सत्यमेव जयते

आज़ादी का अमृत महोत्सव

भारत सरकार/GOVERNMENT OF INDIA
एकीकृत क्षेत्रीय कार्यालय
Integrated Regional Office
पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest and ClimateChange
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पत्र सं 14–3/आई.आर.ओ./स्थल निरीक्षण/2021/1 213. दिनांकः 05/06/2023

सेवा में,

अतिरिक्त महानिदेशक (वन), एफ.सी.ए.
पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय
इंदिरा पर्यावरण भवन, जोरबाग रोड़
अलीगंज, नई दिल्ली–11003

विषयः– **Proposal for seeking prior approval of the Central Government under Section 2 of Forest (Conservation) Act, 1980 for diversion of 211.8427 ha of forest land for construction of 500MW Dugar HEP in favour of NHPC Ltd. under Pangi Forest Division of Chamba District, Himachal Pradesh (Online Proposal No. FP/HP/HYD/123533/2021)-reg.**

संदर्भः– भारत सरकार, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय (वन संरक्षण डिवीजन) पत्रांक 8-15/2022-FC दिनांक 03.11.2022

महोदय,

उपरोक्त संदर्भित पत्र के संबंध में विषयांकित प्रस्ताव से सम्बंधित स्थल निरीक्षण रिपोर्ट इस पत्र के साथ आगामी कार्यवाही हेतु आपको भेजी जा रही है।

सादर,

संलग्नः– उपरोक्तानुसार।

भवदीय,

सत्य प्रकाश नेगी

(सत्य प्रकाश नेगी)
क्षेत्रीय अधिकारी 5/6/2023

SITE INSPECTION REPORT BY THE INTEGRATED REGIONAL OFFICE (IRO), SHIMLA FOR PROPOSAL INVOLVING DIVERSION OF 211.842 HA OF FOREST LAND IN FAVOUR OF NHPC LTD. FOR CONSTRUCTION OF DUGAR HYDROELECTRIC PROJECT -500 MW UNDER THE JURISDICTION OF PANGI FOREST DIVISION IN DISTRICT CHAMBA OF HIMACHAL PRADESH (Online Proposal Number: FP/HP/HYD/123533/2021)

Name of the Inspecting Officer- Sh. Satya Prakash Negi, Regional Officer, IRO, Shimla.

Ministry of Environment, Forests and Climate Change (MoEF&CC) (Forest Conservation Division), New Delhi vide File no. 8-15/2022-FC dated 03.11.2022 directed IRO, Shimla to carry out Site Inspection of the proposed diversion area of the above mentioned project. Site Inspection could not be carried out in winters as the area is snow bound and snowfall commenced from November month, and same was communicated by IRO, Shimla to MOEF&CC, New Delhi vide letter dated 17.11.2022. User Agency vide letter dated 18.03.2023 has communicated to IRO, Shimla that snow has melt in the proposed area and site can be visited for Site Inspection.

In view of the above, Site Inspection of Dugar HEP was carried out in the months of April-May from 29.04.2023 to 03.05.2023.

The following Officials were present during the inspection of diversion area:

I. Officers / Staff from IRO, Shimla

1. Sh. Ajay Kumar, Senior Technical Assistant-cum-Technical Officer (i/c)
2. Sh. Paranjay Kumar Singh, Research Officer (On-contract)

II. Officers/Staff from the User Agency

1. Shri Ashok Kumar Grover, Executive Director, NHPC Ltd.
2. Shri Rajesh Kumar, General Manager (HoP), Dugar HE Project, NHPC Ltd.
3. Dr. Ashish Kumar Dash, General Manager (Environment), NHPC Ltd.
4. Sh. Santosh Kumar, Sr. Manager (Environment), NHPC Ltd.
5. Sh. Mahesh Kumar, Dy. Manger (Environment), NHPC Ltd.

III. Officers/Staff from the HP Forest Department

During Site Visit of Diversion Area, neither DFO, Pangi Forest Division nor Officers/Staff under him were present despite prior intimation. The same has been communicated to the State Government by IRO, Shimla vide letter dated 04.05.2023 **Copy annexed at Annexure-1.**

1. Legal Status of the Forest Land Proposed for Diversion:

Item-wise break-up details of the forest land proposed for diversion.

The forest area proposed for diversion for the construction of various components of the project as mentioned in below table: 1.

Table-1: Component wise break-up (as per PARIVESH portal)

Sr. No.	Component	Forest Land (Ha)	Non-Forest Land (Ha)
1.	Submergence including River Area	160.45	0

Sr. No.	Component	Forest Land (Ha)	Non-Forest Land (Ha)
2.	Dam	5.83	0
3.	Approach Roads	8.168	0
4.	Quarry Area	8.625	0
5.	Borrow Area	3.88	0
6.	Muck Dumping Area	8.5797	0
7.	Job Facility Area	7.08	0
8.	Power House	3.64	0
9.	HRT	0.4	0
10.	TRT	1.81	0
11.	TRT Outfall	0.74	0
12.	Diversion Tunnel	1.84	0
13.	MAT	0.8	0
14.	Construction Facility Area	0	6.62
15.	Owner / Developer Colony including Permanent & temporary	0	1.98
16.	Owners Office	0	0.18
	Total	**211.8427**	**8.78**

Legal status of Forest Land duly verified by DFO, Pangi Forest Division is **annexed as Annexure-2.**

Brief description of the components of the proposed project is given as below:

A. <u>Submergence including River Area:</u>

The area proposed for diversion for above component is 160.45 ha. As per the document provided by the User Agency, the length of reservoir is about 10 kms along the Chenab River and involves three tributaries Lujai Nallah, Mahal Nallah and Dheda Nalla. The whole submergence area falls under the Pangi Forest Division. User Agency informed that no private land in involved in the Submergence area and project does not involves any displacement. The Full Reservoir Level (FRL) is at MSL 2114 and tail end of the reservoir is near the existing river edge of Sidh Baba Temple. Two bridges namely Punto linking to Punto Village (**Image annexed at Annexure-15**) and Sukrali Bridge (**Image annexed at Annexure-15)** accessibility to Chamba District Headquater via Sach Pass which is available only for 04 months due to snow bound areas will be submerged during reservoir impounding. The User Agency informed that NoC from State PWD has been obtained for these bridges. **(NoC annexed at Annexure-3).** The image of the Submergence area is annexed at **Annexure-15**.

B. <u>Dam Area:</u>

The area proposed for diversion for above component is 5.83 ha. The Dam area is located near the village Luj and User Agency informed that Dam area is having 128 meter high from the deepest foundation level, and a concrete gravity dam having length of 210.65 meters (at dam top) will be constructed. The FRL of the Dam is at 2114 MSL. User Agency informed that **1686**

trees are standing in Dam area that are required to be felled. **The image of the Dam area is annexed at Annexure-15.**

C. **Head Race Tunnel (HRT)/Tail Race Tunnel (TRT)/ Diversion Tunnel/Power House and Main Access Tunnel (Underground components:**

The total area proposed for diversion for above components are 9.23 ha and these all components are underground. It has been observed that a very dense patch of *Cedrus deodara* with other species is available/standing over the surface of the area proposed for these underground components. User Agency informed that these underground structures are having a rock cover of 100-300 meters and User Agency has assured that the vegetation above these structures will not be affected and further mitigation measures such as controlled blasting in vulnerable area will be adopted during the execution of project. **It is recommended that Concerned DFO should monitor the same and ensure that there shall be no any damage to the vegetation above these structures.** The image of the Head Race Tunnel (HRT)/Tail Race Tunnel (TRT)/ Diversion Tunnel/Power House and Main Access Tunnel is **annexed at Annexure-15.**

D. **Approach Roads:**

The area proposed for diversion for above component is 8.168 ha. These approach roads are proposed for access to DAM site/Diversion Tunnel/Power House/Dumping Site from the existing road of State. The Width of RoW of these roads is proposed as 15 meters. User Agency informed that proposed Width of RoW is proposed for slope stabilization including black topping of 07 meters. User Agency further informed that Enumeration has been carried out by Forest Department in complete 15 meters RoW, however only 07 meter RoW will be used for cutting and balance 08 m RoW is taken for slope stabilization in which standing trees will not be felled. Total trees enumerated in the RoW are 7898. Out of these trees, trees standing in the 08-meter RoW shall **not** be felled and accordingly, 53% (8/15*100) i.e. approximately **4186 no. of trees and saplings will be retained** against the total 7898 no. of trees enumerated on the approach roads by the State Forest Department. **The image of the approach roads is annexed at Annexure-15. It is recommended that possibilities may be explored to reduce the felling in the proposed roads and trees of diameter size 50cm and above falling under RoW of proposed roads shall not be felled. Further, it must be ensured that during construction of road, muck shall not be rolled down in the adjoining areas/River.**

E. **Quarry and Borrow Area:**

The area proposed for diversion for these components is 12.505 ha. Mining shall be carried out from these areas as per the approved Mining Plan. All these Sites are already connected to existing roads. User Agency informed that 75 trees are standing over the Quarry Sites.

Sr. no.	Sites Name	Location	Type of Quarrying/Mining
1.	Quarry site 1	Upstream of Punto Hasku Bridge	Hill Side Quarrying
2.	Quarry site 2	Downstream of Punto/Hasku Bridge	Hill Side Quarrying

Sr. no.	Sites Name	Location	Type of Quarrying/Mining
3.	Quarry site 3	Near Village Dharwas	Hill Side Quarrying
4.	Barrow Area 1	Near Tail Race Outfall	River Bank Mining
5.	Barrow Area 2	Tail end of Reservoir near Findru Village	River Bank Mining

User Agency informed that approval of Mining Plan in under process for which Site Inspection by State Geologist has been scheduled for 02.06.2023 (**Copy Annexed at Annexure-4**). Landscaping and Restoration Plan for all the Sites has been incorporated in approved Environment Management Plan prepared for this project (**Copy Annexed at Annexure-5**). Images of Quarry Sites are annexed at **Annexure-15. Impact of Hill Side Quarry sites on ecology and environment of the area and Mitigation Plan is required to be prepared. Further, recommended that controlled blasting shall be carried out in all the Quarry sites to minimize the adverse impacts.**

F. Muck Dumping Area:

The area proposed for diversion for above component is 8.5797 ha. The dumping site is located downstream the Dam area and a road is proposed for this dumping site that originates from existing Tandi-Kishtwar road to Main Access Tunnel Bridge and same is passing through this dumping site. 1821 of different species viz. *Alnus* species, *Parrotis jacquemontiana* (Killar), *Salix*, *Pinus gerardiana*, *Celtris australis* are standing in the dumping site. User Agency informed that these trees will not be felled. The dumping site is 30 away from the bank of Chenab River and is having steep slope. User Agency informed that Engineering measures like Earth Work for foundation, construction of retaining wall, wire crate work etc. will be adopted to ensure the prevention of rolling of muck into the River and slope stabilization. Muck Management Plan and Reclamation Plan are also prepared in which 6.05 crore has been proposed under EMP. (**Copy Annexed at Annexure-6**). **During dumping of muck, it may happen that sapling available in the dumping site may be buried under the muck. Therefore, saplings of ecologically important species can be translocated to nearby nursery/suitable site at the cost to be borne by the User Agency.** Images of proposed dumping site is annexed at **Annexure-15.**

G. Job Facility Area

The area proposed for diversion of above component is 7.08 ha. This area is located opposite to the Power House and will be used for Batching Plants, Re-enforcement steel yards, Electrical, Mechanical Workshops, Stores, magazine etc. User Agency informed that the Job Facility Area is for temporary use and shall be handed over to DFO concerned after completion of project work. Images of Job Facility Area is annexed at **Annexure-15. Since the proposed Job Facility Component is temporary, it is recommended that Job Facility Area shall be handed over to DFO concerned after completion of project work. Further, recommended that possibilities may be explored to reduce the felling in this component and trees of >50 cm diameter of ecologically important species viz. *Cedrus deodara*, *Pinus gerardiana* etc. shall not be felled.**

2. **Whether proposal involves any construction of buildings (including residential) or not. If yes, details thereof.**

No, Residential buildings will not be constructed in the proposed forest land and are proposed in non-forest land.

3. **Total cost of the project at present rates:**

The Central Electricity Authority (CEA), Ministry of Power, Govt. of India has concurred the Dugar Hydro Electric Project for estimated completion cost of Rs. 3987.34 Crore including IDC of Rs. 568.16 Crore, excluding grant of Rs. 262.86 Crore for infrastructural facilities vide letter No. File No. CEA-SY-25-44/3/2020-PAC Division /74-115 dated 26.04.2022. **(Copy of concurrence letter of CEA is annexed as Annexure-7).** In online Part-I, Para-A1 (vii), estimated cost of the Project is mentioned as 3393.21 (Rupees in lakhs). **Therefore, rectification as per above letter of CEA, MoP, in Part-I, Para-A1 (vii) regarding estimated cost of the project is required.**

4. **Wildlife:**

Whether forest area proposed for diversion is important from wildlife point of view or not?
The Landscape of the proposed area is having moderate to dense vegetation of various ecologically important species viz. *Cedrus deodara, Pinus gerardiana, Corylus columa* (Thangi) etc. There are Water Streams/Nallahs flowing into the River Chenab. Therefore, there is high possibility of presence of important Wildlife species in and around the proposed diversion area. **Hence, it needs to be ensured by User Agency that Wildlife in area is not adversely affected by the construction of this project.** As per the Certificate of DFO Wildlife Division, Chamba, the aerial distance of nearest component Power House from ESZ of Sechu Tuan WLS is 19.98 km. User Agency further informed that:

(i) The Environmental Impact Assessment (EIA) of the project has been carried and accordingly EMP has been prepared which includes Environment Management Protection measures viz. Biodiversity Conservation and Wildlife Management Plan. The total cost earmarked for effective implementation of the Biodiversity Conservation and Wildlife Management Plan is Rs. 173.36 lakh (**Copy annexed as Annexure-8**).

(ii) In proposed CAT Plan, provision of 06% of the CAT Plan cost (Rs.59.81 Crore) earmarked towards the implementation of Wildlife Management Plan. The Wild Life Management Plan which is the part of CAT Plan is also approved by PCCF(WL), HPFD. The copy of approval letter is **annexed as Annexure-9.**

(iii) The Conservation Plan for Leopard (*Panthera pardus*) in the area is also prepared and approved by DFO, Pangi and is also the part of EMP for which 40.00 lakhs has been earmarked (**Copy annexed as Annexure-10**).

5. **Vegetation:-**

During site visit, it has been observed that ***Cedrus deodara*** **(Deodar),** ***Alnus nitida*** **(Payakh),** ***Celtris australis*** **(Khadak),** ***Parrotis jacquemontiana*** **(Killar),** ***Aesculus hippocastanum*** **(Goon),** ***Pinus gerardiana, Corylus columa*** (Thangi), ***Juglans regia, Betula utilis, Picia simithiana, Pinus wallichiana, Acer caesium, Robinia spedeuocacia*** and other Miscellaneous species are present in the

diversion area etc. As per Part-II of PARIVESH portal density of proposed diversion area varies from Open Forest to Very Dense Forest and is falling under Eco Class: VI.

The component wise detail of trees enumeration of forest land is mentioned below in table-2:

Table-2: Component wise tree enumeration

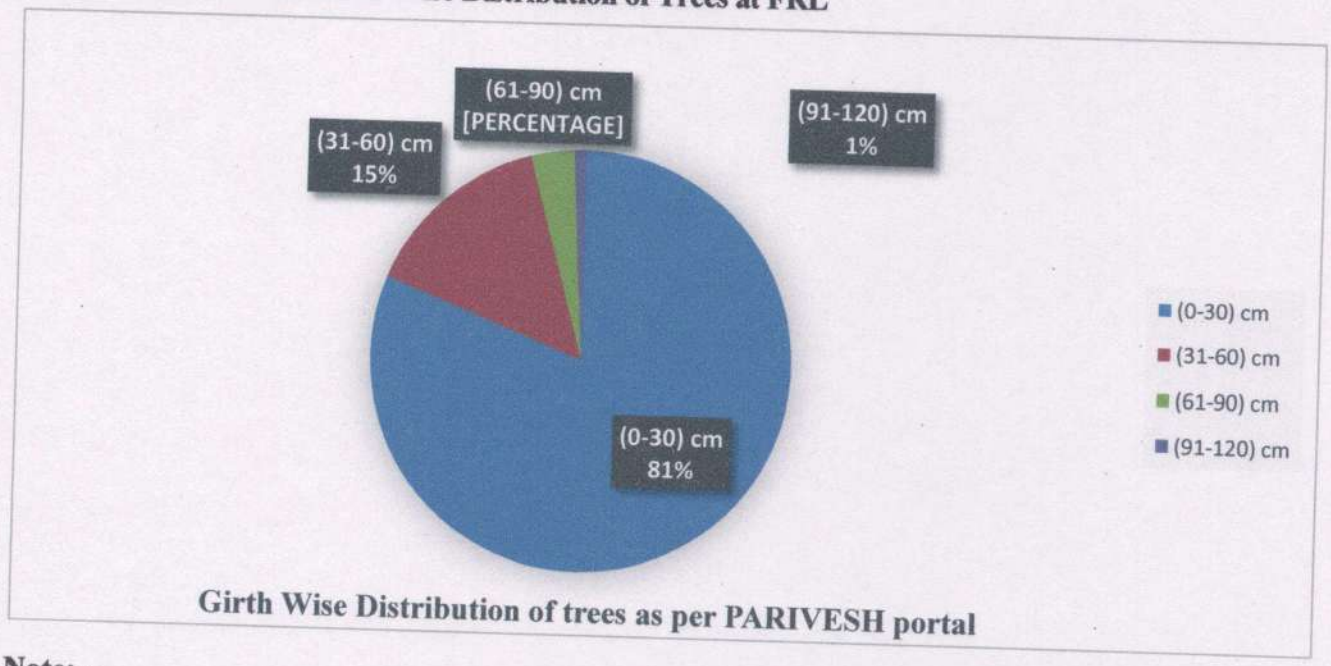
Sr. No.	Component	Forest Land (Ha)	Total Trees Enumerated
1.	Submergence including River Area	160.45	6511
2.	Dam	5.83	1437
3.	Approach Roads	8.168	7898
4.	Quarry Areas	8.625	45
5.	Borrow Area	3.88	0
6.	Muck Dumping Area	8.5797	1525
7.	Job Facility Area	7.08	3361
8.	Power House	3.64	0
9.	HRT	0.4	0
10.	TRT	1.81	0
11.	TRT Outfall	0.74	0
12.	Diversion Tunnel	1.84	0
13.	MAT	0.8	0
	Total	**211.8427**	**20777**

The **summary** of girth and percentage wise enumeration of trees at FRL is given in table-3 below:

Table-3: Girth-wise & Percentage wise enumeration of trees at FRL as per PARIVESH portal

Girth	(0-30) cm	(31-60) cm	(61-90) cm	(91-120) cm	(121-150) cm	(>150) cm	Total
Number of Trees	16848	3049	690	190	0	0	**20777**
Percentage (%)	81.08	14.67	3.32	0.92	0	0	**100**

Figure-1: Pie Chart of Girth-Wise Distribution of Trees at FRL



Note: -

- ✓ ***During site visit, vegetation of large-sized Timber of DBH >50 cm were also observed in the diversion area. These large-sized Timbers of Girth Class 121-150 cm and >150cm have not been recorded in Part-II, but these are properly mentioned in Enumeration list and cost of trees document.***
- ✓ ***DFO concerned has recorded the Class IV (20-30 DBH) and Class V (10-20 DBH) category trees in Girth Class 0-30cm (i.e. Saplings Category) of Part-II in PARIVESH portal that seems incorrect. Therefore, it is recommended that trees and saplings mentioned in Part-II may be reviewed properly and revise/rectify according to the Enumeration List and properly filled as per the category of Girth Class.***

Effect of removal of trees on the general ecosystem in the area:

The total number of trees being affected in the diversion area are 20,777 trees. The felling of such large number of trees and saplings will undeniably affect the ecosystem of the area. In the proposed diversion site, majority of the tree species are Conifers and others ecologically important species are also present. However, during site visit, it has been observed that density of vegetation in diversion area varies from Open Forest to Very Dense Forest. As per girth wise detail of trees being affected uploaded in Part-II, girth class of 0-30cm comprising 81% of the total trees as shown in Table-2 and the Pie-Chart (Figure-1).

Although no eco-restoration/reforestation measures can compensate the removal of such a large number of naturally grown vegetation that provides ecosystem services in the mountain landscape (diversion area); however, the negative consequences of removing these large number of trees can be compensated to some extent through various interventions like CAT plan, EMP plan, Green Belt Development, Biodiversity Plan, Reservoir Rim treatment etc., as proposed by the User Agency if implemented properly, so that the ecosystem of the area can sustain itself over the period of time.

6. Background note on the proposal:

The Dugar Hydro Electric Project (500 MW) is envisaged as a run-of-river scheme for utilizing the flow of Chenab River to harness the head created by constructing a 128 m high (from deepest foundation) dam near Luj village with FRL of EL 2114.00 msl and the proposed underground power house located on the left bank of Chenab River just downstream of the dam. The forest and non-forest land involved in the project is **211.8427 ha.** and **8.78 ha.** respectively in Pangi Forest Division of District-Chamba. As per User Agency, Government of Himachal Pradesh (GoHP) has signed Memorandum of Understanding (MoU) with NHPC Limited on 25th September 2019 for the implementation of Dugar Hydroelectric Project on Build Own Operate & Transfer Basis (BOOT) for a period of 70 years. The Implementation Agreement (IA) has been signed between Govt. of Himachal Pradesh and NHPC Ltd, on 26-08-2022 for implementation of the project. The Project has been recommended for development in the Cumulative Environmental Impact Assessment (CEIA) Study carried out in 2016 for Chenab River basin in Himachal Pradesh under the aegis of MoEF&CC.
The major Clearances that have been obtained from Central Government for this project are:

i. CEA has accorded Technical Concurrence (TEC) to the project vide letter dated 26.04.2022.
ii. The Expert Appraisal Committee (EAC) of MoEF&CC, New Delhi in its 33rd meeting on 29/08/2022 recommended the proposal for grant of Environment Clearance.
iii. Defence Clearance has been obtained from Ministry of Defence vide letter dated 18-11-2020.
iv. Clearance from Indus Waters Treaty angle has been obtained from Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation vide letter dated 01-05-2023.

7. Compensatory Afforestation:

As per documents, the total proposed Forest Land for diversion is 211.8427 ha and proposed Compensatory Afforestation (CA) area is 423.684ha. The CA sites consisting 17 patches are located in one Forest Division only, i.e.-Pangi Forest Division.

Table-4: Information on Compensatory Afforestation

Sr. no.	Name of Forest Division	Proposed CA Area (Ha)	No. of Patches	Remarks
1.	Pangi Forest Division	423.684	17	CA area proposed for plantation varies from 5.690 ha to 144.122 ha
Total		**423.684**	**17**	---

Since proposed CA sites are not having compact single patch and are scattered in 17 patches in Pangi Forest Division, therefore, it would have been difficult to monitor/inspect all the proposed CA sites by only one Officer (Regional Officer) of IRO, Shimla. There is no DIG/AIG level officer in IRO, Shimla. Therefore, following officials from Forest Survey of India, Regional Office (Northern), Shimla were deputed especially for site inspection of CA land:-

i. Sh. Pawan Kumar, Junior Technical Assistant, FSI, Regional Office, (Northern) Shimla.

ii. Sh. Rajender Kumar, Field Technical Assistant (Contractual), FSI, Regional Office, (Northern) Shimla.

Detailed Reports on Inspection of CA Sites by the officials of FSI, Regional Office, (Northern) Shimla are annexed as Annexures-**16 (Page 1 to 34).**

i. Whether land for compensatory afforestation is suitable from plantation and management point of view or not:

The summary of suitability/non-suitability of CA sites from plantation and management point of view as per Site Inspection Report is **annexed Annexure- 16 (Page 1 to 34)** and is given below in Table-5:

Table 5: Summary of proposed CA Sites

Total CA Sites	CA Sites suitable for Plantation	CA sites with some issues	Detail of CA Sites with some issues						Remarks
			Patch no.	Forest Division	CA Site Name	Area (Ha)	Status of CA land	Annex no.	
17	07	10	04	Pangi	Chhatwani	23.850	RF	4	The proposed CA site is below the Killar-Udaipur road (SKTT). During ground truthing/site visit, this area is found to have some scattered *Cedrus deodara* species with some bushes in some portion, and some portion have moderate slope and rocks. Overall area seems suitable for plantation.
			07	Pangi	Pregran-1	16.580	RF	7	During site visit, no encroachments/encumbrances have been observed in CA site. In verbal discussion held with local Forest Guard and Villagers, it was verbally informed that the proposed CA area involves Malkiyat land of locals. However, as per the legal status of the CA land uploaded on PARIVESH by DFO, the CA site is RF and the site is free from all sorts of encumbrances and encroachments. Moreover, no permanent/temporary structures have been found

									in the proposed CA site during the site visit. As per DSS analysis, site falls under Open Forest Category. Overall area seems suitable for plantation.
			08	Pangi	Pregran-2	20.290	RF	8	During site visit, no encroachments/encumbrances has been observed in CA site. Local Forest Guard verbally informed that this proposed CA site has occupied/encroached by local person and planted with Akhrot(*Juglans regia*) and *Salix* species. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. It has been observed that some trees of Akhrot and Salix are standing over the proposed CA site. As per DSS analysis, site falls under Open Forest Category. The CA site lies at an altitude of 2793 m above from sea level and average slope of the site is 26^0 . Overall area seems suitable for plantation.
			09	Pangi	Pregran-3	11.000	RF	9	During site visit, no encroachments/encumbrances has been observed in CA site and sporadic natural regeneration has been observed in some area and area was not found man-made plantations. It was verbally informed by local Forest Guard of Pregran Beat that some area of proposed CA site has

									already planted with *Cedrus deodara* and *Pinus wallichiana* plants. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. As per DSS analysis, site falls under Open Forest Category. Overall area seems suitable for plantation.
			10	Pangi	Mehrote	144.122	RF	10	**The Site is also visited by Regional Officer**. This is a compact patch of 144.122 ha. It has been observed on ground that scattered rocks/boulders are present in some of the area and trees of naturally grown *Cedrus deodara*, *Pinus wallichiana* and other species are standing in some of the area. Natural and Sporadic regeneration of *Pinus gerardiana* is also found growing in the area. Temporary goatshed (Adhwari) is also found inside the site. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. As per DSS analysis, site falls under Open Forest Category. Overall area seems suitable for plantation.
			11	Pangi	Bistow	11.650	DPF	11	Some scattered rocks/boulders are observed in the area. Some scattered trees are standing in this patch. However, as per records uploaded in PARIVESH

									portal, the site is free from all sorts of encumbrances and encroachments. As per DSS analysis, site falls under Open Forest Category. Overall area seems suitable for plantation.
			12	Pangi	Sach Chauri-1	07.750	DPF	12	Some scattered rocks/boulders are observed and trees of *Cedrus deodara* and other broad leave species are standing in some of the area. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. As per DSS analysis, site falls under Open Forest Category. Overall area seems suitable for plantation.
			13	Pangi	Sach Chauri-2	16.250	DPF	13	The proposed CA area is covered with moderate to dense bushes and having scattered tree species of *Cedrus deodara*, Sanjal (*Fraxinus Xanthoxyloides*), Akhrot (*Juglans regia*) and other local species along with moderate rocks. Overall area seems suitable for plantation.
			15	Pangi	Chanchalp eri	20.660	DPF	15	The Site was not approached due to presence of snow. However, site was seen from some distance and observed that scattered trees/ sparse vegetation are standing over there. The slope of the area seems to be moderate. The site is located at

									altitude ranges from approx. 3000 to 3700 m altitude as per KML file. Image captured from distance shows that proposed area is open and suitable for plantation. As per DSS analysis, site falls under Open Forest Category.
			16	Pangi	Murthalu	49.800	DPF	16	Some vegetation of *Cedrus deodara* and *Pinus wallichiana* has been found standing in some of the area. Slope of area is approximately 28^{0}. As per DSS analysis, site falls under Open Forest Category. Overall area seems suitable for plantation.

ii. Whether land for compensatory afforestation is free from encroachments / other encumbrances:

Site-wise details of all CA site are given in **Annexure-16 (Page 1 to 34).** Land identified for compensatory afforestation is free from all sorts of encumbrances and encroachments.

iii. Whether land for compensatory afforestation is important from Religious / Archaeological point of view:

Site-wise details of all CA site are given in **Annexure- 16 (Page 1 to 34).** However, all 17 patches which are proposed for CA plantation, are **Religiously / Archaeologically** not important.

iv. Land identified for raising compensatory afforestation is in how many patches, whether patches are compact or not:

The land identified for raising CA are located in 17 patches in Pangi Forest Division only.

v. Map with details:

CA site-wise polygons and photographs are annexed as **Annexure-16 (Page 1 to 34)**. Diversion area photographs are annexed as **Annexure- 15.**

Most of the CA sites are proposed in Reserved and Demarcated Protected Forests and ownership of these are vested with HP Forest Department. However, 04 sites viz. Killar Dhar-1, Killar Dhar-2, Rogi and Findpar are proposed in Un-demarcated Protected Forests. The status of these 04 CA sites is not clarified by Forest Department/User Agency

whether these sites are Wastelands declared as (Un-demarcated) Protected Forests by HP Government Notification of 1952 'or' notified as Un-demarcated Protected Forests under IFA, 1927.

vi. Total financial outlay of Compensatory Afforestation:

As per records available on PARIVESH, total financial outlay for Compensatory Afforestation (CA) in 423.684 ha area is 1326.98 Rupees in Lacs.

8. 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 has been reported nor observed during Site Inspection.

9. Whether proposal involves rehabilitation of displaced persons. If yes, whether rehabilitation plan has been prepared by the State Government or not. Detail be furnished specifically if rehabilitation plan would affect any other forest area by trans-locating oustees in and around the said forest.

No, Project does not involves any displacement and hence no rehabilitation.

10. Reclamation Plan:

User Agency has informed that the Environment Clearance has been recommended by the Expert Appraisal Committee, MoEF&CC, New Delhi based on the Environment Management Plan (EMP) prepared. Following is the abstract of the components and financial allocation related to major Reclamation Plan (as per the records) which is part of the EMP in Table-6. **(Annexure-11)**

Table 6: Components and Financial allocation of Reclamation Plan (as a part of EMP):

Sr. No.	Reclamation Activity	Financial Allocation (Rs. Lakh)
1.	Muck Management Plan	670.80
2.	Catchment Area Treatment Plan	5981.03
3.	Reservoir Rim Treatment	40.00
4.	Restoration Plan for Quarry Sites and Landscaping	404.80
5.	Green Belt Development Plan	412.11
	Total	**7508.74**

11. Details on catchment and command area under the project.

As per the documents provided by the User Agency, the project is located just downstream of confluence of Lujai/Dharwas Nallah and Chenab River. Total Catchment area of Dugar Hydro Electric Project is 7823 km^2. For the preparation of CAT plan, free draining catchment of Chenab River from the diversion site

of proposed Dugar HEP upto the diversion site of proposed Sach Khas HEP (upstream) on Chenab River and Lujai HEP on Lujai Nala. Various activities are proposed under Catchment Area Treatment Plan like construction of check wall / Dam, retaining walls and biological measures like normal afforestation, enrichment plantation, pasture development, raising of native medicinal shrubs and herbs, and assisted natural regeneration. The estimated cost for CAT plan is 59.81 Crore (1.5 % of total project cost after grant Rs. 3987.34 Crore) as per Himachal Pradesh Forest Department, Govt. of HP vide its Notification No. FFB-B-F-(5)-9/2017 dated 21.11.2019.

The CAT plan of the Project has been prepared in line with approved Comprehensive Catchment Area Treatment Plan of Chenab River Basin in Himachal Pradesh prepared by the Himachal Pradesh Forest Department (HPFD) and also in the light of guidelines issued by the Department of Forest, Himachal Pradesh, vide Notification No. FFE-B-F-(2)-72/2004-Pt-II Shimla, dated 30-09-2009, amended vide Notification No. FFB-B-F- (5)-9/2017 dated 21.11.2019.

12. Cost-Benefit ratio.

As per information provided by the User Agency on PARIVESH portal, Cost-Benefit Ratio is as below in Table-7.

Table 7: - Summary of Cost-Benefit Analysis

Sr. No	Parameters of Evaluation	In Crore
1.	Total Benefits	51537.30
2.	Total Cost of Diversion	4426.19
3.	Cost-Benefit ratio	1:11.7

Cost Benefit ratio of the project is 1:11.7 and same is calculated on NPV amount of Rs. 20.88 crore. However, same is required to be calculated on revised rates of NPV vide Ministry's Letter dated 06.01.2022. Calculation sheet of Cost Benefit ratio is enclosed as Annexure-12.

13. Recommendation of the Principal Chief Conservator of Forests/ State Government:

As per information provided by the user agency on PARIVESH portal, State Government has recommended the project.

14. Utility of the project.

As per the various documents uploaded on PARIVESH portal, Dugar Hydro-Electric Project is conceived as storage cum run-of–the-river scheme (The Dam will store water during the monsoon period and will release it intermittently during the lean period for a limited period of time) proposed on

Chenab River in the Chamba district of Himachal Pradesh. In the interest of energy security and achieving a low carbon growth, it is required to tap available hydro potential in the country particularly in the North region which are endowed with huge energy resources. Despite the resources available in this region (especially Himachal Pradesh), these States have been reeling under power shortages during lean flow months, when inflows into hydro projects reduce substantially. The speedy and environmentally favorable exploitation of hydroelectric power potential in a sustainable manner will definitely improve the economic health of the State/Nation. Dugar HE Project will generate 1758.40 million units of electricity per annum. In fact, the project will improve the infrastructural facilities and quality of life of the people in Pangi Tehsil of Chamba District and also benefit the State of Himachal Pradesh and the country as a whole.

As per Implementation Agreement (IA) signed between Govt. of Himachal Pradesh and NHPC Ltd. on 26-08-2022, NHPC will provide royalty @ 4% from 1st to 10th year, @ 8% from 11th to 25th year, @ 12% from 26 to 40 year and @ 25% beyond 40 years to the Government of Himachal Pradesh and 1% additional free Power for LADF as per policy provision.

Number of Scheduled Castes and Scheduled Tribes to be benefited by the project:

As per the information provided by the User Agency, no Scheduled Tribe and Scheduled Caste Land owners are involved in the proposed diversion area. There is a prospect of direct and indirect employment opportunities for the local people that would augment their family income and livelihood. The project will help to improve local infrastructure and new opportunities of trade will open for the inhabitants of the area due to better connectivity.

The following benefits of Dugar HE Project are also proposed as per the Implementation Agreement (IA) between Govt. of HP and NHPC:

(i) NHPC Limited shall be liable to deposit an equivalent amount of 100 units of electricity, per month for a period of 10 years, as per applicable subsidized tariff determined by Himachal Pradesh Electricity Regulatory Commission (HPERC) from time to time, with respective Local Area Development Committees (LADCs) of the districts and the balance amount equivalent to the quantum of subsidy with the State Government.

(ii) NHPC Limited shall provide 1.5 % of the cost of the project towards Local Area Development Fund (LADF) during execution of the Project. Many benefits are envisaged under this LADF.

(iii) NHPC Limited shall provide employment to Himachalies as per the Industrial Policy of the State Government.

15. Whether land being diverted has any socio-cultural / religious value. Whether any sacred grove or very old grown trees / forests exists in the areas proposed for diversion.

No, the land being diverted has neither any socio-cultural / religious value nor has **any sacred grove or very old grown trees / forests exists in the areas proposed for diversion**. The NOC has been obtained for archeological monuments from Archeological Survey of India (ASI), Shimla, GoHP **(Annexed as Annexure-13.**

16. Any other information relating to the project.

Transmission Line is not proposed in the extant proposal. User Agency in this regard informed that Transmission component for transmission of power of Dugar HEP will be taken up separately by Power Grid Corporation of India. The copy of Transmission Agreement between Central Transmission Utility of India Limited and NHPC Limited is annexed as **Annexure-14.**

(Ajay Kumar) 05/06/2023
STA-cum-Technical Officer (i/c)
IRO, Shimla

(Paranjay Kumar Singh) 05/06/23
Research Officer (On-Contract)
IRO, Shimla

5/6/2023
(Satya Prakash Negi)
Regional Officer
IRO, Shimla

COMMENTS AND RECOMMENDATIONS OF THE REGIONAL OFFICER, INTEGRATED REGIONAL OFFICE (MoEF & CC), SHIMLA:

- The Himalayan State of Himachal Pradesh has immense hydro-power potential, and proposed Dugar HEP is one of the important projects for harnessing the Hydel potential in the State. Dugar HEP which is a Dam cum run-of-the-river HEP is approved by Government of India.
- **Diversion Area:** The submergence area of the diversion area of the proposed project is spreading about 10 Kms in length along the river Chenab. No non-forest/private land is involved in the submergence area of project.
  - ✓ **Submergence Area:** Two Bridges Punto and Sukrali Bridge which provides connectivity to Punto Village and Sach Pass respectively are also coming under submergence area. It is recommended that State Govt. /User Agency should ensure the construction of these Bridges before submerging the diversion area.
  - ✓ **Power House/HRT/MAT/TRT**: A very dense patch of *Cedrus deodara* with other species is available/standing over the surface of the area proposed for underground components viz. Power House/HRT/TRT/ MAT. It is recommended that User Agency should ensure that, the vegetation above these structures will not be affected and further mitigation measures such as controlled blasting in vulnerable areas will be adopted during the execution of project. Concerned DFO should monitor the same and ensure that there shall be no damage to the vegetation above these structures.
  - ✓ **Approach Roads:** 15 meter RoW is proposed for approach roads. User Agency informed that cutting of hill will only be carried out in 07 meter RoW and rest of the 08 meter RoW is required for slope stabilization in which approximately 4186 trees/saplings out of 7898 trees/saplings will not be felled. It is recommended that felling permission can be granted for 07 meter RoW and no felling will be carried out in balance RoW 08 meter. Concerned DFO should monitor and ensure the same.
  - ✓ The possibilities may be explored to reduce the felling in the proposed approach roads and trees of diameter size 50cm and above falling under RoW of proposed roads shall not be felled. Further, it must be ensured that during construction of road, muck shall not be rolled down in the adjoining areas/River. Concerned DFO should monitor and ensure the same.
  - ✓ **Quarry Sites:** Impact of Hill Side Quarry sites (03 no.) on ecology and environment of the area and mitigation Plan is required to be prepared. Further, it is recommended that controlled blasting shall be carried out in all the Quarry sites to minimize the adverse impacts.
  - ✓ **Dumping Site: Dumping site is** proposed on the sloppy terrain which may lead to rolling down of muck directly in the river Beas. This must be ensured through Engineering and Bio-engineering measures that no much shall be rolled down in the river Chenab and adjoining forests. Further recommended that saplings of ecologically important species present in the dumping site shall be translocated to nearby nursery/suitable site before the muck dumping at the cost to be borne by the User Agency.
  - ✓ **Job Facility Area:** Since the proposed Job Facility Component is temporary, therefore, it is recommended that Job Facility Area shall be handed over to DFO concerned after completion of project work. Further, recommended that possibilities may be explored to

reduce the felling in this component and trees of >50 cm diameter of ecologically important species viz. *Cedrus deodara*, *Pinus gerardiana* etc. shall not be felled falling under this component.

- **Compensatory Afforestation (CA) Sites:**
  - ✓ All the CA sites (17 Patches) were inspected by a team constituting technical staff of Forest Survey of India, Regional Office (Northern), Shimla and 02 Sites were visited by Regional Officer including the largest patch. All the CA sites are located in hilly terrain with scattered rocks and boulder interspersed with natural vegetation in some of the sites. Overall, all the sites seem suitable for plantation.
  - ✓ The status of these 04 CA sites viz. Killar Dhar-1, Killar Dhar-2, Rogi and Findpar is not clarified by Forest Department/User Agency whether these sites are Waste Lands declared as (Un-demarcated) Protected Forests by HP Government Notification of 1952 or notified as Un-demarcated Protected Forests under IFA, 1927. Same is required to be ascertained with documentary proof.
  - ✓ Pangi area is habitat of unique endemic tree species of *Pinus gerardiana*, *Corylus sp.* and *Betula* sp. etc. Planation of these endemic tree species needs to be encouraged in CA Sites.
- **Review of NPV Bill:** There seems a mismatch in density of vegetation class and NPV rates applied, and hence error in the calculation of NPV Bill. This needs to be reviewed.
- **Vegetation:** During site visit, vegetation of large-sized Timber of DBH >50 cm were also observed in the diversion area. These large-sized Timbers of Girth Class 121-150 cm and >150cm have not been recorded in Part-II, but these are properly mentioned in Enumeration list and cost of trees document. DFO concerned has recorded the Class IV (20-30 DBH) and Class V (10-20 DBH) category trees in Girth Class 0-30cm (i.e. Saplings Category) of Part-II in PARIVESH portal that seems incorrect. Therefore, it is recommended that trees and saplings mentioned in Part-II may be reviewed properly and revise/rectify according to the Enumeration List and properly filled as per the category of Girth Class.
- **Cost Benefit Ratio:** Cost Benefit ratio of the project is 1:11.7 and same is calculated on NPV amount of Rs. 20.88 crore. However, same is required to be calculated on revised rates of NPV vide Ministry's Letter dated 06.01.2022.
- Proposed project is located on river Chenab and adjoining areas are also covered with diverse multi-storeyed vegetation with presence of wildlife. Therefore, an Ecological Monitoring Unit with a dedicated expert to monitor the impacts on flora, fauna and ecosystem services of the landscape by the proposed project activities needs to be established by the User Agency so that possible adverse impacts on the environment can be minimized.
- The Diversion Area has presence of unique endemic tree species of *Pinus gerardiana* and *Corylus sp.* These species need special protection from adverse impacts of the proposed HEP.
- The proposal is recommended with specific comments/ recommendations as mentioned above.

(Satya Prakash Negi)
Regional Officer

ANNEXURE-I

आजादी का अमृत महोत्सव

भारत सरकार/GOVERNMENT OF INDIA
एकीकृत क्षेत्रीय कार्यालय
Integrated Regional Office
पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest and ClimateChange
सी.जी.ओ. कॉम्पलैक्स, शिवालिक खण्ड, लौंगवुड
CGO Complex, ShivalikKhand, Longwood
शिमला, हिमाचल प्रदेश–171001
Shimla, Himachal Pradesh – 171001

ईमेल/Email : iro.shimla-mefcc@gov.in
दूरभाष/Tel.: 0177-2658285
0177-2652541
फैक्स/Fax: 0177-2657517

पत्र संख्या. 14-3/आई.आर.ओ./स्थल निरीक्षण/2021/1 /193

दिनांक. 04.05.2023

सेवा में,

नोडल अधिकारी-सह-अतिरिक्त प्रधान मुख्य अरण्यपाल (एफ.सी.ए.)
हिमाचल प्रदेश वन विभाग
टालैण्ड, शिमला
(ई-मेलः nodalfcahp@yahoo.com)

विषयः Proposal for seeking prior approval of the Central Government under Forest (Conservation) Act, 1980 for non-forestry use of 211.8427 ha. of forest land for construction of 500 MW Dugar Hydro Electric Project in favour of NHPC Ltd under Pangi Forest Division, District Chamba of Himachal Pradesh. (Online Proposal No. FP/HP/HYD/123533/2021)

संदर्भः 1. भारत सरकार, पर्यावरण वन और जलवायु परिवर्तन मंत्रालय, नई दिल्ली के मिसिल संख्या 8-15/2022-FC दिनांक 03.11.2022.
2. इस कार्यालय के पत्रांक 14-3/आई.आर.ओ./स्थल निरीक्षण/2021/1/156 दिनांक 05.04.2023.

महोदय,

उपरोक्त विषयांकित प्रस्ताव पर संदर्भित पत्रों के क्रम में अवगत करना है कि अधोहस्ताक्षरी द्वारा दिनांक 30.04.2023 एवं 01.05.2023 को प्रस्तावित डुगर जल विद्युत परियोजना स्थलों का निरीक्षण किया गया। इस स्थल निरीक्षण के दौरान वन विभाग की ओर से वन मण्डल अधिकारी, पांगी (जिला-चम्बा) अथवा उनके अधीनस्थ फील्ड अधिकारी/स्टॉफ कोई भी उपस्थित नहीं थे।

यह आपके सूचना एवं आवश्यक कारवाई हेतु प्रस्तुत है।

भवदीय,

(सत्य प्रकाश नेगी)
क्षेत्रीय अधिकारी 4/5/2023

प्रतिलिपिः-

1. अतिरिक्त मुख्य सचिव (वन), हिमाचल प्रदेश सरकार, सचिवालय, शिमला (ई-मेलः- forestsecy-hp@nic.in)
2. प्रधान मुख्य अरण्यपाल (वन बल प्रमुख), हिमाचल प्रदेश वन विभाग, टालैण्ड, शिमला-1 (ई-मेलः- pccf-hp@nic.in)

ANNEXURE-2

PART –II

(To be filled on by the concerned Deputy Conservator of Forest)
State Serial No. of Proposal

7. Location of project / Scheme:

(i) State / Union Territory: Himachal Pradesh

(ii) District: Chamba

(iii) Forest Division: Pangi Forest Division

(iv) Area of Forest land proposed for diversion (in ha): 211.842 ha

(v) Legal Status of Forest:

Sl. No.	Division	Forest Land (ha)	Legal Status
1	Pangi	2.4	River
2	Pangi	127.75	Reserve Forest
3	Pangi	81.69	Protected Forest
		211.84	

(vi) Density of vegetation:

Sl. No.	Area (in ha)	Density	Eco-class
1	2.4	0.3	Eco 6
2	15.95	0.04	Eco 6
3	6.9	0.09	Eco 6
4	5.5	0.22	Eco 6
5	25.8	0.22	Eco 6
6	35.59	0.3	Eco 6
7	13.09	0.04	Eco 6
8	12.02	0.02	Eco 6
9	0.31	0.3	Eco 6
10	18.3	0.06	Eco 6
11	3.42	0.3	Eco 6
12	22.32	0.3	Eco 6
13	14.52	0.3	Eco 6
14	15.72	0.3	Eco 6
15	8.7	0.04	Eco 6
16	11.3	0.7	Eco 6
Total	211.84		

Divisional Forest Officer
Pangi Forest Division
Kilar 176323

ANNEXURE - 3

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"Annexure - XVII"

Himachal Pradesh
Public Works Department

No-PW-KD-CB-WA-NOC/2015-16 46-49 Dated 02/4/15
To

Dugar Hydro Power Limited,
C/o Statkraft Limited,
Block-A, Plot- A/II,4 floor MGF Metropolitan Mall Saket Distt. Center New Delhi-110017.

Subject: - Request for issuance of no objection certificate for 449 MW Dugar Hydro electric project in Chamba District of HP being Implemented by Dugar Hydro Power Limited. No objection certificate.

Reference: - Your office letter No. Dugar/Progress report/20140901-02 dated 01-09-2014

With reference to approval conveyed by the Resident Commissioner Pangi at Killar vide noting para 4 dated 15/11/2014, no objection certificate is hereby issued in your favour in respect of Himachal Pradesh Public Works Department with the following terms and conditions:-

1. The company has to *realign*/reconstruct or bear the expenditure for construction of road portion of Punto road (if any) which will be get submerged in the reservoir after project construction.
2. 87 mtrs span existing Stiffened suspension bridge which will be submerged in the reservoir is to be reconstructed or bear the expenditure for the same before starting the work of dam.
3. All existing foot paths/roads on both banks of river area affected by the DHPL are to be constructed/re-aligned or bear all expenditure to restore the affected schemes.
4. All the PWD infrastructure affected by the construction of DHPL will be reconstructed or bear the expenditure for all effected infrastructure before starting the construction of the project.

Executive Engineer,
Killar Division HP PWD,
Killar (Pangi)

Copy forwarded to The Resident Commissioner Pangi at Killar for information and necessary action with reference to noting Para 4 approved dated 15/11/2014.

Copy forwarded to Assistant Engineer HP PWD Sub Division No-I Killar for Information and necessary action.

Copy to Drawing Branch of this office for information.

Executive Engineer,
Killar Division HP PWD,
Killar (Pangi)

महाप्रबंधक
General Manager
डुगर जल विद्युत परियोजना
Dugar Hydro Electric Project
नगवाई, जिला मण्डी (हि.प्र.)-175121
Nagwain, Distt. Mandi (H.P.)-175121

ANNEXURE-4

सख्या:पॉगी–उ0म0अ0 का0का0–2019 403-07
कार्यालय उप मण्डल अधिकारी (ना0) पॉगी स्थित किलाड़ जिला चम्बा

प्रेषक,
उप मण्डल अधिकारी (ना0)
पॉगी स्थित किलाड

प्रेषित:

1. वन मण्डल अधिकारी/
परिक्षेत्रीय अधिकारी पांगी।
2. अधिशाषी अभियन्ता/सहायक अभियन्ता
(लोक निर्माण विभाग पांगी) ।
3. अधिशाषी अभियन्ता /सहायक अभियन्ता
(सिंचाई एंव जन स्वास्थ्य विभाग पांगी)।
4. प्रदूषण नियन्त्रण बोर्ड के प्रतिनिधि चम्बा।
5. भू विज्ञानी/सहायक भू–विज्ञानी/खनन अधिकारी चम्बा।

दिनॉक, 25/05/23

विषय:– खनन पटटा हूतू आवेदित भूमि के संयुक्त निरीक्षण के सन्दर्भ में। ।

महोदय,

उपरोक्त विषय पर इस कार्यालय के पत्र संख्या पांगी–उ0म0अ0 का0 का0–2019–322–27 दिनांक 06.05.2023 के सन्दर्भ में महा प्रबन्धक डुगर जल विदयुत परियोजना (500MW) NHPC Ltd. लुज पांगी मुहाल धरवास,परधवाल,करेल तथा फिन्डपार का संयुक्त निरीक्षण हि0प्र0 गौण खनिज (रियायत) और खनिज (अवैध खनन उसके परिवहन और भण्डारण का निवारण) नियम –2015 के प्रावधानों के अन्तर्गत 25.05.2023 को संयुक्त निरीक्षण किया जाना था, जो कि मौसम खराव तथा सड़क बन्द होने के कारण रद किया है, अतः आप सभी सदस्यों को सूचित किया जाता है कि संयुक्त निरीक्षण की तिथि 02.06.2023 को प्रातः 11:00 बजे निर्धारित हुई है।

अतः आप सभी सदस्यों को सुचित किया जाता है कि आप दिनांक 02.06.2023 को प्रातः 11:00 बजे उक्त स्थान व समय पर उपस्थित होना सुनिशित करें ।

उप मण्डल अधिकारी (ना0)
पॉगी स्थित किलाड
दिनांक 25/05/23

पृष्ठाकन संख्या 408
प्रतिलिपि उपरोक्त
1, राज्य भू– विज्ञानी हिमाचल प्रदेश शिमला उपरोक्त पत्र के सन्दर्भ में सूचनार्थ हेतू प्रेषित है।

उप मण्डल अधिकारी (ना0)
पॉगी स्थित किलाड

ANNEX-5

appropriate size and transport of the aggregates, and transport of materials to the nearby drainage channels. The quarrying for rock material in the proposed project would lead to the removal of vegetation cover, topsoil and leave the area barren. After the completion of mining activity, these areas will be restored to their normal habitat conditions.

Similarly, excavation and transportation of fine aggregates from the riverbed will cause visual impact because of the removal of a significant part of the riverbed. The extraction of construction material from riverbeds may also affect the river water quality due to an increase in the turbidity levels. This is mainly because the dredged material gets released during one or all the operations mentioned below:

- Excavation of material from the riverbed
- Loss of material during transport to the surface
- Overflow from the dredger while loading
- Loss of material from the dredger during transportation

The cumulative impact of all the above operations will lead to an increase in turbidity levels. Good dredging practices can, however, minimize turbidity. It has also been observed that slope collapse is the major factor responsible for the increase in turbidity levels. If the depth of cut is too high, there is the possibility of slope collapse, which releases a sediment cloud. This will further move outside the suction radius of the dredged head.

10.2.6.2.1 Mitigation and Restoration Measures

Quarrying for construction materials will require **12.505 ha** area (see Table below). Frequent trips for blasting, excavation will also disturb the adjoining forests in the proposed quarry and borrow areas.

S. No.	Facility	Area (ha)
1	Quarry area	8.625
2	Borrow Areas	3.880
	Total	**12.505**

As seen from **Figures 10.14, 10.15, and 10.16,** the exposed face of three proposed rock quarries viz. DRQ-01, DRQ-02, and DRQ-06 are characterized by steep gradients/slopes varying between 35% and 70% at certain places. The main rock is quartzite schist with pegmatite and schist at DRQ-01 and DRQ-02 while at DRQ-06 it is gneiss with bands of pegmatite and schist.

The general plan to minimize the degradation of the area due to mining for construction material would be as follows:

- Photographically record quarry faces before excavation.
- Building of garland drains around quarry site to capture the runoff and divert the same to the nearest natural drain.
- Construction of concrete guards to check the soil erosion of the area.
- The pit formed after excavation be filled with small rocks, sand and soil.

ANNEXURE-5

- Grass slabs to be placed to stabilized and to check the surface runoff of water and loose material.

The traditional measures adopted for landscaping of the quarry sites after quarrying are:

a. Filling of depressions

Removal of rocks from quarry sites for different construction works will result in the formation of depression and/or craters. The depressions are to be filled by the dumping materials consisting of boulders, rock, gravel, and soil from nearby plant/working sites, followed by compaction to prevent subsidence, porosity, and permeability, and to increase the capacity of fill on site. Compacted inert waste material helps retarding percolation to the quarry base and the adjacent watercourse.

b. Laying of the topsoil

The depressions/ craters filled up with rock aggregates will be covered with topsoil. The topsoil will then be covered with geo-textiles like coir, jute, or other locally available bio-degradable material.

c. Construction of breast walls

Breast walls are generally constructed at the base of filled-up depressions of quarry sites to provide the necessary support, particularly where there are moderately steep slopes. At the top of the fill, cast concrete strip foundation and erect a random dry-stone rubble wall along the established and/or designed location of field boundaries; place the subsoil simultaneously on the lower sides of the terraces.

d. Diversion of runoff

Provision of an effective drainage system to avoid the infiltration of run-off and surface waters into the ground of quarry sites.

Though the above described are broadly recommended for rehabilitation of quarries after the mining operation of over at the site, however, it is recommended that the project proponent undertake detailed site surveys and formulate appropriate engineering measured after ascertaining the steepness of the slope and extent of depression formed after the excavation.

However, during quarrying operations, standard mitigation measures against erosion and sedimentation, noise, and air pollution will be taken, especially for the use of explosives. The most important mitigation measure during blasting and excavation will be to keep noise and dust levels under control by installing noise dampeners, use of sprinklers, and controlled blasting. At the end of the exploitation, quarries will be rehabilitated.

Generally, rehabilitation includes re-establishment of vegetation, restoration of natural watercourses, avoidance of flooding of the excavated areas, achievement of stable slopes, and avoidance of features, which would otherwise constitute a risk to health and safety or a source

ANNEXURE-6

Section 10.2.5 MUCK MANAGEMNT PLAN

10.2.5 MUCK MANAGEMENT PLAN

The excavation for construction of the project would generate about 3,70,880 cum of soil and 9,23,970 cum of rock. About 60% of rock excavated is expected to be used for producing coarse and fine aggregate for concrete production and as fillings for developing areas for construction facilities, etc. The total quantity of excavated common soil and balance quantity of rock excavated would have to be disposed of at designated muck disposal areas. Thus, considering swell factors 0.63 for rock and 0.80 for common soil, as adopted from CWC Guidelines, and redeposit compaction factor of 83%, the total muck disposal to be disposed of is about **716676 Cum** (see **Table 10.19**).

Table 10.19: Total quantity of muck to be disposed off

S. No.	Particulars	Soil	Rock
1	Total Excavation (Cum)	370880	923970
2	Less Used in Production of Aggregates (Cum)		553962
3	Balance To be Deposited (Cum)	378412	369308
4	Swell Factor, S	0.80	0.63
5	Re Deposition Factor, R	0.83	0.83
6	Quantity of Re deposits of Muck, (Q / S) x R, (Cum)	392602	486549
7	**Balance Muck for Disposal at Muck Disposal Sites, cum**	**392602**	**324074**
	Total muck to be disposed of (Cum)	**716676**	

Muck dumping plan involves selection of muck disposal site/s based upon environmentally sustainable guidelines, adopting suitable dumping methodology right from loading and transportation of muck from the excavation sites through 20T Rear Dumpers, management of dumping sites, providing protection measures at dumping sites, and monitoring of muck disposal process to ensure minimum spillage during transportation, dumping, and compaction, and then finally rehabilitation of dumping sites through revegetation.

10.2.5.1 Criteria for Selection of Dumping Site

The following points were considered and followed for finalization of the area to be used as a dumping site:

- The dumping site was selected as close as possible to the project area to avoid long-distance transport of muck.
- Standard distance between each dumping site and from the High Flood Level is maintained as per condition of Standard ToR, issued by MoEF&CC for Hydro Electric projects.
- The site is free from active landslides or creep and care has been taken that the site does not have a possibility of toe erosion and slope instability.

ANNEXURE-I

74-115

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
जल विद्युत परियोजना मूल्यांकन प्रभाग
Hydro Project Appraisal Division

OFFICE MEMORANDUM

Subject: Accord of Concurrence to Dugar HE Project (4x103MW+2x44MW=500MW) in Himachal Pradesh by NHPC Limited under section 8 of the Electricity Act, 2003-regarding

Reference is invited to the Detailed Project Report (DPR) of the Dugar HE Project (4x103MW+2x44MW=500MW) in Himachal Pradesh submitted by NHPC Limited on 27.11.2020 for concurrence.

It is hereby informed that in exercise of the powers conferred upon the Authority under Section 8 of the Electricity Act, 2003, the Central Electricity Authority has concurred the aforesaid Hydro Electric Project for Estimated Completion cost of ₹ 3987.34 crore including IDC of ₹ 568.16 Crore, excluding Grant of ₹ 262.86 Crores (₹ 256.25 crores for construction of the roads/ bridges considering 50% SGST waiver and ₹ 6.61 crores for cost of land acquisition) in terms of MoP OM dated 08.03.2019 and 28.09.2021.

In case the cost is revised due to any reason, the cost variation shall be capped at 10% of original sanctioned cost (as per decision of PIB issued vide OM No.15(18)/PFC-I/2021 dated 08.02.2022 and OM No.15(04)/PFC-I/2021 dated 14.02.2022for similar projects).

2. The abstract of approved Project Completion Cost along with the tentative Financial Package, details of Cost of Civil works, E&M works, Miscellaneous works and Grant in terms of MoP OM dated 08.03.2019 are attached as **Annex-I, I(A), I(B), I(C) & I(D).** The Salient Features of the scheme are given in **Annex-II**.

3. This concurrence is subject to fulfillment of the following conditions: -

i. NHPC Limited shall incorporate the suggestions/observations of Central Water Commission (CWC) as given in **Annex –III.**

सेवा भवन, आर. के. पुरम-I, नई दिल्ली-110066 टेलीफोन: 011-26732382 ईमेल: directorpac@nic.in वेबसाइट: www.cea.nic.in
Sewa Bhawan, R.K Puram-I, New Delhi-110066 Telephone: 011-26732382 Email: directorpac@nic.in Website: www.cea.nic.in

ANNEXURE 8

Table 10.18: Break-up for Wildlife Management and Conservation Plan for Schedule I Species

S.No.	Activity	Fund Allocated (Rs in Lakh)
A	Biodiversity Conservation and Management Plan	138.36
B	Conservation Plan for Schedule-I Species	25.00
C	Monitoring and Evaluation	10.00
	Total	**173.36**

ANNEXURE- 9

No. WL (Misc.)-60/HEP/Vol-XII/ 14
Himachal Pradesh Forest Department.

Dated Shimla-171001, the 04-04-2023

From:

Principal CCF Wildlife and
Chief Wildlife Warden, H.P.

To

General Manager,
Dugar Hydro Electric Project (500 MW),
Luj, Killar (Pangi), Chamba, (H.P.)

Subject:- Regarding vetting of Wildlife Management Chapter for approval of Catchment Area Treatment (CAT) Plan of Dugar HE Project (500 MW) of NHPC Ltd.

Sir,

Please refer to your office letter No. NH/DHEP/474 dated 09.03.2023 on the subject cited above.

The chapter of Wildlife Management is hereby approved and the same may be incorporated in the CAT Plan of Dugar HEP. Further action to implement the Plan may be initiated immediately under intimation to this office.

Encls: As above.

4/4/2023

Pr. Chief Conservator of Forests (WL) &
Chief Wildlife Warden H.P. Shimla-1

ANNEXURE-10-

No: Acctt./ 4017

Himachal Pradesh Forest Department.

From: Divisional Forest Officer
Pangi Forest Division, Killar.

To:

General Manager
Dugar HE Project,
Luj, Pangi,
Chamba - 176323.

Dated Killar, the 17-03-2022

Subject: Regarding Environmental Clearance of proposed Dugar HE Project (500 MW) of NHPC Ltd.

Sir,

This is with reference to your letter No. NH/DHEP/HOP/2021/camp killar/01 dated 07-10-2021. The proposed Conservation Plan for Leopard (*Panthera pardus*) as detailed in Annexture-II with a budget of Rs.40.00 lakhs allocated under Environment Management Plan in EIA/EMP report of Dugar HE Project is accepted and approved at our end.

Yours faithfully,

Divisional Forest Officer
Pangi Forest Division, Killar.

Divisional Forest Officer
Pangi Forest Division
Killar 176323

Endst. No: Dated Killar, the
Copy forwarded to:

1. C.C.F. Chamba, for kind information please.

Divisional Forest Officer
Pangi Forest Division, Killar.

ANNEXURE – II

Table 11.1: Cost for Implementing Environmental Management Plan*

S. No	Component of EMP	Capital Cost (Rs. In lakh)	Recurring Cost (Rs. In lakh)										Total Cost (Rs. In lakh)
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
1	Catchment Area Treatment Plan	5981.03	0	0	0	0	0	0	0	0	0	0	5981.03
2	Compensatory Afforestation Plan & NPV	4395.53	0	0	0	0	0	0	0	0	0	0	4395.53
3	Biodiversity Conservation & Wildlife Management Plan	173.36	0	0	0	0	0	0	0	0	0	0	173.36
4	Fisheries Conservation and Management Plan	40	0	0	0	0	0	0	0	0	0	0	40.00
5	Muck Dumping and Management Plan	0	50	80.5	80.5	80.5	80.5	80	70	50.3	50.5	48	670.80
6	Landscaping, Restoration of Quarry, and Construction Sites	0	1.63	0	0	0	10	10	333.17	20.00	20.00	10.00	404.80
7	Reservoir Treatment Plan	40	0	0	0	0	0	0	0	0	0	0	40.00
8	Green Belt Development Plan	0	0.00	40	50	55	78.85	67.16	45.6	30.5	25	20	412.11
9	Sanitation and Solid Waste Management Plan	110.00	20.64	20.64	20.64	20.64	20.64	20.64	20.64	20.64	20.64	20.64	316.40
10	Public Health Delivery System	75.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	335.00
11	Energy Conservation Measures	60.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	300.00
12	Labour Management Plan	50.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	140.00
13	Disaster Management Plan	135.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	155.00
14	Control of Air, Noise and Water Pollution	0.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	50.00
15	Environmental Monitoring Programme	0.50	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	11.10	111.50
16	Rehabilitation and Resettlement Plan**	100.00	0	0	0	0	0	0	0	0	0	0	100.00
17	LADF @ 1.5% of Rs.3987.34 crore (project cost)	5981.01	0	0	0	0	0	0	0	0	0	0	5981.01
Total		**17141.43**	**149.37**	**218.24**	**228.24**	**233.24**	**267.09**	**254.9**	**546.51**	**198.54**	**193.24**	**175.74**	**19606.54**

* Budget provision DPR head X (Environment & Ecology) and B (Land).

** Final award for purchasing of private land will be finalized by district administration.

ANNEXURE-12

		afforestation, not only green cover will increase but the density of forest will also increase. The money spent on compensatory afforestation will lead to indirect benefits to the local population as they will be employed for the plantation and thereafter maintenance of the afforestation area. Due to this afforestation decrease the pollution levels and increase the carbon credits.

Benefits from Project		
LADF	Rs Crores	66.39
Increase in Productivity	Rs Crores	44262.67
Pre-Construction Labour Cost	Rs Crores	28.80
Construction Labour Cost	Rs Crores	277.50
Operation and Maintenance casual jobs	Rs Crores	107.13
Local Contractor Profit	Rs Crores	132.78
Local Vehicles Profit	Rs Crores	8.85
Indirect Employment in Pre-Construction	Rs Crores	9.60
Indirect Employment in Construction	Rs Crores	72.00
Indirect Employment in O&M	Rs Crores	23.80
Benefit to the State of Himachal Pradesh as free power ($1758.40 \times 10^6 \times 4.62 = 812.38$ Cr./yrs) (812.38 Cr x 62yrs = 50367.56 Cr) (50367.56 Cr x 13% = **Rs. 6547.78 Cr**)	Rs Crores	6547.78
Total Benefits	Rs Crores	51537.30

Benefit/Cost Ratio:

Total Benefit	51537.30 Crore
Total Project Cost	4426.19 Crore
Benefit cost ratio	11.64

Benefits to the Environment

The project would replace the carbon emissions to the extent of power generation, which is equivalent to the estimated energy generation of 1758.40 MU in 90% dependable year.

महाप्रबंधक
General Manager
डुगर जल विद्युत परियोजना
Dugar Hydro Electric Project
नगवाई, जिला मण्डी (हि.प्र.)-175121
Nagwain, Distt. Mandi (H.P.)-175121

ANNEXURE-13

अधीक्षण पुरातत्त्वविद
भारतीय पुरातत्त्व सर्वेक्षण
शिमला मंडल शिमला–१७१००१
हिमाचल प्रदेश
दूरभाष: ०१७७.२६५.०५८४
टैली फैक्स: ०१७७.२६५.११७०
ई-मेल: circleshi.asi@gmail.com

भारत सरकार
Government of India
संस्कृति मंत्रालय
Ministry of Culture

प्रत्नकीर्तिमपावृणु

Superintending Archaeologist
Archaeological Survey of India
Shimla Circle, Shimla-171001
Himachal Pradesh
Phone: 0177-265-0584;
Tele-fax: 0177-265-1170
E-mail: circleshi.asi@gmail.com

File no: 7–50/ स्मारक/समा.पत्रात्र/2020–21 – 427 Date: 27/07/2020

27 JUL 2020

सेवा में,

महा प्रबंधक,
डुगर जल विद्युत परियोजना,
पार्बती परिसर, नगवाँई,
जिला मण्डी–175121 (हि.प्र.)

विषय :– डुगर जल विद्युत परियोजना के डूब क्षेत्र में स्थित पुरातात्त्विक स्थल की जानकारी प्रदान करने के संबंध में।

महोदय,

उपरोक्त विषय के संदर्भ आपके पत्र संख्याः एनएच / डीएचईपी / एचओपी–02 / 2020–21/23–25, दिनांक 25/07/2020 के संबंध में आपको सूचित किया जाता है कि पांगी घाटी में किलाड़ तहसील, जिला चम्बा में स्थित डुगर जल विद्युत परियोजना स्थल के अंतर्गत में कोई केन्द्रीय संरक्षित स्मारक तथा पुरातात्त्विक स्थल अवस्थित नहीं है।

पत्र आपकी जानकारी एवं आवश्यक कार्यवाही हेतु प्रेषित।

भवदीय,

अधीक्षण पुरातत्त्वविद् (प्रभारी)

ANNEXURE-14

Bond

Indian-Non Judicial Stamp
Haryana Government

Date : 07/12/2021

Certificate No. G0G2021L762

GRN No. 84928012

Stamp Duty Paid : ₹ 101
(Rs. Only)

Penalty : ₹ 0
(Rs. Zero Only)

Deponent

Name : Central Transmission utility of India ltd
H.No/Floor : 2 Sector/Ward : 29 Landmark : Na
City/Village : Gurugram District : Gurugram State : Haryana
Phone : 98******10

Purpose : ARTICLE 5 GENERAL AGREEMENT to be submitted at Concerned office

The authenticity of this document can be verified by scanning this QrCode Through smart phone or on the website https://egrashry.nic.in

TRANSMISSION AGREEMENT FOR CONNECTIVITY BETWEEN CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED AND NHPC LIMITED

This Transmission Agreement (hereinafter called "TA") having ref. no. **C/CTUIL/TA/500MW/NHPCL/1200002840** entered into on the 6th day of January Two Thousand Twenty Two **(2022)** between CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED, a company incorporated under the Companies Act, 2013, having its registered office at Plot No.2, Sector 29, Gurgaon - Haryana 122001, India (hereinafter called either **"CTUIL"** or **'CTU'**, which expression shall unless repugnant to the context or meaning thereof include its successors and assigns) as party of the first part;

AND

NHPC LIMITED, a company incorporated under the Companies Act, 1956, having its registered office and Correspondence address at: NHPC office Complex, Sector- 33 Faridabad, Haryana-121003, India (hereinafter referred to as **'Connectivity Grantee'** or **"NHPCL"**, which expression shall unless repugnant to the context or meaning thereof include its successors and assigns) as party of the second part.

NHPC LIMITED FARIDABAD

Central Transmission Utility India Ltd Gurugram

ANNEXURE-15

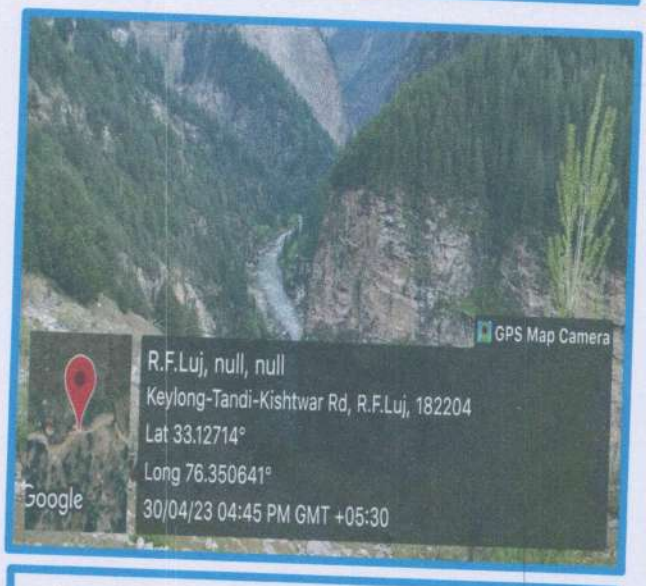
Images of Diversion Area of Dugar HEP(500MW)

Punto Bridge (To be Submerged)

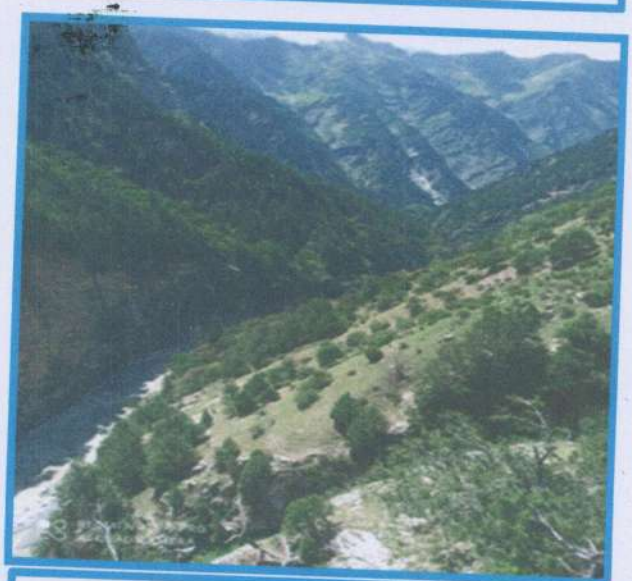
Sukhrali Bridge (To be Submerged)

Submergence Area

DAM area



Power House, Head Race Tunnel, Tail Race Tunnel, Main Access and Diversion Tunnel



Approach Road and Job Facility

Quarry Site (Hill Side Quarry)

Quarry Site (Hill Side Quarry)

Dumping Site

Borrow Area (River Bank Mining)

Annexure-16

1. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 25.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Killar Dhar-1
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): UPF
Patch No.: 01
Area of Patch: 8.041 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx. 6.40 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Kewal Thakur, Forest Guard, Pangi Forest Division

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Shanta Kumar, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The proposed CA site has mostly scrub area predominantly of *shrubs like Berberis Lycium and other local shrub.* The CA site lies at an altitude of 2933 m above from sea level and the slope of the site is 27^0 . Therefore CA site is suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

vi. **Remarks:** The proposed CA site is suitable for plantation.

Signature with Date: 25.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

2. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 25.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Killar Dhar-2
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): UPF
Patch No.: 02
Area of Patch: 17.300
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area approx. is 8.00 kms.

Inspecting Officers from IRO, Shimla:
1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Kewal Thakur, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Shanta Kumar, NHPC staff

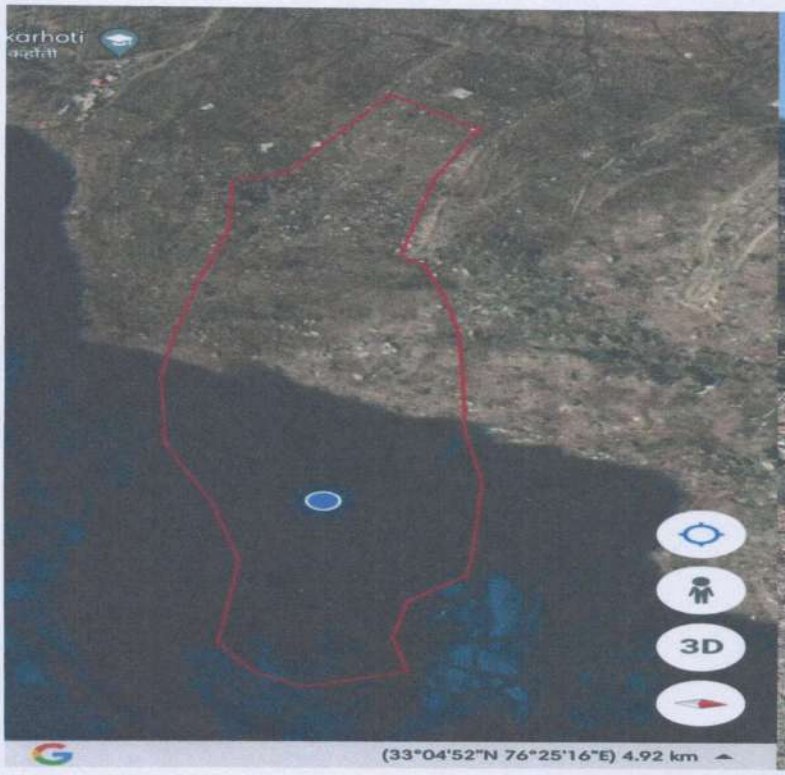
i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The proposed CA site has mostly grass land includes some shrubs like *Berberis Lycium and other local shrub.*The CA site lies at an altitude of 2818 m above from sea level and the slope of the site is 21^0. Therefore CA site is suitable for plantation

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**



vi. **Remarks:** The proposed CA site is suitable for plantation.

Signature with Date: 25.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

3. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 29.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Rogi
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): UPF
Patch No.: 03
Area of Patch: 5.690 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx. 11.30 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Man Singh, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr Manager (Environment)
2. Sh. Bhaskar Naskar, Assistant Manager

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The proposed CA site has mostly scrub area predominantly of *shrubs like Berberis Lycium and other local species like Thangi (Corylus Colurna).* The CA site lies at an altitude of 2877 m above from sea level and the slope of the site is 31^0. Therefore CA site is suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**

No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

vi. **Remarks:** The proposed CA site is suitable for plantation.

Signature with Date: 29.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

4. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 29.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Chhatwani
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): RF
Patch No.: 04
Area of Patch: 23.850 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx. 9.26 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Man Singh, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr Manager (Environment)
2. Sh. Bhaskar Naskar, Assitant Manager
3. Sh. Shanta Kumar, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The proposed CA site is located below the Killar-Udaipur road (SKTT). During ground truthing/site visit, this area is found to have some scattered *Cedrus deodara* species with some bushes in some portion, and some portion have moderate slope and rocks. The CA site lies at an altitude of 2412 m above from sea level and the slope of the site is 39^0. Overall area seems suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
Yes

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: Overall area seems suitable for plantation.

Signature with Date: 29.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

5. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 26.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Sidh ka Dera
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): RF
Patch No.: 05
Area of Patch: 14.361 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx. 13.10 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Man Singh, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Mahesh, Deputy Manager (Environment)
3. Sh. Bhaskar Naskar, Assitant Manager
4. Sh. Hans Raj, NHPC staff

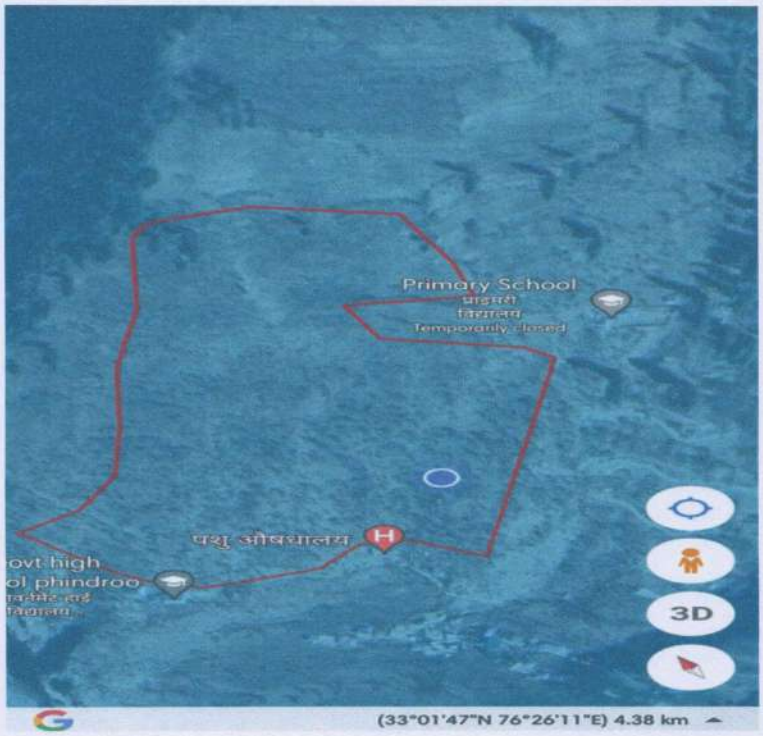
i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The proposed CA site has some shrubs like *Berberis Lycium* and other local species such as Ash (*Fraxinus floribunda*) and Sanjal (*Fraxinus xynthozeloides*). The CA site lies at an altitude of 2933 m above from sea level and average slope of the site is 29^0 . Although CA site is suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**



Remarks: The proposed CA site is suitable for plantation.

Signature with Date: 26.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

6. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 29.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Findpaar
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): UPF
Patch No.: 06
Area of Patch: 21.100 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.12.50 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

----- No official from state forest department ----

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Bhaskar Naskar, Assitant Manager
3. Sh. Shanta Kumar, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The proposed CA site has species such as Riuns, Maral Alnus and Jamun (*Prunus padus*), scattered *Cedrus deodara* and local shrubs, If the bushes are removed then the land is suitable for plantation. The CA site lies at an altitude of 2609 m above from sea level and average slope of the site is 31^0. The proposed CA site is suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: CA site is suitable for plantation if bushes are removed.

Signature with Date: 29.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

7. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 25.04.2023
Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Pregran-1
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): RF
Patch No.: 07
Area of Patch: 16.580 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.4.50 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Rakesh Kumar, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Shanta Kumar, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
During site visit, no encroachments/encumbrances have been observed in CA site. In verbal discussion held with local Forest Guard and Villagers, it was verbally informed that the proposed CA area involves Malkiyat land of locals. However, as per the legal status of the CA land uploaded on PARIVESH by DFO, the CA site is RF and the site is free from all sorts of encumbrances and encroachments. Moreover, no permanent/temporary structures have been found in the proposed CA site during the site visit. As per DSS analysis, site falls under Open Forest Category. The CA site lies at an altitude of 2942 m above from sea level and average slope of the site is 22^0. Overall area seems suitable for plantation..

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**

YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: Overall area seems suitable for plantation

Signature with Date: 25.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

8. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 25.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Pregran-2
Compartment/ Khasra no.: Nil
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): RF
Patch No.: 08
Area of Patch: 20.290 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
The proposed CA site is about 02 kms form the diversion area
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

----- No official from state forest department ----

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr Manager (Environment)
2. Sh. Shanta Kumar, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
During site visit, no encroachments/encumbrances has been observed in CA site. Local Forest Guard verbally informed that this proposed CA site has occupied/encroached by local person and planted with Akhrot(*Juglans regia*) and *Salix* species. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. It has been observed that some trees of Akhrot and Salix are standing over the proposed CA site. As per DSS analysis, site falls under Open Forest Category. The CA site lies at an altitude of 2793 m above from sea level and average slope of the site is 26^0 . Overall area seems suitable for plantation.

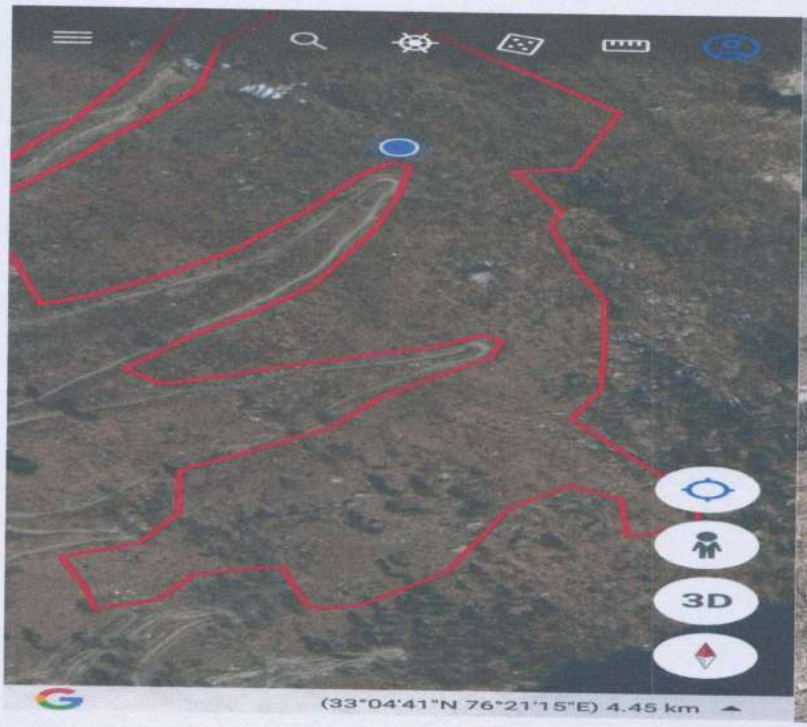
ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**

YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**



Remarks: Overall area seems suitable for plantation.

Signature with Date: 25.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

9. **Compensatory Afforestation:**

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 25.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Pregran-3
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): RF
Patch No.: 09
Area of Patch: 11.000 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.5.75 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Rakesh Kumar, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr Manager (Environment)
2. Sh. Shanta Kumar, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**

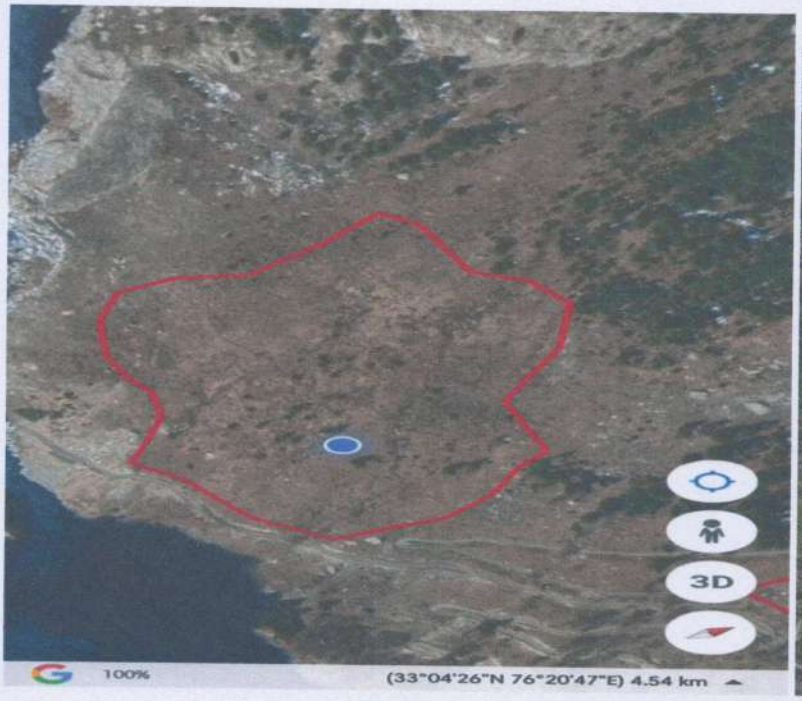
During site visit, no encroachments/encumbrances has been observed in CA site and sporadic natural regeneration has been observed in some area and area was not found man-made plantations. It was verbally informed by local Forest Guard of Pregran Beat that some area of proposed CA site has already planted with *Cedrus deodara* and *Pinus wallichiana* plants. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. As per DSS analysis, site falls under Open Forest Category. The CA site lies at an altitude of 2711 m above from sea level and average slope of the site is 31^0. Overall area seems suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**



Remarks: Overall area seems suitable for plantation.

Signature with Date: 25.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

10. Compensatory Afforestation:

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 28.04.2023

Detail of CA site:-

Forest Division: Pangi Forest Division

Forest Range: Killar

Name of Forest: Mehrote

Compartment/ Khasra no.: ---

Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): RF

Patch No.: 10

Area of Patch: 144.122 ha

Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required): Aerial distance of the proposed CA site from the diversion area is approx. 1 km.

Inspecting Officers from IRO, Shimla:

1. Satya Prakesh Negi, Regional Officer
2. Ajay Kumar (Technical Officer(i/c)
3. Paranjay Kumar Singh (Research Officer)
4. Pawan Kumar, Junior Technical Assistant
5. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Kapil, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Bhaskar Naskar (Asstt. Manager)
3. Narender, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**

The Site is also visited by Regional Officer. This is a compact patch of 144.122 ha. It has been observed on ground that scattered rocks/boulders are present in some of the area and trees of naturally grown *Cedrus deodara*, *Pinus wallichiana* and other species are standing in some of the area. Natural and Sporadic regeneration of *Pinus gerardiana* is also found growing in the area. Temporary goatshed (Adhwari) is also found inside the site. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. As per DSS analysis, site falls under Open Forest Category. Overall area seems suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**

YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: Overall area seems suitable for plantation.

Signature with Date: 28.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

11. Compensatory Afforestation:

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 28.04.2023
Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Bistow
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): DPF
Patch No.: 11
Area of Patch: 11.650 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.1 km.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Kapil, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr Manager (Environment)
2. Sh. Bhaskar Naskar, Asstt. Manager
3. Sh. Narender, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
Some scattered rocks/boulders are observed in the area. Some scattered trees are standing in this patch. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. As per DSS analysis, site falls under Open Forest Category. The CA site lies at an altitude of 2583 m above from sea level and average slope of the site is 26^0 . Overall area seems suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: Overall area seems suitable for plantation.

Signature with Date: 28.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

12. Compensatory Afforestation:

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 26.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Sach
Name of Forest: Sach Chauri-1
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): DPF
Patch No.: 12
Area of Patch: 7.750 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.16.8 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Ritik Kumar, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Mahesh, Asstt. Manager (Environment)
3. Sh. Bhaskar Naskar, Asstt. Manager
4. Sh. Narender, NHPC staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
Some scattered rocks/boulders are observed and trees of *Cedrus deodara* and other broad leave species are standing in some of the area. However, as per records uploaded in PARIVESH portal, the site is free from all sorts of encumbrances and encroachments. As per DSS analysis, site falls under Open Forest Category. The CA site lies at an average altitude of 2619 m above from sea level and average slope of the site is 32^0. Overall area seems suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**

YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: Overall area seems suitable for plantation.

Signature with Date: 26.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

13. Compensatory Afforestation:

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 26.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Sach
Name of Forest: Sach Chauri-2
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): DPF
Patch No.: 13
Area of Patch: 16.250 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.16.70 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh. Ritik Kumar, Forest Guard
2. Sh Kewal Thakur, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Mahesh, Asstt. Manager (Environment)
3. Sh. Bhaskar Naskar, Asstt. Manager

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The proposed CA area is covered with moderate to dense bushes and having scattered tree species of *Cedrus deodara*, Sanjal (*Fraxinus Xanthoxyloides*), Akhrot (*Juglans regia*) and other local species along with moderate rocks. The CA site lies at an average altitude of 2810 m above from sea level and average slope of the site is 29^0. Overall area seems suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**

YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: Overall area seems suitable for plantation.

Signature with Date: 29.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

14. Compensatory Afforestation:

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 26.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Sach
Name of Forest: Mindhal
Compartment/ Khasra no.:---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): DPF
Patch No.: 14
Area of Patch: 14.270 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.15.51 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh Kewal Thakur, Forest Guard
2. Sh. Mukul Bhawra, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Mahesh, Dy Manager (Environment)
3. Sh. Bhaskar Naskar, Asstt. Manager
4. Sh. Hans Raj, DEO

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The proposed CA site is suitable for plantation. The CA site lies at an average altitude of 2569 m above from sea level and average slope of the site is 26^0.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: The proposed CA site is suitable for plantation

Signature with Date: 26.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

15. Compensatory Afforestation:

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 25.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Chanchalperi
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): DPF
Patch No.: 15
Area of Patch: 20.660 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.7.45 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh Rakesh Kumar, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr Manager (Environment)
2. Sh. Shanta Kumar, NHPC Staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
The Site was not approached due to presence of snow. However, site was seen from some distance and observed that scattered trees/ sparse vegetation are standing over there. The slope of the area seems to be moderate. The site is located at altitude ranges from approx. 3000 to 3700 m altitude as per KML file. Image captured from distance shows that proposed area is open and suitable for plantation. As per DSS analysis, site falls under Open Forest Category.**Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

ii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**

No

iii. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

iv. **Map with details (Photograph and Google Image of CA site):**

Remarks: Overall area seems fit for plantations.

Signature with Date: 25.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

16. Compensatory Afforestation:

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 25.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Murthalu
Compartment/ Khasra no.: Nil
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): DPF
Patch No.: 16
Area of Patch: 49.800 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.7.50 kms.
Inspecting Officers from IRO, Shimla:

1. Pawan Kumar, Junior Technical Assistant
2. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh Rakesh Kumar, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr. Manager (Environment)
2. Sh. Shanta Kumar, NHPC Staff

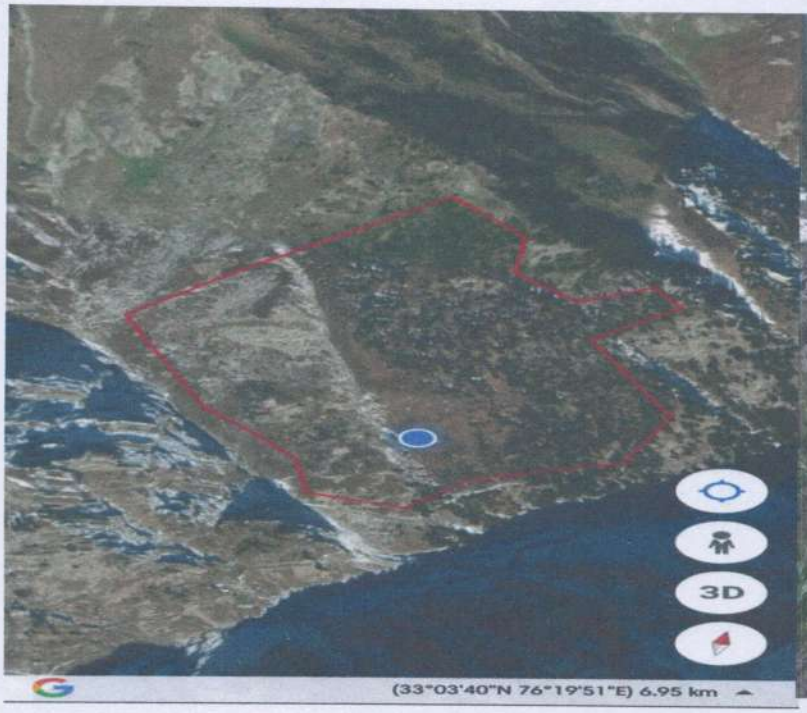
i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**
Some vegetation of *Cedrus deodara* and *Pinus wallichiana* has been found standing in some of the area. Slope of area is approximately $28^{0.}$ As per DSS analysis, site falls under Open Forest Category. The CA site lies at an average altitude of 2877 m above from sea level and average slope of the site is $28^{0.}$ Overall area seems suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**
YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**



Remarks: Overall area seems suitable for plantation.

Signature with Date: 25.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant

17. Compensatory Afforestation:

Online Proposal No. FP/HP/HYD/123533/2021 (Dugar HEP (500 MW) in favour of NHPC Ltd.

Date of Inspection: 29.04.2023

Detail of CA site:-
Forest Division: Pangi Forest Division
Forest Range: Killar
Name of Forest: Dighrei
Compartment/ Khasra no.: ---
Status of CA Land (UPF under Waste Land notification 1952 or UPF/DPF under IFA, 1927): DPF
Patch No.: 17
Area of Patch: 20.979 ha
Whether Proposed CA land is in vicinity to the area being proposed for diversion and/ or contiguity with the existing forest area (Distance is too be required):
Aerial distance of the proposed CA site from the diversion area is approx.2.50 kms.
Inspecting Officers from IRO, Shimla:

1. Satya Prakesh Negi, Regional Officer
2. Ajay Kumar (Technical Officer(i/c)
3. Paranjay Kumar Singh (Research Officer)
4. Pawan Kumar, Junior Technical Assistant
5. Rajender Kumar, Field Technical Assistant (Contractual)

Officers/Staff from the State Forest Department present during the visit:

1. Sh Kapil, Forest Guard

Officers/Staff from the User Agency present during the visit:

1. Sh. Santosh Kumar, Sr Manager (Environment)
2. Sh. Bhaskar Naskar, Asstt. Manager
3. Sh. Shanta Kumar, NHPC Staff

i. **Whether land for compensatory Afforestation is suitable from plantation and management point of view or not.**

The Site is also visited by Regional Officer. The CA site lies at an average altitude of 2728 m above from sea level and average slope of the site is 26^0. CA site is located near road side. Some scattered tree species of Ulnus are standing over area and site is suitable for plantation.

ii. **Whether land for compensatory Afforestation is free from encroachments/other encumbrances.**

YES

iii. **Whether land for compensatory Afforestation is important from Religious/ Archaeological point of view.**
No

iv. **Land identified for raising compensatory Afforestation is in how many patches, whether patches are compact or not.**
Total CA sites are scattered in 17 patches.

v. **Map with details (Photograph and Google Image of CA site):**

Remarks: CA site is suitable for plantation.

Signature with Date: 29.04.2023
Name of Inspecting Officers: Pawan Kumar
Designation: Junior Technical Assistant