

Agenda No. 7

F. No. 8-94/2013-FC

Sub: Diversion of 55.7 ha of forest land (Surface forests land = 47.1 ha, Riverbed = 5.9 ha & underground area = 2.7 ha) in favor of M/s Heo Hydro Power Pct. Ltd., New Delhi for construction of Heo Hydroelectric Project (240 MW) in West Siang District of Arunachal Pradesh - reg.

The proposal was last considered by the FAC in its meeting held on 17th to 18th July, 2014 and after detailed discussion and examination of the proposal vis-a-vis final reports on Cumulative Impact Assessment & Carrying Capacity Study of Siang - the Sub basin including Down Stream Impacts prepared by the Central Water Commission, the Committee recommended that the **final decision on FC for the project will be taken only after the acceptance of the Cumulative Impact Assessment & Carrying Capacity Study by the MoEF &CC.** The proposal will be placed before the FAC as soon as the FRA compliance is submitted by the State Govt. In the meantime the State Govt has been asked to comply with the provisions of FRA. Reply from the State Government is awaited.

The detailed proceeding of FAC meeting on 17th to 18th July, 2014 is as follows:-

The Forest Advisory Committee, in its meeting held on 17th to 18th July, 2014 considered the above mentioned proposal and after detailed discussion and interaction with the user agency, the Committee noted as under:

- (i) The status of land proposed for diversion is Un- classed State Forest
- (ii) The proposal was discussed in the meeting of Forest Advisory Committee held on 13th -14th February, 2014 and the Committee, after detailed discussion on the proposal, recommended the furnishing of the following information:
 - a) The Committee recommended that the State Government should be advised to re-examine the proposal in the light of the recommendations contained in the Cumulative Impact Assessment /Carrying capacity study for Siang/Siyom basin made by the Central Water Commission and, if required, submit the revised proposal after incorporating the modification suggested by the study, if any.
 - b) DGPS maps of the area proposed for diversion and for CA and the Forest cover map and 10 Km radius map showing the distance from the Protected Areas.
 - c) CAT plan or Environmental Management Plan prepared for obtaining Environment Clearance.
 - d) The compliance of provisions of the Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 as per the Ministry's advisory dated 3.08.2009.

(iii) The above recommendation of the FAC were communicated to the State Government vide this Ministry's letter of even number dated 11.03.2014. The State Government vide their letter no. FOR. 322/Cons/2010/890-91 dated 06.06.2014 submitted the information as desired by the FAC. A brief summary of the information submitted by

the State Government is given as under:

Para of MoEF's Letter	Additional information /documents/ clarification sought	Reply/Response
Para- (i)	After detailed deliberations, the Committee recommended the State Government should be advised to re-examine the proposal in the light of the recommendation contained in the Cumulative Impact Assessment/Carrying capacity study for Siang/Siyom basin made by Central Water Commission and if required submit the revise proposal after incorporation the modification suggested by the study, if any.	As regards, Cumulative Impact assessment/Carrying Capacity Study, this is to be informed that a meeting was held recently at Itanagar between the Sub-group of EAC, the state Govt. as well as Project Developers. The State Govt and Project Developers perspective on the draft report of the CIA Study was placed before the Sub-group of EAC. However, there have been issues with regard to free flowing river stretches between the FRL of the downstream and TWL of the HEPs and the Environmental Flow immediately downstream of the diversion structures to sustain the aquatic ecology and environment. In para-11.3.3 (iii) of Chapter-11 of the Cumulative Impact assessment report, free flowing river stretch has not been prescribed for Heo HEP. However, it is mentioned that adequate Environmental Flow release as worked out for the project in Chapter -9 would help in mitigating the impacts. In the Table 12.2, the Environmental Flow of 20% 15% &15% has been recommended for Heo HEP in Lean season, pre &Post monsoon season and monsoon season respectively. The User Agency has informed that they have taken note of the report but the project components and the land requirement for the project will not change and will remain 55.70 ha only.
Para: (ii)	The state government should also submit following information along with proposal:	
(a)	DGPS maps of the area proposed for diversion and for CA and the cover	The, DGPS map of the area proposed for diversion and the proposed CA area and the Forest Cover Map of the Along Forest

	map and 10 Km radius map showing the distance from protected area.	Division and the 10Km radius map showing the distance from protected area duly authenticated by the DFO, Along FD are enclosed as Annexure-I, II, III & IV
(b)	CAT plan of Environmental Management plan prepared for obtaining Environmental clearance.	The copy of CAT plan submitted to the MoEF for approval as part of the Environmental Clearance process is enclosed as Annexure-V
(c)	The compliance of Provision of Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Right) Act, 2006 as per the Ministry's advisory dated 03.08.2009.	The User Agency has informed that an application has been submitted to the Deputy Commissioner, West Siang District, Aalo requesting for recognition & settlement of right over the forest land measuring 55.70 ha required for the project under the provisions of the Scheduled Tribe and Other Dwellers (Recognition of Forest Right) Act, 2006. The process has been initiated by the Deputy Commissioner and "District Level Committee and Sub-Division Level Committee" has been constituted. The Deputy Commissioner has forwarded the case to the Additional Deputy Commissioner, Mechuka for further necessary action in accordance with the provisions of FRA. Further, the User Agency has requested that their case may be processed for according in-principal (Stage-I) approval for diversion of forest land and compliance report about recognition of rights under FRA will be submitted by them before seeking Stage-II approval as was the practice followed in all other forest clearance cases in the past. Therefore the request of UA may be

		<p>considered. Copy of the application of the UA addressed to DC, Also, notification issued by the DC constituted committee and the letter of the DC addressed to the Addl. DC Mechuka to take action for recognition of rights under FRA is enclosed as Annexure- VI, VII & VIII.</p>
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- (iv) The proposal has been recommended by State Government for Stage-I approval for diversion of forest land.
- (v) It was also brought to the notice of the committee by the project proponent that the Expert Appraisal Committee during its 75th meeting held on 3rd & 4th July 2014, has recommended the (240 MW) Heo HEP for Environment Clearance, with the minimum E-Flow as recommended by the Siang Basin Study and other observations & conditions as provided in the minutes of the above said meeting.. The EAC has recommended for approval of the Cumulative Impact assessment/Carrying Capacity Study of the Siang basin, but the final approval from the competent authority is still awaited.
- (vi) After detailed discussion on the proposal the FAC recommended the following.
- a) The Impact Assessment Division in the Ministry be requested to communicate the approval of the competent authority for Cumulative Impact assessment/Carrying Capacity Study of the Siang basin.
 - b) State Government may submit complete Compliance of Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 in accordance with the MoEF's advisory dated 5.02.2013 read with Guidelines dated 5.07.2013.

In the meantime the State Government has been asked to comply with the provisions of FRA. Reply from the State Government is awaited.

2. In the meantime, The CIAS has been completed and the Ministry has accepted the study. The main features are as follows:-

- (i) The recommendations of the above study report have been approved by MoEF&CC. The recommendations as accepted are required to be considered as roadmap for development of hydropower projects in Siang river basin. The report outlines capacity, size, location of HEPs commensurate with the basins environmental carrying capacity conforming to the accepted cumulative impacts. However, EIA/EMP shall have to be carried out for individual projects as per provision of EIA-Notification 2006 and its subsequent amendments. Modification in designs such as lowering of FRL wherever recommended need to be incorporated.
- (ii) For the remaining 29 projects, environmental flow release has been recommended are annexed as **Annexure-II**. These must be conditioned in the final approval of the projects.

- (iii) On main Siyom River, four projects in cascade taking about 55 km of the river stretch is impacting the river ecosystem. Therefore, there should be at least 1 km of free flowing river stretch between adjacent projects wherein river can flow in natural conditions in all the seasons to ensure habitat connectivity, rejuvenation and preventing landscape fragmentation. Accordingly, FRL of three projects viz. Tato II, Naying and Siyom Middle should be lowered so that free flowing river stretches of 1 km can be maintained between FRL and TWL of these four projects in cascade.
- (iv) Three large projects have been proposed on main Siang river viz. Siang Upper Stage-I (6000 MW), Siang Upper Stage-II (3750 MW) and Siang Lower (2700 MW). So far only Siang Upper Stage-II (3750 MW) has valid scoping clearance from MoEF&CC. (Study Report has discussed in detail cumulative impacts of these three large storage projects on Siang river covering biodiversity aspects, impacts on river ecology especially movement of Mahseer, downstream impacts of diurnal flooding at D'Ering Memorial WLS in lean season, converting over 70% of Siang river reach in India to reservoir with no free flowing stretch, etc. MoEF&CC has accepted the recommendations for freezing the total capacity in Upper Siang project at 9750 MW. The configurations of the projects within the approved capacity are to be decided by State Government/MoP. However, there would be a mandatory requirement of cumulative impact analysis of the projects in main Sian River to be carried out before environment clearance is accorded. There is also a need for an additional study to assess the impacts of various configuration of these projects on the main Siang River.
- (v) Among four planned HEPS on Siyom river Naying and Hirong are yet to get the EC from MoEF&CC. However, the HEPs should be asked to implement recommendation of design modification by lowering FRL.
- (vi) Projects to be appraised henceforth shall explore the provision of longitudinal connectivity for smooth biota movement and silt transportation.

In view of above, the Heo Hydro Electric Project has been allowed. However, environmental flow release has been recommended as follows:-

Sl. No.	Name of Project	Capacity (MW)	Lean Season	Pre and Post Monsoon	Monsoon
1.	Pauk	240	20%	15%	15%

3. A background note on the proposal along with the fact sheet is as under:-

1. The State Government of Arunachal Pradesh vide their letter No. FOR. 323/CONS/2010/93 dated 20.01.2014 submitted above mentioned proposal seeking prior approval of the Central Government under the Forest (Conservation) Act, 1980.
2. The project envisage utilization of water of Yarjep River, a major tributary of Siyom River. The project is a run-of-river Scheme with a surface power house. The dam site is proposed near Hiri and Purying villages and power house near Meing village.
3. Details of the requirement of the forest area for the project is give as under:
 - (i) Surface forest land - 47.1 ha

(ii) Riverbed	-	5.9 ha
(iii) Underground land	-	2.7 ha
Total		55.7 ha

4. Justification for locating the project in the forest area

- (i) Being a run-of-the-river hydroelectric project, HEO HE project has minimal impact on the environment, notably because the submergence area would be only 8.4 ha (out of which 5.5 ha of river bed and 2.8 ha of surface land) The entire project has been planned to be as era-friendly as possible, through the lowest possible impact on the environment.
- (ii) However, as most of the Hydroelectric Projects located in Arunachal Pradesh, HEO HE Project is planned on hilly and relatively remote area covered with forest or degraded forest. Therefore the project requires unavoidable minimum Forestland, mainly for the construction of the Dam structure, the power house and the roads. Each of the project components have been designed in order to result in the minimum possible land requirement.
- (iii) In addition, since river bed falls under Forest Land, it is not possible to envisage a run of the river HE Project without impacting forest land. The size and the locations of all the components have been fixed after proper survey and investigations and after proper examination of available alternatives.

Alternatives considered

- (i) Various locations for dam site have been worked out in the preliminary stages.
 - (ii) Regarding the Dam site, the option chosen is the most upstream one, with lesser height of dam. This choice is due to geological reasons. In the downstream option, Dam foundation would be based on a landslide on left bank, which absolutely had to be avoided.
 - (iii) On the other hand, the option submitted presents submergence almost confined within the major river bed of the river and no impact on local activities.
 - (iv) Regarding the power house, there was only one option for location of a surface power house. Due to topographical reason there was no alternative for surface powerhouse. The power house is located within the Meing village area with no impact on houses and habitation.
5. Fact related to the proposal as contained in the State Government letter dated 20.01.2014 are given below in the form of fact sheet

FACT SHEET

1.	Name of the Proposal	Diversion of 55.7 ha of forest land (Surface forests land = 47.1 ha, Riverbed = 5.9 ha & underground area = 2.7 ha) in favor of M/s Heo
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		Hydro Power Pct. Ltd., New Delhi for construction of Heo Hydroelectric Project (240 MW) in West Siang District of Arunachal Pradesh
2.	Location i. State ii. District	Arunachal Pradesh West Siang
3.	Particulars of Forests: i. Name of Forest Division and Forest area involved. ii. Legal status/Sy.No. iii. Map	Along Forest Division, Aalo 55.7 ha Unclassified State Forest (USF) SOI toposheet - Pg-12-14/c DGPS Map – Not enclosed. Forest Cover Map – Not enclosed. 10 m radius map showing PAs – Not enclosed.
4.	Topography of the area	-
5.	(i) Geology (ii) Vulnerability to erosion	- The proposed area for diversion is mostly rocky, has vegetation cover & is not prone to erosion. The topography seems to be fairly stable. Some areas may become vulnerable to erosion if devoid of vegetation.
6.	(i) Vegetation (ii) Density (iii) No. of trees to be felled	Walnut, Poma, Siris, Hingori, Jutuli, Mekahi, Moj, Mossing etc. Dense Forest (Density 0.4 to 0.5) Eco Class-1 Tropical Semi-evergreen. Number of trees i. At FRL - 458 trees ii. At FRL 2m - 235 trees iii. At FRL 4m - 179 trees iv. Area other than submergence – 6535 trees Total – 7407 trees including all girth classes

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	No rare/endangered/unique species of flora and fauna have been found/recorded in the area. Major flora and fauna of the area is given as under: Flora <i>Cedrella toona, Castonopsis, PHoeba cooperiana, Altingia excels, Juglans regia, Albizzia lebbek, Kydia calcycinia, Albizia lucida</i> Fauna <i>Capricors sumartruensis, Muscicapidge, Nectarinidae, Picidae, Strigidae, Cuculidae, Ratufa macrouru, Prosbytis phayrie, Varanus flavescenes, Felies virersina, etc.</i>
10.	Approximate distance of the proposed site for diversion from boundary of forest.	The proposed project site is approx. 32 km away from Mechuka St. R.F.; approx. 34.5 km away from Dibang Dihang Biosphere Reserve; approx.88km from Yordi Rabe Supse Wildlife Sanctuary and approx. 18 km from Mouling National Park.
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	No

	period of work done, action taken on erring officials. Whether work in violation is still in progress.	
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	Compensatory Afforestation (CA) has been proposed over double degraded forest land. It is reported by the State Government that CA will be carried in Along Forest Division of West Siang District in USF area. The land earmarked for CA is part of 217 ha of degraded USF identified as land bank for CA. The State Government has also submitted a copy of mutation certificate dated 29.07.2014 regarding mutation of 217 ha of degraded USF as Village Reserve Forest in favor of State Forest Department.
	(i) Details of non-forest area/degraded forest area identified for CA, its distance from adjoining forest, number of patches, size of each patches.	<ol style="list-style-type: none"> 1. USF area of 55.7 ha x2=111.4 ha under Basar Forest Range at Chisi village is proposed for raising of CA 2. Distance from adjoining forest: 12 km appx. 3. Number of patch: 1 4. Size of patch: 111.40 ha
	(ii) Map showing non-forest/degraded forest area identified for CA and adjoining forest boundaries.	Enclosed Pg-44/c
	(iii) Detailed CA scheme including species to be planted, implementing agency, time schedule,	CA scheme of 10 years with financial out lay of Rs. 1,88,14,800/- has been submitted (Pg-52-54/c)

	cost structure, etc.	
	(iv) Total financial outlay for CA	25,023,389.70
	(v) Certificate from the competent authority regarding suitability of the area identified for CA and from management point of view.	Enclosed at Pg-55/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	NA NA NA
18.	Report on compliance of provision of the Scheduled Tribe and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	Not enclosed.
19.	Cost Benefit Ratio	Enclosed (pg 1517/c)
20.	Employment Opportunity	Highly skilled - 30 Skilled - 100 Semi-Skilled- 150 Unskilled - 120 Nos
21.	Total Cost of the Project	Rs. 1695 Crores (At completion cost)
22.	Recommendation i. DFO ii. CCF iii. Nodal Officer iv SG	Yes (pg-21) Yes (pg-66) Yes (pg-62) Yes (pg-63)
23.	District Profile (i) Total Geographical area of the district (ii) Total Forest area/Divisional Forest area	5049 Sq. Km. 6719 Sq. Km (As per state of Forest report FSI, 2009). West siang District includes Along &

	<p>(iii) Total area diverted since 1980</p> <p>(iv) Total CA stipulated since 1980 (Forest land)</p> <p>a. Forest land including penal CA</p> <p>b. Non Forest Land</p> <p>(i) Progress of Compensatory Afforestation</p> <p>a. Forest land</p> <p>b. Non Forest land</p>	<p>Likabali Forest Division.</p> <p>431.54 ha (14 cases)</p> <p>1137.88 ha</p> <p>657.28</p>
24.	Recommendation of DFC	<p>The project is expected to cater to the local requirement and provide employment opportunities to the local people. As the cost of compensatory afforestation and NPV shall be paid by the user agency, proposal for diversion of Heo HEP may be accepted and is therefore recommended.</p>

6. The State Government has recommended the project without any specific conditions.
7. The project proponent has submitted undertaking to bear the cost of CA and NPV
8. The Government of Arunachal Pradesh has allotted the HEO HE Project to VFLCAN Energy Holdings (Dubai) Ltd for the development of project on BOOT basis. VELCAN Energy Holdings (Dubai) has incorporated a dedicated Special Purpose Vehicle, namely Heo Hydro Power Pvt. Ltd. (HHPPL) for the development of the Project within the allotted reach.
9. HHPPL obtained the TOR approval from MOFF and the clearance for pre construction activities and Survey & investigations first in September 2008. A second approval has been obtained on 22nd of March 2010 in order to record the revision of the capacity of the project (from 90 to 210 MW). Then a third revision of the TORs has been granted on 20th October 2011, following the increase of capacity directed by the Central Electricity Authority on 27th April 2011. As per such directions, the Installed Capacity has been approved for 240 MW. Such increase has been arrived at based on the hydrology approved by CWC in July 2010, without any change in project layout.
10. The Dam of HEO H.E. Project is located in the West Siang District of Arunachal Pradesh at latitude 28°32'20"N and longitude 94°16'31"E on Yarjep. River. The entire project components are located in West Siang District, Mechuka Sub-division. The Project site 4. located 153 Km from Along, and 353 Km from Dibrugarh, which is nearest airport.

11. The project envisages utilization of water of Yarjep River, a major tributary of Siyom River. The project is a Run-of-River scheme with a surface powerhouse. The dam site is proposed near Hiri and Purying villages and power house near Meing village. The average riverbed level at the dam site after dam construction is about 1386 m and FRL at the dam is proposed at El. 1400 m.
12. The Project will utilize a net design head of 2018 m and design discharge of 130.2 cumec for generation of 240 MW (3 x 80 MW). The project comprises of a 14 m high concrete dam above river bed level with a central free ogee spillway. The reservoir will have a gross capacity of 0.3 Mcum. A scour sluice is proposed on the left side of the dam in order to clean the entrance of the water intake during operation.
13. The intakes are proposed on the left bank and would be connected to a 6.4m diameter tunnel. The length of the tunnel is about 3578 m. The General Location Plan of project (1:50,000 scale) is attached as Annexure-L
14. The energy generation shall be about 1.05 billion units (813) in a 90% dependable year at 95% machine availability. The generated energy would be pooled to Siang PP-2 pooling point through proposed 220 KV transmission line. The power from Siang PP-2 pooling point would be ultimately pooled directly through HVDC Link to the National Grid. However transmission plans and construction schedule are still tentative as of the date of this application.

Hence, proposal may be submitted for the consideration of the FAC, if agreed to.