

AGENDA ITEM NO.4

File. 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

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

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| 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 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 Km 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 | Walnut, Poma, Siris, Hingori, Jutuli, Mekahi, Moj, Mossing etc. Dense Forest (Density 0.4 to 0.5) |

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| | (iii) No. of trees to be felled | 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 sumatruensis, 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 period of work done, action | No |

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| | 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, cost structure, etc. | CA scheme of 10 years with financial out lay of Rs. 1,88,14,800/- has been submitted (Pg-52-54/c) |
| | (iv) Total financial outlay for CA | 25,023,389.70 |
| | (v) Certificate from the competent authority regarding suitability of the | Enclosed at Pg-55/c |

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| | area identified for CA and from management point of view. | |
| 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 (iii) Total area diverted since 1980 (iv) Total CA stipulated since 1980 (Forest land) a. Forest land including penal CA b. Non Forest Land (v) Progress of Compensatory Afforestation a. Forest land b. Non Forest land | 5049 Sq. Km. 6719 Sq. Km (As per state of Forest report FSI, 2009). West siang District includes Along & Likabali Forest Division. 431.54 ha (14 cases) 1137.88 ha 657.28 |
| 24. | Recommendation of DFC | The project is expected to cater to the local requirement and provide employment opportunities to the local people. As the cost of compensatory |

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| | | afforestation and NPV shall be paid by the user agency, proposal for diversion of Heo HEP may be accepted and is therefore recommended. |
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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 22^d 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.

In view of the above, if approved the proposal may be submitted to the FAC for its consideration in its forthcoming meeting.
