



*Please immediately
for A/c (FC) 019*

एचपीसी लिमिटेड

सरकार का उद्यम)

NHPC Limited

(A Govt. of India Enterprise)

Ref No. NH/ENV/115/72

08th Sept 2014

**Director General of Forests & Special Secretary
Ministry of Environment, Forests and Climate Change,
Jorbagh Road, Aliganj,
New Delhi – 110 003.**

*PNHPC
precheck*

**Sub.: Diband Multipurpose Project (3000 MW) – Reconsideration of Forest -
Clearance reg.**

Ref.: Our letter No. NH/ENV/115/62 dated 04.09.2014.

Sir,

Kind attention please IACFC)

Please refer to your office letter No. 8-85/2011-FC dated 05.09.2014 vide which it has been intimated that the sensitivity analysis report for reduction in dam height by 5 m to 20 m from Additional Secretary (Power), MoP vide letter dated 24.06.2014 has been received by MoEF&CC. Further, it has been desired that the sensitivity analysis report up to 40 m reduction may be submitted for reconsideration of the case. As sought, the sensitivity analysis by reducing the dam height by 5 m to 40 m is enclosed as **Annex 1**. This sensitivity analysis of reduction in dam height reveals the following:

- 1) Diband Project has dual objectives of flood moderation and power generation. With reduction in the dam height up to 40 m, NHPC has to reduce power generation without change in the quantum of flood moderation.
- 2) The natural permanent submergence within the river for proposed dam is about 1177 ha. Further, about 514 ha of land will be used for temporary purpose and the same shall be returned to the Forest Department after construction of the project.
- 3) Total forest land requirement per megawatt (MW) varies from 1.59 to 1.78. This ratio is minimum i.e. 1.59 in case of 10 m reduction and maximum i.e. 1.78 in case of 20 m reduction. Total forest land requirement per MW is 1.67 at 40 m reduction which is equivalent to that of 0 m reduction of dam height.
- 4) With 10 m height reduction, the increase in tariff is negligible. The tariff is ₹ 5.66 per unit as compared to ₹ 5.64 per unit at 0 m height reduction. The tariff increases significantly with further height reduction. At 40 m reduction, the tariff is ₹ 6.24 per unit which may make the project unviable.
- 5) Installed capacity of the project will be reduced by 60 MW (2%), 120 MW (4%), 300 (10%), 600 MW (20%), 650 MW (22%), 700 MW (23%), 740 MW (25%) and 780 MW (26%) for 5 m, 10 m, 15 m, 20 m, 25 m, 30 m, 35 m and 40 m reduction, respectively.

Contd...2

- 6) The annual energy generation will be reduced by 260 MU (2%), 563 MU (5%), 923 MU (7%), 1540 MU (14%), 1853 MU (16%), 2166 MU (19%), 2499 MU (22%) and 2832 MU (25%) for 5 m, 10 m, 15 m, 20 m, 25 m, 30 m, 35 m and 40 m reduction, respectively. Thereby, the loss of annual revenue varies from ₹ 169 crore (3%) to ₹ 1087 crore (17%) from 5 m to 40 m reduction.
- 7) Percentage reductions in forest land requirement are 6%, 9%, 11%, 15%, 17%, 20%, 23% and 26% for 5 m, 10 m, 15 m, 20 m, 25 m, 30 m, 35 m and 40 m reduction, respectively. It is observed that beyond 10 m reduction of dam height, the land requirement is not decreasing significantly in comparison to the decrease in installed capacity.


From the above observations and sensitivity analysis report, it can be observed that the decrease in dam height and consequent sacrifice of power generation beyond 10 m reduction is not commensurate with the saving of forest land. Further, the tariff also increases significantly beyond 10 m reduction in dam height. Therefore, it can be concluded that 10 m reduction in dam height, at which forest land requirement per MW is minimum and the tariff is minimum can be considered as optimum reduction in dam height.

In view of above and sensitivity analysis report, it is requested that the forest proposal of Dibang Multipurpose Project may please be considered by FAC in its meeting scheduled to be held on 22nd – 23rd September 2014, with reduction in dam height as considered appropriate by FAC, for accord of forest clearance.

Thanking you,

Encl.: As above.

Yours faithfully,


(D. P. Bhargava)
Director (Technical)

Copy to:

- i) Principal Secretary (Forests), Govt. of Arunachal Pradesh, Deptt. of Environment & Forests, Itanagar – 791 111 (Arunachal Pradesh)
- ii) Joint Secretary (Hydro), Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110 001.

DIBANG MULTIPURPOSE PROJECT - ARUNACHAL PRADESH
REDUCTION IN DAM HEIGHT VIS-À-VIS FOREST LAND REQUIREMENT

S. No.	Reduction in Dam height (m)	0	5	10	15	20	25	30	35	40
1	Dam Height (m)	288	283	278	273	268	263	258	253	248
2	Height required for Flood moderation of 1259 MCM	37.0	37.9	40.1	41.9	44.6	46.5	49.0	51.2	53.9
3 (a)	Installed Capacity (MW)	3000	2940	2880	2700	2400	2350	2300	2260	2220
3 (b)	Reduction in Installed Capacity (MW)	0	60	120	300	600	650	700	740	780
3 (c)	Percentage reduction in Installed Capacity	0%	2%	4%	10%	20%	22%	23%	25%	26%
4 (a)	Annual Energy Generation (MU)	11330	11070	10767	10407	9790	9477	9164	8831	8498
4 (b)	Reduction in Annual Energy Generation (MU)	0	260	563	818	1540	1853	2166	2499	2832
4 (c)	Percentage reduction in Annual Energy Generation	0%	2%	5%	7%	14%	16%	19%	22%	25%
5 (a)	1 st year Tariff (Rs. per unit)	5.64	5.62	5.66	5.80	5.94	5.99	6.05	6.14	6.24
5 (b)	Annual loss in revenue (Rs. in Crores)	0	169	296	304	575	713	846	968	1087
5 (c)	Percentage annual loss in revenue	0%	3%	5%	5%	9%	11%	13%	15%	17%
6 (a)	Natural Permanent Submergence within river	1177	1177	1177	1177	1177	1177	1177	1177	1177
6 (b)	Submergence Due to Project	2832	2532	2387	2279	2093	1966	1803	1664	1512
6 (c)	Total Submergence (ha) (6 a + 6 b)	4009	3709	3564	3456	3270	3143	2980	2841	2689
7 (a)	Land for Permanent infrastructure	500	500	500	500	500	500	500	500	500
7 (b)	Land for temporary use - to be returned	514	514	514	514	514	514	514	514	514
8 (a)	Total Forest Land Requirement (ha)	5023	4723	4578	4470	4284	4157	3994	3855	3703
8 (b)	Forest Land Requirement (ha) after returning the forest land (8 a - 7 b)	4509	4209	4064	3956	3770	3643	3480	3341	3189
8 (c)	Net Forest Land Requirement for project (ha) after returning the forest land (8 b - 6 a)	3332	3032	2887	2779	2593	2466	2303	2164	2012
8 (d)	Reduction in Forest Land Requirement (ha)	0	300	445	553	739	866	1029	1168	1320
8 (e)	Percentage reduction in Forest Land Requirement	0%	6%	9%	11%	15%	17%	20%	23%	26%
9 (a)	Total forest land / MW (8a / 3a)	1.67	1.61	1.59	1.66	1.78	1.77	1.74	1.71	1.67
9 (b)	Net Forest land / MW (8b / 3a)	1.50	1.43	1.41	1.47	1.57	1.55	1.51	1.48	1.44
9 (c)	Net Forest land for Project / MW (8c / 3a)	1.11	1.03	1.00	1.03	1.08	1.05	1.00	0.96	0.91

Note Original DAM top level : 550 m, Full reservoir level : 545 m, River bed level : 288 m, Deepest foundation level : 262 m & Rated net head : 233 m

Shahid