cost benefit ratio:** The cost benefit ratio as submitted by the User Agency is only tentative and does not deserve mention. **In the absence of CAT plan, RR Plan, the calculation of CB ratio is of not much value.**

14. **Recommendations of the Principal Chief Conservator of Forests/State Government:** The Principal Chief Conservator of Forests/State Government has recommended the proposal.

15. **Recommendations of Regional Chief Conservator of Forests along with detailed reasons:** Regional Chief Conservator of Forests shall give detailed comments on whether there is any alternative routes/alignment for locating the project on the non-forest land:**This is a site-specific project and alternatives for the dam location may not be possible. However with regards to the other utilities and facility areas, it is proposed as below:**

- 1) Area under construction of various labour sheds and Offices which together would cause a huge forest tract, i.e., **64.99 hectares should be reduced.**
- 2) **5 (Five) quarries have been proposed to be created with a total area of 27.56 hectares.** This diversion can be avoided if the State Government and User Agency explored the possibility of using the area under submergence, dumping sites and other such land for the purpose.

16. **Utility of the project:** The project will be of high utility for the power requirement of the country and for the development of the state. The project is likely to employ 3000 unskilled workers and 800 skilled workers during construction phase.

Numbers of Scheduled caste/Scheduled Tribe to be benefited by the project: No specific figures have been given but since the State being a predominantly tribal state, the benefits accrued from the Project is presumed to benefit the tribal community as a whole.

17. **Whether land being diverted has any socio-cultural/religious value:** No such socio-cultural/religious value has been informed to exist in the land being proposed.

Whether any scared grove or very old growth trees/forests exists in the areas proposed for diversion.

There are no sacred groves in the proposed area, but area with old growths are seen in all those area. In one of the sampling plots, two trees of *Toona ciliata* of >800 cms gbh were seen. Also huge trees of *Betula utilis*, *Engelhardtia spicata*, *Castanopsis* spp are seen scattered in these pristine forests.

Whether the land under diversion forms part of any unique eco-system:
This land that is proposed is part of an ecosystem that cannot be said to be unique in terms of its presence

18. **Situation w.r.t. any P.A.:** The area proposed is said to be about 12kms aerial distance away from the nearest PA, that is the Dibang Wildlife Sanctuary.

19. **Any other information relating to the project:** It has been observed as mentioned earlier:

- A) That the enumeration has not reflected the ground reality because (a) huge trees have not been reflected in the Enumeration List (b) The size of sampling plots were actually less than recorded and have been measured along the slope (c) the sampling intensity is too less for getting proper assessment of the composition and structure of the forests, as mentioned in para 6 above; therefore enumeration needs to be redone to a sampling of minimum 10% sampling intensity after ensuring that representative areas are taken in sampling and that all tree-sizes area recorded.
- B) Huge area under construction i.e. 64.99 ha, has been proposed which include 5 labour camps of 6.5 ha, 2 sites of labour camp for contractors' colony of 4.2 ha, 6 sites of Contractor/ Owner site office etc of 15.5 ha, apart from the other sites of main office, residential colony, contractors colony etc.. It is seen that the area can be drastically reduced if the colony areas were combined for both the contractors and the labour by centralizing their camps. Moreover in view of the Ministry's Guidelines 2004 Para No. 4.5, the User Agency/ State Government should try to minimize the forest land use for such house constructions and explore non-forest land for the same.
- C) That excessive areas like Stone/ Shoal Quarries over an area of 27.856 ha and 13 exclusive dumping areas which amount to 100.774 ha must be relooked into to as to minimize the use of forest land.

20. In view of the above field observations the proposal cannot be recommended in its present form.

21. This proposal was discussed in the meeting of **Forest Advisory Committee held on 28th January, 2015** and the Committee, after detailed discussion on the proposal, recommended following (**Minutes of the meeting is placed in file at pg.185-202/c**):-

The Committee discussed the above mentioned proposal, heard the views of the Nodal Officer, Arunachal Pradesh and observed as below:

1. State Government of Arunachal Pradesh decided to develop Etalin HEP in the Private Sector / Joint Sector on Build, Own, Operate and Transfer (BOOT) basis. Hydro Power Development Corporation of Arunachal Pradesh Limited (HPDCAPL), a public sector undertaking set up by the State Govt, of Arunachal Pradesh for development of Hydro Power Projects in the State was allotted the project by State Govt, of Arunachal Pradesh for its implementation under Joint Venture (JV) with Jindal Power Limited (JPL). Accordingly, a Memorandum of Agreement (MoA) to develop the project was executed between Government of Arunachal Pradesh, HPDCAPL and JPL.
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3. Heights of dams, as envisaged for diversion of Dri and Tangon rivers, are 101.5 m and 80 m respectively. The Installed Capacity for the scheme proposed on Dri limb is 1861.60 MW,

comprising of a small hydro scheme of 19.60 MW at the toe of the dam on Dri River and six units of 307 MW each in the common underground powerhouse.

4. The Installed Capacity for the scheme proposed on Tangon limb is 1235.40 MW, including a small hydro scheme of 7.40 MW envisaged at the toe of the dam on Tangon River and four units of 307 MW each in the common underground powerhouse. The total Installed Capacity of the project is 3097 MW. Energy generation from the project in 90% dependable year with 95% machine availability is estimated to be 12,991.52 MU.
5. Clear justification for locating the project in the forest area giving alternatives examined and reasons for their rejection has been submitted.
6. The legal status of the land to be diverted is Unclassified State Forest (USF).
7. The proposed project site is luxuriant USF forests in very steep slopes and remotely located. Density varies from 0.1 to 0.6.
8. Number of trees to be felled is 2,80,677 i.e. Below 60 cm girth – 1,38,823 nos. and above 60 cm girth 1,41,854 nos.
9. The proposed area does not form part of National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, etc.
10. The adjacent / fringe areas are the habitat of some of the rare/endangered/ unique species of flora and fauna, and therefore, their presence is not ruled out.
11. There is no protected archaeological/heritage site/defense establishment in the proposed area.
12. The distance of the proposed site from the boundary of the notified forest area (Dibang Wildlife Sanctuary) is around 12 KM.
13. Regarding CA the forest land proposed for diversion for the above project is 1165.66 ha which includes 1074.329 ha of surface forest land and 91.331 ha of underground area. CA has been proposed over an equivalent area to the forest land proposed for diversion i.e. surface area 1074.329 ha or say 1074.30 ha (11.66 ha – underground area of 91.331 ha) in the degraded community forest land at Bleteng proposed VFR.
14. Deputy Commissioner, Dibang Valley has submitted that suitable degraded non-forest land is not available in Dibang Valley to carry out Compensatory Afforestation (CA). However, certificate of the Chief Secretary regarding non-availability of non-forest land has not been submitted.
15. Details of the land identified for CA and land suitability certificate has not been submitted.
16. Catchment Area Treatment Plan has not been submitted.
17. Compliance of Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 has not been submitted.
18. The total cost of the project is approximately Rs. 25,296.95 crores.
19. The Regional Office, Shillong in its Site Inspection Report (SIR) has observed as below:-
 - a. This is a site-specific project and alternatives for the dam location may not be possible. However area of 5 sites of Stone/Shoal Quarries which are spread over an area of 27.856 ha could be reduced if the quarries are located inside the submergence areas itself. The State Government should explore this option. Also area of 13 sites exclusively for dumping which is spread over 100.774 ha can be considered by the State Government for reduction.
 - b. Huge area under construction has been proposed which include 5 labour camps of 6.5 ha, 2 sites of labour camp for contractors' colony of 4.2 ha, 6 sites of Contractor / Owner site office etc of 15.5 ha, apart from the other sites of main office, residential colony, contractors colony etc. It is seen that the area can be drastically reduced if the colony areas were combined for both the contractors and the labour by centralizing their camps. Moreover in view of the Ministry's Guidelines 2004 Para No. 4.5, the User Agency/State Government may be asked to minimize the forest land use for such house constructions especially when it comes to labour camps, temporary offices etc. Area of such house construction should ideally be in non-forest land which the Project proponent and State Government should explore.
 - c. The enumeration of trees has not reflected the ground reality because (a) huge trees have not been reflected in the Enumeration List (b) The size of sampling plots were actually less than recorded and have been measures along the slope (c) the sampling intensity is too less for getting proper assessment of the composition and structure of the forests, as mentioned in para 6 above; therefore enumeration needs to be redone to a sampling of minimum 10%

sampling intensity after ensuring that representative areas are taken in sampling and that all tree-sizes are recorded.

- d. The project involves the displacement of about 95 families. But till date the State Government is yet to prepare the Rehabilitation Plan.

20. After detailed discussion the FAC recommended that the proposal will be considered after completion of the Cumulative Environment Impact Assessment Study (River Basin study) and its acceptance by the Ministry. In the meantime the State Government may take following actions.

- a) Examine the observations made by the Regional Office in its SIR and, if required, may modify and re-submit the proposal after addressing the issues raised by the Regional Office in its report.
- b) Submit the CAT Plan/Environment Management Plan.
- c) Submit the detailed R&R plan for rehabilitation of affected families.
- d) Submit DGPS maps of the CA land identified for CA along with land suitability certificate from competent authority.
- e) Submit the compliance of Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, as per the MoEF&CC advisory.

The above recommendation of the FAC were communicated to the State Government vide this Ministry's letter of even number dated 13th March, 2015. The State Government vide their letter no. FOR.279/Cons/2007/604-07 dated 29th May, 22015 (**Pg 218-821/c**) submitted the information as desired by the FAC. A brief summary of the information submitted by the State Government is given as under:

Sl. No.	Query	Reply
1.	Examine the observations made by the Regional Office in its SIR and, if required, may modify and re-submit the proposal after addressing the issues raised by the Regional Office in its report. (A copy of Site Inspection Report is available on website of the Ministry).	DFO, Anini has furnished the reply against the observations made by Regional Office in its SIR (Annexure-I – ps. 220-221/c).
2.	Submit the CAT Plan/Environment Management Plan.	A copy of the Environment Management Plan is enclosed herewith (Annexure-IV – ps. 266-634/c). CAT Plan forms a part of the EMP. The revised EMP was submitted to MoEF&CC in January, 2015 after conduct of Public Hearing of the Project for accord of Environment Clearance. The approved CAT plan has not yet been given.
3.	Submit the detailed R&R plan for rehabilitation of affected families.	Detailed R&R Plan is attached herewith at (Annexure-V – ps. 635-801/c). The R&R Plan formed a part of the revised EIA/EMP submitted to MoEF&CC in January, 2015 after conduct of public hearing of the project for accord of Environment Clearance. The approved R&R plan has not yet been given.
4.	Submit DGPS maps of the CA land	The DGPS map and land suitability certificate

	identified for CA along with land suitability certificate from competent authority.	alongwith the relevant details of CA submitted by DFO, Tawang has been attached at Annexure-II – & III – ps. 232-265/c).
5.	Submit the compliance of Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, as per the MoEF&CC advisory.	The certificate against compliance of Scheduled Tribe and Other Traditional Forest Dweller (Recognition of Forest Rights) Act, 2006 issued by the Deputy Commissioner, Anini is attached at (Annexure-VI – ps. 803-821/c).

From the above, it may be ascertained that the State Government/project proponent has submitted information on all points as desired by the FAC.

21. It was decided in last FAC meeting held on 28.01.2015 that the proposal will be considered after completion of the Cumulative Environment Impact Assessment Study (River Basin study) and its acceptance by the Ministry.

22. IA-1 Division of MoEF&CC vide their letter No. J-1211/22/2013 IA-1 dated 23.09.2016 has forwarded approved study report on Cumulative Impact Assessment & Carrying Capacity Study of Dibang river basin in Arunachal Pradesh (**Pg. 838-861/c**) and informed that the major approved recommendations of the said study for Development of hydroelectric Power Projects (HEPs) in Dibang River basin are as follows:

- i. A total of 18 HEPs with Cumulative installed capacity of 9973 MW have been considered in the Dibang river basin study. List of project is attached at **Annexure-I** (pg.840-841/c). **It includes Etalon Project at Sr. No.1 of the list.**
- ii. 15 HEPs more than 25 MW with Cumulative installed capacity of 9594 MW are recommended in the basin. The list of these projects with the e-flow is attached at **Annexure II (pg.840-841/c)**.
- iii. The list of two recommended projects (less than 25 MW) with Cumulative installed Capacity of 44 MW is placed Annexure III (pg.843/c).
- iv. Simulation modeling could not be carried out in respect of Agoline HEP, Etabue HEP, Elango HEP and Ashupani HEP due to non- availability of data. Nevertheless, as per the prevailing norms, it is recommended that Environmental Flow of 20% in lean season, 25 % in non- lean non -monsoon months and 30% in monsoon season should be maintained for these projects.
- v. One project namely Malinye HEP 9335 MW has been recommended to be dropped as it falls within Dibang Wildlife Sanctuary and there is no possibility of shifting the project downstream in order to avoid falling with in the sanctuary. Besides, as informed by State government, there is no free stretch between Malinye and Attunli HEPs as the tail water level of the project matches with the FRL of Attunli HEP. The Malinye HEP shall not be re-allocated by altering their design features, location, names, etc.
- vi. One of the turbines of **Dibang Multi-purpose and Sissiri HEPs should run continuously to ensure sustenance of aquatic ecosystem.**
- vii. The **executive summary** of the Basin study report as received from Consultant in this regard is attached as **Annexure IV (pg.844-861/c)**.
- viii. On the other free stretches of Dibang river including its tributaries, no further HEPs should be planned/allotted in he entire Dibang basin even if they are of smaller capacity (less than 25 MW) and do not fall under the purview of EIA Notification, 2006.

23. The conclusion and recommendations pertaining to Etalin Project (pg.859/c) as given in the executive summary of the said Cumulative Impact Assessment & Carrying Capacity Study of Dibang river basin in Arunachal Pradesh are as follows:

Dibang Multipurpose Project:

The project is in most advanced stage in basin, with environment and forest clearance in DPR and, DPR is under revision due to changes proposed during environment and forest clearance process. The project has reduced the dam height by 10 m leading to change of installed capacity from 3000 MW to 2880 MW . Environmental flow provisions as finalized during the environment clearance have been assessed by modeling study and are found to be adequate. Keeping this in view, no additional modification or changes are recommended for this project.

Etalin Project: In addition to Dibang Multipurpose Project, these two are the only projects which have made substantial progress in terms of survey and investigation and preparation of environmental impact assessment study reports. Etalin's DPR has already been accorded TEC by Central Electricity Authority; EIA & EMP studies have been completed along with public consultation process and have been discussed in EAC, however, environment clearance is not recommended because basin study was not complete at that time. Adequate free flow river stretch is maintained with upstream and downstream projects in both the cases and with the provision of environmental flow recommendations, impacts of reduced flow in dewatered stretch will also be mitigated. Therefore, no changes are required for these two projects as well.

In view of the above, the facts of the proposal may be placed for the consideration of the FAC in its forthcoming meeting to be held on 28-02.2017.
