

# PROPOSAL FOR THE

Diversion of 211.842 ha of Forest land

For

Construction of Dugar HE Project

Under

FOREST CONSERVATION ACT 1980

This is to acknowledge that a proposal seeking prior approval of Central Government under the Forest (Conservation) Act 1980 as per the details given below has been successfully uploaded on the portal of the Ministry of Environment, Forests and Climate Change, Government of India.

1. Proposal No : FP/HP/HYD/123533/2021

2. Proposal Name : Dugar HE Project

3. Category of the Proposal : Hydel

4. Date of Submission : 20/02/2021

5. Name of the Applicant with Contact Details

Name : SHASHI

Mobile No. : 8894176020

State : Himachal Pradesh

District : Mandi

Pin code : 175121

6. Area Applied (ha.) : 211.8427

The proposal will be examined by the Nodal Officer, Forest (Conservation) Act, 1980 to assess its completion.

Proposed by:-

NHPC Limited, Dugar HE Project, Luj

Tehsil - Pangi at Killar, District - Chamba, HP.

H.P. Forest Department  
Pangi Forest Department  
Camp-Chamba-29<sup>th</sup> April 2022

From:-Divisional Forest Officer  
Pangi Forest Division  
Chamba, Himachal Pradesh.

To:- The Chief Conservator of Forest,  
Chamba Forest Circle,  
Chamba, Himachal Pradesh.

**Sub: Diversion of 211.8427 hectare of forest land for the construction of Dugar Hydro Electric Project (500 MW) in favour of NHPC within jurisdiction of Pangi Forest Division, District Chamba.**

Sir,

With reference to Nodal Officer-cum-APCCF Letter No. Endst. No. Ft. 48-5297/2021 (FCA) dated 06.04.2022 regarding above cited matter, please find point wise replies to the observations as follows:

1. There is difference in estimated cost mentioned in online part-I and mentioned in hard copy of part-I. Against column No. A-1 (vii) of online part-I, 392043 lacs has been mentioned and against column No. A (6) in hard copy of part-I at P. No.10, the cost of the project 3393.21 lac has been mentioned. The estimated cost mentioned in online part-I and mentioned in hard copy of part-I should match.

**Reply: Needful has been done and the Matter has been replied by user agency vide letter dated 22-04-2022 (copy enclosed).**

2. There is difference in the detail of non forest land mentioned against column No. A-1 (ix) and mentioned against column No. A-9, in the hard copy of part-I, at P. No.10. In online part-I, the non forest land 11.79 ha has been mentioned and in hard copy of part-I, at P. No.10, the non forest land 8.78 ha has been mentioned.

**Reply: Needful has been done and the Matter has been replied by user agency vide letter dated 22-04-2022 (copy enclosed).**

3. Against column No.B-2.3 in online part-I, although the detail of village wise break up has been given but the total of non forest land is non tallying with the total non forest area requirement. In village-wise break-up the detail of non forest land 8.78ha has been mentioned whereas 11.79 ha non forest land has been proposed in the present proposal. The total of village wise breakup should tally with the total forest /non forest area requirement.

**Reply: Needful has been done and the Matter has been replied by user agency vide letter dated 22-04-2022 (copy enclosed).**

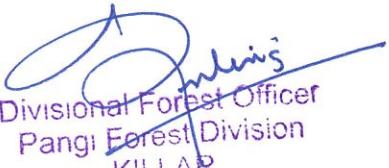
4. There is difference in employment likely to be generated, mentioned against column No. E in online part-I and given in hard copy of the proposal. Against column No. E (ii), '80' and against E (iii), '1000', has been mentioned, whereas in hard copy of part-I against column No. E (1)(a)(ii),1000 during pre-construction activity and 2500 during construction period has been mentioned. The details of employment generation mentioned in online part-I and hard copy of part I should tally.

**Reply: Needful has been done and the Matter has been replied by user agency vide letter dated 22-04-2022 (copy enclosed).**

5. Although cost benefit analysis has been uploaded but has not been signed by DFO concerned. In the hard copy also, the cost benefit analysis placed at P.No.177-181 has not been signed by the DFO concerned. Signed copies are required to be uploaded and placed in the proposal folder.

**Reply: The undersigned has signed all the corresponding documents as well as needful has been done and the Matter has been replied by user agency vide letter dated 22-04-2022 (copy enclosed).**

6. Although FRA certificate has been uploaded against K (i). But only FRA certificate in original has been uploaded and all the proceedings are photocopies. As per GoI instructions the FRA certificate in original

  
Divisional Forest Officer  
Pangi Forest Division  
KILLAR

along with all the proceedings district level, SDM Level and village level proceedings if not in original duly attested by the issuing department is required to be uploaded against this column No. K (i).

**Reply: Needful has been done and the Matter has been replied by user agency vide letter dated 22-04-2022 (copy enclosed).**

7. Against column No.5 of online part-II, instead of uploading the working plan prescription of the forest land proposed for diversion, the detail of the proposed Duger HEP has been mentioned. Against this column the working plan prescription of the forest land proposed for diversion is required to be mentioned.

**Reply: The working plan prescription of the forest land proposed for diversion has been mentioned and uploaded with proposal and as per working plan prescription of Pangi Forest Division the proposed Forest Land has been covered under Plantation Working Circle.**

8. Against column No. 4(i) to (iv), total 11617 have been mentioned, whereas as per abstract of trees placed in the hard copy of the proposal folder, an abstract of 20777 trees has been placed. The total trees involved in the proposed project are required to be mentioned on the portal which should tally with the abstract and enumeration lists placed in the proposal folders.

**Reply: As per the Forest proposal against Part-II, total 20777 numbers of trees of various species and class are mentioned at Full Reservoir Level (FRL). However, 20592 and 20398 number of trees of various species and class are mentioned at FRL (- 2) M and FRL (- 4) M respectively. Trees enumeration list and abstract of trees duly signed by undersigned is placed in the Forest Proposal from page No. 135 to 140, which are tally with online portal as well as proposal folder.**

9. As per details mentioned against column No.13, CA has been proposed in 13 patches and KML files of all the patches have also been uploaded. Out of 13 patches, the KML files uploaded against Sr. Nos. 2, 4 and 9 are not correct. Hence revised KML files of these patches are required to be uploaded. Further, the area of KML file uploaded at Sr. No. 13, is not tallying with the forest area proposed for CA. The area of patch has been mentioned 21.28 ha but while calculating the area of patch, it is coming 20.3 ha instead of 21.28 ha. Revised KML file is required to be uploaded at Sr. No.13.

**Reply: The KML files of Sr. No. 2, 4 and 9 are corrected and uploaded against the column No. 13. The KML file of Sr. No. 13 is revised as per 21.28 ha proposed CA area and uploaded against the column No. 13.**

10. CA schemes are required to be prepared patch wise. For total forest area only one CA scheme has been prepared.

**Reply: The patch wise CA Scheme has been prepared and same has been uploaded & attached with proposal folder.**

11. NPV has not been calculated on revised rates.

**Reply: The cost of NPV has been calculated based on revised rates and same has been uploaded & attached with proposal folder.**

12. There is difference in District profile mentioned in online part-II and in hard copy of part-II. District profile is required to be corrected in hard copy as well as in online part-II.

**Reply: The District profile mentioned in online part-II and in hard copy of part-II is corrected and same has been uploaded & attached with proposal folder.**

13. Density of vegetation of proposed CA areas is required to be specified in CA site suitability certificate.

**Reply: Density of vegetation of proposed CA area has been specified in Suitability Certificate and same has been uploaded & attached with proposal folder.**

  
Divisional Forest Officer  
Pangi Forest Division  
KILLAR

14. All the documents placed in the proposal folder either should be original or attested one. Photocopies placed in the proposal folder should be attested either by user agency or DFO concerned.  
**Reply: All the documents placed in the proposal folder are original or Photocopy placed in the proposal folder is attested by user agency or concerned DFO.**

15. As per GoI instructions the PDF of all the documents of hard copy of the proposal folder is required to be uploaded in online part-I or II.

**Reply: All the documents of hard copy of the proposal folder is uploaded in the online part-II.**

16. In view of observation raised at Sr. No.8 above, the details of number of trees mentioned against column No.7 (vii) is required to be corrected.

**Reply: The details of number of trees mentioned against column No.7 (vii) are corrected.**

17. Muck dumping site involves 1525 trees. Possibility of locating muck dumping site in private land or treeless forest land is required to be explored.

**Reply: Needful has been done and the Matter has been replied by user agency vide letter dated 22-04-2022 (copy enclosed).** Muck dumping site involves total 1525 numbers of trees of above 10 cm dia and total 296 numbers of trees of above 30 cm dia which falling of trees shall be taken up as per actual requirement of site.

Encl.: As above

Thanking you

Yours faithfully,

Divisional Forest Officer,  
Pangi Forest Division.

Divisional Forest Officer  
Pangi Forest Division  
KILLAR

Ref / संदर्भ सं: एनएच/डीएचईपी/ 405

Dated / दिनांक : 22/4/22

डीएफओ, पांगी फोरेस्ट डिविजन,  
केलार, चंबा,  
हिमाचल प्रदेश -176323.

**विषय:** हिमाचल प्रदेश, जिला चंबा, पांगी वन विभाग के अधिकार क्षेत्र के अंतर्गत चिनाब नदी पर डुगर जल विद्युत परियोजना (500 मेगावाट) के निर्माण के लिए मेसर्स एनएचपीसी लिमिटेड के पक्ष में 211.842 हेक्टेयर वन भूमि के डायवर्सन का प्रस्ताव।

महोदय,

With reference to Nodal Officer-cum-APCCF Letter No. Endst. No. Ft. 48-5297/2021 (FCA) dated 06.04.2022 regarding above cited matter, please find point wise replies to the observations as follows:

1. There is difference is estimated cost mentioned in online part-I and mentioned in hard copy of part-I. Against column No. A- 1 (vii) of online part-I, 392043 lacs has been mentioned and against column No. A (6) in hard copy of part-I at P. No.10, the cost of the project 3393.21 lac has been mentioned. The estimated cost mentioned in online part-I and mentioned in hard copy of part-I should match.

**Reply: The estimated cost of the Project is Rs. 3393.21 lac, which has been matched in online part-I and hard copy of Part-I.**

2. There is difference is the detail of non forest land mentioned against column No. A-1 (ix) and mentioned against column No. A-9, in the hard copy of part-I, at P. No.10. In online part-I, the non forest land 11.79 ha has been mentioned and in hard copy of part-I, at P. No.10, the non forest land 8.78 ha has been mentioned.

**Reply: Based on available land in Luj area and compiled with revenue record, the land of non-forest / private land is found 8.78 ha against previous proposal of 11.79 ha. Accordingly, requirement of the non-forest / private land is revised from 11.79 ha to 8.78 ha. As such, revenue record of 8.78 ha non-forest/ Private land is placed from page No. 48 to 49 (xxx) along with required check list Serial No. 8. However, User agency tried to revise non-forest / private land from 11.79 ha to 8.78 ha in the online part-I but the online system do not allow change/modify the data. Therefore, requested to kindly Change / grant permission in the online system to revise above non-forest / private land from 11.79 ha to 8.78 ha. A complained has also been raised in Parivesh online portal vide Ticket Id : PARTIC-74156 dated 15-04-2022 (copy enclosed as Annex-I).**

3. Against column No.B-2.3 in online part-I, although the detail of village wise break up has been given but the total of non forest land is non tallying with the total non forest area requirement. In village-wise break-up the detail of non forest land 8.78ha has been

mentioned whereas 11.79 ha non forest land has been proposed in the present proposal. The total of village wise breakup should tally with the total forest /non forest area requirement.

**Reply: The total non-forest / private land requirement of the Project is 8.78 ha in the Luj village. Due to the reason, as already deliberated at Sl. No. 2, user agency is unable to enter revised/modified data of the non-forest / private land from 11.79 ha to 8.78 ha in the online part-I.**

4. There is difference in employment likely to be generated, mentioned against column No. E in online part-I and given in hard copy of the proposal. Against column No. E (ii), '80' and against E (iii), '1000', has been mentioned, whereas in hard copy of part-I against column No. E (1)(a)(ii), 1000 during pre-construction activity and 2500 during construction period has been mentioned. The details of employment generation mentioned in online part-I and hard copy of part I should tally.

**Reply: The details of employment likely to be generated against Permanent /Regular Employment is 80 persons and Temporary Employment is 56,57,500 man days during construction. The same details are mentioned in online part I and hard copy of Part-I.**

5. Although cost benefit analysis has been uploaded but has not been signed by DFO concerned. In the hard copy also, the cost benefit analysis placed at P.No.177-181 has not been signed by the DFO concerned. Signed copies are required to be uploaded and placed in the proposal folder.

**Reply: The signed copy of user agency and concerned DFO has been uploaded in online Parivesh Portal and placed in the proposal folder.**

6. Although FRA certificate has been uploaded against K (i). But only FRA certificate in original has been uploaded and all the proceedings are photocopies. As per GoI instructions the FRA certificate in original along with all the proceedings district level, SDM Level and village level proceedings if not in original duly attested by the issuing department is required to be uploaded against this column No. K (i).

**Reply: All the documents of FRA certificates along with proceedings of district level, SDM level and village level are duly attested and uploaded against the column No. K (i).**

7. Against column No.5 of online part-II, instead of uploading the working plan prescription of the forest land proposed for diversion, the detail of the proposed Duger HEP has been mentioned. Against this column the working plan prescription of the forest land proposed for diversion is required to be mentioned.

**Reply: Observation pertains to DFO, Pangi.**

8. Against column No. 4(i) to (iv), total 11617 have been mentioned, whereas as per abstract of trees placed in the hard copy of the proposal folder, an abstract of 20777 trees has been placed. The total trees involved in the proposed project are required to be mentioned on the portal which should tally with the abstract and enumeration lists placed in the proposal folders.

**Reply: Observation pertains to DFO, Pangi.**

9. As per details mentioned against column No.13, CA has been proposed in 13 patches and KML files of all the patches have also been uploaded. Out of 13 patches, the KML files uploaded against Sr. Nos, 2, 4 and 9 are not correct. Hence revised KML files of these patches are required to be uploaded. Further, the area of KML file uploaded at Sr. No. 13, is not tallying with the forest area proposed for CA. The area of patch has been mentioned 21.28 ha but while calculating the area of patch, it is coming 20.3 ha instead of 21.28 ha. Revised KML file is required to be uploaded at Sr. No.13.

**Reply: Observation pertains to DFO, Pangi.**

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**Reply: Observation pertains to DFO, Pangi.**

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**Reply: Observation pertains to DFO, Pangi.**

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**Reply: Observation pertains to DFO, Pangi.**

14. All the documents placed in the proposal folder either should be original or attested one. Photocopies placed in the proposal folder should be attested either by user agency or DFO concerned.

**Reply: All the documents placed in the proposal folder are original or the photocopies placed in the proposal folder are attested by user agency or concerned DFO.**

15. As per GoI instructions the PDF of all the documents of hard copy of the proposal folder is required to be uploaded in online part-I or II.

**Reply: All the documents of hard copy of the proposal folder have been uploaded in the online part-I.**

16. In view of observation raised at Sr. No.8 above, the details of number of trees mentioned against column No.7 (vii) is required to be corrected.

**Reply: Observation pertains to DFO, Pangi.**

17. Muck dumping site involves 1525 trees. Possibility of locating muck dumping site in private land or treeless forest land is required to be explored.

**Reply: Muck dumping site involves total 1525 numbers of trees of above 10 cm dia. and total 296 numbers of trees of above 30 cm dia. as per forest proposal. The total land required for the construction of project is 220.62 ha. Out of which 211.84 ha is Forest land**

and the remaining 8.78 ha is Non-Forest land. As per requirement, a single patch of 8.5797 ha forest land has been identified and found suitable for temporarily disposal of muck, and will be handed over back to the State Forest Department after completion of construction activities. After the completion of dumping activity, proper restoration plan with Biological and Engineering measures will be implemented for restoration of the dumping area. A suitable restoration plan has been proposed under the EMP for muck dumping site (copy enclosed from page No. 26.D to 26.D (8))

As per forest proposal of Part-I (D), Justification for locating the Project in Forest land and details of alternatives has been examined. Based on the investigation done on the three alternatives and considering all the Engineering and Environmental considerations it was decided to develop the project at this site, which has least probability of increase in area medium geological risk.

Considering all the components / parameters of land requirement and design aspects of the Project, CEA has issued Technical Concurrence vide letter No. CEA-SY-25-44/3/2020-PAC Division dated 01-04-2022 (Copy enclosed as Annex-II).

The possibility of locating muck dumping site in Private land / Non-Forest land or tree less Forest land in nearby area has been examined/explored in consultation with Officials of Pangi Forest Division and after carefully examine the possibility of muck dumping site it was found that No Private land / Non-Forest land or tree less Forest land is available in nearby area which is suitable for disposal of muck. The area available in Private land / Non-Forest land is steep sloppy and tree less forest land is covered with green vegetation in comparison to proposed single patch of 8.5797 ha forest land, which is flat and quit suitable for muck dumping site.

In view of above, it is requested to kindly consider identified single patch of 8.5797 ha forest land for muck dumping site which involve total 296 numbers of trees of above 30 cm dia. as per forest proposal. Hope the above replies will satisfy the respective observations. The proposal folder after doing the needful action is re-submitted for approval of the competent authority.

धन्यवाद

Encl.: उपरोक्त अनुसार।

भवदीय,



(शशी कांत)

महा प्रबंधक,

दुगर जल विद्युत परियोजना

महाप्रबंधक  
 General Manager  
 दुगर जल विद्युत परियोजना  
 Dugar Hydro Electric Project  
 लुज, किल्लार (पांगी) (हि.प्र.) 175121  
 लुज, Killar (Pangi), Chamba, (H.P.) 175121  
 ई-मेल/E-mail:[dugarhep@nhpc.nic.in](mailto:dugarhep@nhpc.nic.in)  
 Phone No: +91-8988136260

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

सेवा में,

अध्यक्ष एवं प्रबंध निदेशक,  
 मेसर्स एन एच पी सी लिमिटेड,  
 एन एच पी सी ऑफिस काम्प्लेक्स  
 सेक्टर - 33, फरीदाबाद - 121003 हरियाणा

विषय: Dugar (4x103+2x44=500 MW) HE Project in Himachal Pradesh by M/s NHPC Ltd-  
 Concurrence of DPR-regarding

महोदय,

The Detailed Project Report (DPR) of Dugar (500 MW) HE Project submitted by M/s NHPC Ltd to CEA vide letter dated 27.11.2020 has been examined by various appraising Groups of CEA, CWC, GSI, CSMRS and MoJS and the Authority in its meeting held on 22.03.2022 have agreed to accord the Concurrence to the project, subject to submission of "Updated DPR" by M/s NHPC Ltd.

Accordingly, M/s NHPC Ltd is requested to submit eight sets (soft and hard copy) of the "Updated DPR" incorporating all changes/ modifications carried out and as approved by CEA, CWC, GSI, CSMRS and MoJS during the Concurrence process of DPR of the project, along with a Certificate by the Appropriate /Competent Authority, not below the rank of Director on the Board of M/s. NHPC Ltd, certifying the same, for the record of the Authority at the earliest so that Concurrence letter for the project may be issued.

भवदीय,

अनिल रघुवर्णा  
 (अनिल रघुवर्णा)  
 20/04/2022

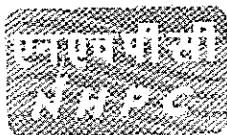
hml/hc

उप निदेशक

Copy for information to:

1. SA to Member (Hydro), CEA.
2. Chief Engineer (HPA), CEA

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



**ਹਨਾਂ ਏਚ ਪੀ ਸੀ ਲਿਮਿਟੇਡ**  
 NHPC Limited  
 130-1301, 14th Floor, 13, 15001 Chandigarh, India

ਡੁਗਰ ਜਲ ਵਿਦ੍ਯੁਤ ਪਾਰਿਯੋਜਨਾ (500 MW)  
 Dugar HE Project (500 MW)  
 ਲੁਝ, ਕਿਲਾਰ (ਪੰਜਾਬ), ਬਾਲ (ਹਿੰਦੂ) 176323  
 Luj, Killar (Pangi), Charnoe, (H.P.)  
 ਫੋਨ ਨੰਬਰ: E-mail: [dugarhep@nhpc.nic.in](mailto:dugarhep@nhpc.nic.in)  
 Phone No: +91-9865136269

Ref / ਸਾਂਕੇਤਿਕ ਨੰ. ਸਨਾਕਾਰੀ ਇੱਕੜੀ Camp - Shimla.

Dated : ਮਿਨਾਤ, 28-04-2022.

ਏਪੀਸੀਸੀਏਫ (ਨੋਡਲ ਅਧਿਕਾਰੀ) ਏਫਸੀਏ,  
 ਵਨ ਵਿਭਾਗ, ਹਿਮਾਚਲ ਪ੍ਰਦੇਸ਼ ਸਰਕਾਰ,  
 ਸ਼ਿਮਲਾ - 171001.

ਵਿ਷ਯ: ਹਿਮਾਚਲ ਪ੍ਰਦੇਸ਼, ਜਿਲਾ ਚੰਡੀ, ਪਾਂਸੀ ਵਨ ਵਿਭਾਗ ਕੇ ਅਧਿਕਾਰ ਕੋਂਡ੍ਰ ਕੇ ਅਨੰਤਰਾਤ ਚਿਨਾਬ ਨਦੀ ਪਰ  
 ਡੁਗਰ ਜਲ ਵਿਦ੍ਯੁਤ ਪਾਰਿਯੋਜਨਾ (500 ਮੇਗਾਵਾਟ) ਕੇ ਨਿਰਮਾਣ ਕੇ ਲਿਏ ਮੇਸਾਰੀ ਏਨਾਂਚਪੀਸੀ ਲਿਮਿਟੇਡ ਕੇ  
 ਪਥ ਮੈਂ 211.842 ਵੇਕਟੇਗਰ ਵਨ ਭੂਮਿ ਕੇ ਢਾਧਕਾਂ ਕਾ ਪ੍ਰਸ਼ਾਸਨ।

ਮਹੋਦਯ,

With reference to your Letter No. Lndst. No. 11-48-5297/2021 (PCA) dated 06.04.2022  
 vide which observation regarding difference in non-forest land 11.79 ha mentioned in online  
 portal of part-1 and 8.78 ha non-forest land has been mentioned in hard copy of part-1. In this  
 regard, it is to inform that based on available land in Luj area and compiled with revenue record,  
 the land of non-forest / private land is found 8.78 ha against previous proposal of 11.79 ha.  
 Accordingly, requirement of the non-forest / private land is revised from 11.79 ha to 8.78 ha. As  
 such, revenue record of 8.78 ha non-forest/ Private land is placed from page No. 48 to 49 (xxx)  
 along with required check list Serial No. 8. However, User agency tried to revise non-forest /  
 private land from 11.79 ha to 8.78 ha in the online part-1 but the online system do not allow  
 change/modify the data.

Therefore, it is requested to kindly Change / grant permission in the online system to  
 revise above non-forest / private land from 11.79 ha to 8.78 ha. A complaint has also been raised  
 in Pativesh online portal vide Ticket Id : PAR-HC-24156 dated 15-04-2022 (copy enclosed as  
 Annex-I).

ਧੰਨਿਆਵਾਂ

Encl.: ਉਪਰੋਕਤ ਅਨੁਸਾਰ।

ਮਹੋਦਯ,

(ਸ਼ਾਸ਼ੀ ਕਾਂਤ)

ਮਾਹਾ ਪ੍ਰਬੰਧਕ,

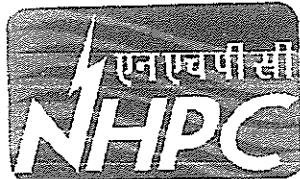
ਡੁਗਰ ਜਲ ਵਿਦ੍ਯੁਤ ਪਾਰਿਯੋਜਨਾ

Copy to:

1. Divisional Forest Officer, Pangi Forest Division, Pangi at Killar.

Regd. Office  
 ਨਿਵਾਸ ਸਥਾਨ

NHPC OFFICE COMPLEX, SECTOR-33, PAGARBAD-121003 (HARYANA)  
 ਨਾਨਾਂਚਪੀਸੀ ਲਾਈਲਸ ਪ੍ਰੈਸ਼, ਸੇਕਟਰ-33, ਕੁਰੰਦਾਲ (ਸ਼ਹੀਦਪੁਰ) - 121003



Ref / संदर्भ सं: एनएच/डीएचडीपी/ 277

Dated / दिनांक : 11-10-2021

डीएफओ, पांगी फोरेस्ट डिविजन,  
केलार, चंबा,  
हिमाचल प्रदेश -176323.

विषय: हिमाचल प्रदेश, जिला चंबा, पांगी वन विभाग के अधिकार क्षेत्र के अंतर्गत चिनाव नदी पर  
डुगर जल विद्युत परियोजना (500 मेगावाट) के निर्माण के लिए मेसर्स एनएचपीसी लिमिटेड  
के पक्ष में 211.842 हेक्टेयर वन भूमि के डायवर्सन का प्रस्ताव।

महोदय,

With reference to your Endst. No. 2172 dated 06.10.2021 regarding observations raised by  
CCF Chamba vide letter No. D-V/594/G/3595 dated 08.09.2021 for above cited matter. In  
this regard, please find point wise replies to the observations as follows:

1. No any documents as per order of check list is found placed in the proposal.  
**Reply: All the documents are placed now in sequence as per order of check list in the Forest proposal.**
2. All the documents are found photocopies, however original /attested documents are required.  
**Reply: Original / attested documents are placed now in the Forest proposal.**
3. 11617 number of trees of various species and class are mentioned against part-II online, but neither any trees enumeration list nor abstract of trees is found placed in the proposal to authenticate the same. Fresh trees list along with abstract duly signed by you are required to be placed in the proposal folders.  
**Reply: As per the online proposal against Part-II, total 3929 number of trees of various species and class are mentioned at Full Reservoir Level (FRL). However, 3873 and 3815 number of trees of various species and class are mentioned at FRL (-2) M and FRL (-4) M respectively. Trees enumeration list and abstract of trees duly signed by DFO, Pangi is placed in the Forest Proposal from page No. 135 to 140.**
4. 211.8427- hectare forest land has been proposed for diversion, but no revenue record of land and Joint Inspection report is found placed in proposal folders.  
**Reply: Revenue record of 211.8427 hectare proposed forest land is placed from page No. 42 to 47 (xv) along with required check list Serial No. 7 from Page No. 42 to 46. Additionally, Joint Inspection Report is also placed in the Forest proposal folder at page No. 217.**

5. 11.79 hectare – non-forest / private land is also proposed against the component wise details against online part –I. But no details of non-forest / private land in hard copy is found given in the proposal, also no revenue record of land is found placed in the proposal.

**Reply:** Based on available land in Luj area and compiled with revenue record, the land of non-forest / private land is found 8.78 ha against previous proposal 11.79 ha. Accordingly, requirement of the non-forest / private land is revised from 11.79 ha to 8.78 ha. As such, revenue record of 8.78 ha non-forest/ Private land is placed from page No. 48 to 49 (xxx) along with required check list Serial No. 8.

6. All the NOC /Certificate are found placed for 449 MW in proposal folders; however proposal is submitted for 500 MW. But, no any NOC/Agreement is found placed for 500 MW in the folders. All the NOC/Certificates obtained for 500 MW capacity are required to be placed in the proposal folders.

**Reply:** The power potential of Dugar HE Project has been revised from 449 MW to 500 MW due to updation of water availability series from 1974-2012 to 1981-2020 by CWC. The power potential studies were reassessed and installed capacity and design energy were enhanced from 449 MW to 500 MW and 1616.90 MU to 1758.40 MU respectively. Accordingly, MoEF&CC vide letter No. F. No. J-12011/082020-IA.I dated 08.02.2021 (copy enclosed from page No.167 to 176) has amended in TOR for revised installed capacity from 449 MW to 500 MW. This enhancement does not involve any change in required Forest land and dimensions of Project components

7. Joint Inspection Report for the proposed forest land is not found placed in proposal folders.

**Reply:** Joint Inspection Report conducted on 09.10.2021 by the representative of user agency, State Revenue department and State Forest department (i.e. General Manager, Dugar HE Project, SDM, Pangi and DFO, Pangi Forest Division respectively) is placed in the Forest Proposal folder at page No 217.

8. Digital Maps neither for proposed land nor for selected CA site are found placed in the proposal.

**Reply:** Digital Map for the proposed land and selected CA site are placed in the proposal folder at page No 32 and 143 respectively.

9. Part-I in the specified proforma is not found in the proposal folder, printout of online part-I is attached.

**Reply:** Part-I in the specified proforma is also attached in proposal folder page No. 10 to 16.

10. Similarly, Part-II is not found in specified format, only printout of online part-II is found attached.

**Reply:** Part-II in the specified proforma along with printout of online Part-II is also attached in proposal folder page No. 17 to 28 and page No. 28 (i) to 28 (vi) respectively.

11. Detailed reclamation Plan, Muck generation, utilization and drawing of protection work are not found placed in the proposal folders.

**Reply:** Muck Management Plan of Dugar HE Project has been placed at page No. 213. A suitable restoration plan will be proposed under the EMP for muck

*R.Mh*

dumping (s), which is under progress in EIA / EMP Studies, as per ToR of MoEF&CC.

12. A road has been proposed in the proposal but no any details/map and specified proformas required for roads are found placed in the proposal folders.

**Reply:** Road network proposed over 8.168 Forest land with total length of 5445 m and width 15 m for the Project. The map of the proposed road is attached at page No. 183.

13. Transmission Line has not been proposed in this proposal; however Transmission Line is a integral part of HEPs. But, no any details for not adding the Transmission Line in this proposal is given.

**Reply:** The details of Power Transmission of Dugar HE Project has been uploaded on MoEF&CC Parivesh web-portal against additional information detail and also placed in the proposal folder at page 214 to 216.

Hope the above replies will satisfy the respective observations. The proposal folder (4 Nos.) after doing the needful action is re-submitted for approval of the competent authority. As the project is located in tough topography, your constant support would enable us to get through the forest clearance process on time.

६४८

भावदीय

Orville

(शशी कांत)

महा प्रबंधक

### (इंगर जल विद्युत परियोजना)

## CHECK-LIST

OF

### DOCUMENTS/INFORMATION REQUIRED FOR PROPOSAL FOR DIVERSION OF FOREST LAND FOR NON FORESTRY USE UNDER FOREST (CONSERVATION) ACT, 1980

#### FOR STAGE-I APPROVALS

##### I Documents/Information Required for All Proposals

S.No.	Name of the Document (s)	Provided or Not	If not Provided Why?	Page Number
1	Check-list of the project proposal	Yes		1 to 7
2	Demand letter of the project authority/ applicant, if submitted.	Acknowledgement slip		8
3	Main application form from Part-I to V as prescribed in the Rules under the FCA with all its columns duly filled up and signed by the competent authority with date, place and official seal. All the information in <b>Part-I</b> of <b>Form-A</b> including item-wise breakup of the forest area required, must be given in the form itself by expanding the columns	Yes		10 to 28
4	Detailed note on the project. It must include the information regarding the number of villages and number of persons to be benefited from the project including employment generation.	Yes		29 to 30
5	Map of the project site/forest area required clearly showing forest boundaries and adjoining areas with their land use in distinct colours in 1:50000 or any suitable scale on original Survey of India topo sheet. If the area is very small, in addition to above, an index map may be submitted showing forest boundaries and a location map on a larger scale with land use of the area required duly signed by DFO/CF concerned.	Yes		31 to 40
6	Layout plan of project site approved by competent authority. In case of linear diversion of forest land, linear map or a diagrammatic map of the project site should be enclosed.	Yes		41

7	Statement showing the details of forest area involved i.e. Survey No. /Coupe No. /Compartment No., etc., and item-wise breakup of the forest area proposed for diversion duly signed by DFO (in the prescribed format).	Yes		42 to 47
8	Statement showing the details of non-forest area involved in the proposal (in the prescribed format).	Yes		48 to 49
9	Certificate from the Collector/Deputy Commissioner that no alternative suitable non-forest land is available for the project in question.	Yes		50
10	Justification for locating the project in forest area to be submitted by User Agency and countersigned by DFO.	Yes		51 to 53
11	Certificate for minimum use of forest land to be submitted by the User Agency, giving details of area and trees involved in the alternatives examined and reasons for their rejection duly countersigned by DFO (in the prescribed format).	Yes		54 to 55
12	Undertaking by the User Agency to bear the cost of compensatory afforestation duly counter signed by the DFO (in the prescribed format).	Yes		56
13	Undertaking by the User Agency to pay the Net Present Value (NPV) of the forest land involved duly countersigned by DFO (in the prescribed format).	Yes		57
	Undertaking by the User Agency to pay the Additional Net Present Value (NPV), if any, of the forest land involved duly countersigned by DFO (in the prescribed format) as decided at a later date as per the decision of the Supreme Court.	Yes		58
14	<p>A certificate from the competent authority in the State in the prescribed (<i>vide MoEF letter No. 11-9/98-FC (pt.) dated 5<sup>th</sup> July 2013</i>) format that all forest rights under the Forest Rights Act, 2006 have been settled in respect of the forest area proposed for diversion, wherever applicable.</p> <p>In case, the process for settlement of rights under FRA has not been initiated, grant of stage-I approval under the FCA to the proposal will be considered only if a certificate from the competent authority concerned, clearly stating that the process for settlement of rights under the FRA has not been initiated along with evidences</p>	Yes		59 to 134

	supporting that settlement of rights under the FRA will be initiated and completed before the final approval, is enclosed with the proposal (vide F. No. 11-179/2012-FC Dated: December 20, 2013).			
15	Species-wise and girth class-wise enumeration list and abstract of trees ( <i>abstract to be given at the end of the list</i> ) standing on the forest area in question neatly typed or computerized and duly signed by DFO.	Yes		135 to 140
16	Site inspection report of the forest area involved in the project proposal by the DFO concerned or higher level forest officer in prescribed format ( <i>in the prescribed format</i> ).	Yes		141
17	Details of non-forest land/degraded forest area identified for compensatory afforestation viz. Survey No./ Compartment No./Khasra No./Khatoni No., Village, Tehsil, District, etc., along with map in appropriate scale showing the boundaries of adjoining forest areas with their use in distinct colours ( <i>in the prescribed format</i> ).	Yes		142 to 157
18	Detailed scheme for compensatory afforestation on identified non-forest area/ degraded forest area, as the case may be, at prevalent wage rates duly signed by DFO and countersigned by the CF concerned. The CA scheme must include all the technical details, details of work schedule, total financial outlay and proposed monitoring mechanism ( <i>in the prescribed format</i> ).	Yes		158 to 161
19	Certificate from the DFO, that non-forest land selected for compensatory afforestation is in a compact block and contiguous to forest area or in close proximity of forest area and suitable from the management and protection point of view.	No		—
20	Suitability certificate from the Divisional Forest Officer that the land identified for compensatory afforestation is suitable for raising plantation ( <i>in the prescribed format</i> ).	Yes		164
21	Certificate from the Chief Secretary regarding non-availability of non-forest land in the state for raising compensatory afforestation, wherever applicable. This certificate will be based on the certificate signed by the DFO and Deputy Commissioner/Collector of the district concerned about non-availability of such non-forest land.	No		—
22	In case of proposal which requires entry/exit through Protected Forest strips along	No		—

	roads/railway lines/canals, the following information/documents must be given :-  a) No Objection Certificate (NOC) of the land owning agency i.e. NHAI/PWD, Railways or Canal/ Irrigation Department b) Change of Land Use certificate from Town and Country Planning/ any other competent authority.			
23	For the projects involving forest land for construction of buildings/right of way for buildings, the built-up area, details of DG sets to be installed, and raw materials to be used ( <i>in case of industries</i> ) should be clearly mentioned.	No		-
24	Status of clearance under Environment (Protection) Act, 1986, wherever required.	Yes		167 to 176
25	NOC of the State Pollution Control Board for establishment of the project, wherever required.	No		-
26	Detailed scheme for rehabilitation of project affected persons, wherever required.	No		-
27	Detailed Catchment Area Treatment Plan, wherever required. The CAT Plan should be prepared on the basis of actual survey of area and its classification in various categories requiring different engineering/ afforestation and other treatments in phased manner.	No		
28	Detailed Reclamation Plan, wherever required. It should be realistic exhaustive and complete in all respects along with relevant maps in distinct colours. It should also include the details of back fillings, afforestation and execution of such works, wherever required.	No		-
29	Cost benefit analysis as per the guidelines issued under forest (Conservation) Act, 1980 in prescribed format, wherever required.	Yes		177 to 181
30	Any other information/documents necessary for giving clarifications on the project, may be specified and attached.			

II	Documents/Information Required for Proposals for Roads, Railway Lines, Canals and Transmission Lines			
31	The following information/documents must be given :-  a) Length and width of Road/Railway line/ Canal/ Transmission line passing through forest and non forest area. b) In case of expansion of already	Yes		183

	<p>existing road/railway line/canal, linear plan clearly showing in distinct colours the already existing road (<i>from beginning to end</i>), the width of the proposed road/railway line/canal to be expanded, and the remaining width of the Protect Forest strip, if any, which would be left after expansion.</p> <p>c) In case of transmission line, the following details <b>may also</b> be given :-</p> <ul style="list-style-type: none"> <li>i) Number of towers to be erected both in forest and non forest area.</li> <li>ii) Width of the right of way for transmission line.</li> </ul>		
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III	<b>Documents/Information Required for Proposals for Hydro Electric Projects</b>			
32	<p>The following information/document must be given :-</p> <ul style="list-style-type: none"> <li>a) Component-wise total area requirement</li> <li>b) Copy of Memorandum of Understanding</li> <li>c) Copy of Techno-Economic Clearance</li> <li>d) Copy of Implementation Agreement</li> <li>e) NOC from Irrigation and Public Health Department</li> <li>f) NOC from Fisheries Department</li> <li>g) Authorization to the applicant by the Project Authority</li> </ul>	<p>yes</p> <p>yes</p> <p>No</p> <p>No</p> <p>yes</p> <p>yes</p> <p>yes</p>	<p>55</p> <p>184 to 186</p> <p>—</p> <p>—</p> <p>187</p> <p>188</p> <p>189</p>	

IV	<b>Documents/Information Required for Proposals for Mining</b>			
33	<p>The following information/documents must be given :-</p> <p><b>I New Proposals</b></p> <ul style="list-style-type: none"> <li>a) Certificate from the competent authority like District Mining Officer/Geologist, regarding non-availability of the same mineral/ore in the nearly non-forest area.</li> <li>b) Estimated reserve of each mineral/ore in the forest area and non-forest area.</li> <li>c) Total area demanded and extent of forest area involved in the proposed</li> </ul>			

	<p>mining lease shown in distinct colours on relevant maps</p> <p>d) Proposed period of mining lease.</p> <p>e) Minimum distance of the proposed site from Wildlife Sanctuary and National Park.</p> <p>f) A copy of the mining plan duly approved by IBM, Nagpur.</p> <p>g) Phased reclamation plan of the project area.</p> <p>h) Copy of lease deed/agreement entered into with the district authorities.</p> <p>i) The details of Safety Zone Area for the mining as per para 4.7 of the guidelines. The undertaking from the project authority to bear the cost of fencing of safety zone area and afforestation over one and half times of degraded forest area. The details of safety zone to be ascertained by the competent authority viz Indian Bureau of Mines/ Deptt., of Geology and Mining of the State Government.</p>		
<p><b>II) In case of renewal of Mining Lease</b></p> <p>a) A brief profile of the lessee/ company should be submitted giving details of their existing mining leases in the State with their capacity of production, the present level of average annual production, location of these pits and the status of reclamation of forest land that are exhausted of minerals.</p> <p>b) Complete details of existing or proposed leases in that particular forest area with their present status should be indicated on the Survey of India Topo-sheet in appropriate scale</p> <p>c) The State Government shall forward the complete proposal to the RO/MoEF at least six months prior to the expiry of the existing lease. In case of any delay, a details report elaborating the causes of delay shall be forwarded along with the</p>			

	<p>proposal.</p> <p>d) A resolution of Gram Panchayat/ Local Body of the area endorsing the proposal that the project is in the interest of the people living in and around the proposed forest land.</p>			
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V	<b>Documents/Information Required for Proposals for Retail Outlets of an Oil Companies</b>			
34	<p><i>The following information/ documents must be given :-</i></p> <p>a) Copy of letter of intent issued by the oil Company.</p> <p>b) Site selection certificate as per Govt. of India guidelines. The DFO should certify the distance between two retail outlets on either side of the outlet in question.</p> <p>c) Layout plan showing dimensions of proposed approach road for entry and exit with clear area calculations.</p> <p>d) Map clearly indicating the directions of the road leading from.....to.....</p> <p>e) The area calculations for the curves should invariably be given in the layout plan.</p> <p>f) NOC from NHAI/PWD/Urban or local body</p> <p>g) NOC from Town and Country Planning/ local body</p> <p>h) Certificate by User Agency to the effect that no High Tension line passing above the proposed site duly countersigned by DFO</p> <p>i) A Certificate by User Agency to the effect that no LP Gas godown is located near the proposed site duly countersigned by DFO</p>			

Date.....26-08-2021

Place.....Killar

Seal \_\_\_\_\_

*R. B. Bhatia*  
 Divisional Forest Officer  
 Forest Division  
 Pangi Forest Division  
 Office  
 Killar 176323

*Sh. J. S. Bhatia*  
 Chief Conservator of Forests (I) *✓*  
 Chamba Forest Circle, Chamba (H.P.)

*Acknowledgement Slip*

This is to certify that hard copy of the proposal seeking prior approval of Central Government under the Forest (Conservation) Act 1980, as per details given below, along with all necessary enclosures has been received in the Office of the Himachal Pradesh on 20/02/2021.

008

**1. Proposal No.** : FP/HP/HYD/123533/2021

**2. Proposal Name** : Dugar HE Project

**3. Category of the  
Proposal** : Hydel

**4. Date of Submission** : 20/02/2021

**5. Name of the User Agency with Contact Details**

**Name** : SHASHI

**Mobile No.** : 8894176020

**State** : Himachal Pradesh

**District** : Mandi

**Pincode** : 175121

**6. Area Applied (ha.)** : 211.8427

(System Administrator)

\*\*\* This is a system generated email, please do not reply. \*\*\*

From:

Nodal Officer-cum-APCCF (FCA)  
O/O Pr. CCF, H P (HoFF)

To:

The General Manager,  
Dugar Hydro Electric Project,  
Nagwain, Distt Mandi, HP.

Subject:-

Diversion of 211.8427 ha of forest land in favour of NHPC Ltd, NHPC Office complex Sector 33, Faridabad, Haryana, for the construction of Dugar Hydro Electric Project (500.00MW) HEP within the jurisdiction of Pangi Forest Division distt Chamba, HP.

Sir,

The following shortcomings have been noticed in the proposal, which may be completed:

1. Against column C(ii)a, in the detail of patches, 11 patches have been shown. But while viewing the KML files, of these patches, out of 11 patches, three patches of 3.88 ha, 1.02 ha and 2.55ha are not visible. Against column No.C(iii) and C(iv), although the map indicating the proposed project on toposheet and digital map of the proposed project has been uploaded but have not been signed by user agency. As per latest instructions of GoI these maps duly signed by the user agency and countersigned by DFO concerned are required to be uploaded.
2. Against column No.D(i), although justification for locating the project over the forest land has been uploaded but has not been signed by the DFO concerned. As per latest instructions of GoI, justification signed by the user agency and countersigned by DFO concerned is required to be uploaded against this column.
3. Against column No.I(i), 'No', has been mentioned. As per latest instructions of GoI, in case of "No", the distance from the protected area or their Eco sensitive zone is required to be obtained from DFO concerned for uploading against additional information details.
4. Against column NO.K(i), 'Yes' has been mentioned, but while viewing the requisite document, the same is not visible and a message is appearing, 'This page is not working'. If not yet been obtained, 'No', is required to be mentioned against this column and an undertaking is required to be uploaded against additional information detail.
5. Layout plan of the proposed project has although been uploaded against additional information detail but has not been signed by the user agency.
6. Although undertaking to submit the TEC & IA has been uploaded against additional information detail but while viewing this undertaking, the same is not visible. The undertaking is again required to be uploaded against additional information detail.
7. NOCs from HPPWD and I&PH, Wild life and fishery department have although been uploaded but while viewing these documents, the same are not visible and a message is appearing this page is not working. The requisite documents are again required to be uploaded.



CIN:L40101HR19  
75GOI032564

एनएचपीसी लिमिटेड  
(भारत सरकार का सूची ए उद्यम)  
NHPC Limited  
(A Schedule 'A' Enterprise of  
Govt. of India)

संस्था प्राप्ति  
एक बड़ा बदलाव की ओर



दुगर जल विद्युत परियोजना  
पार्बती परिसर नगवाई जिला मण्डी (हिंग्रू)  
175121  
Dugar HE Project  
Parbati Complex Nagwain Distt - Mandi  
(H.P.) 175121  
फोन/ Tel. 01905 280260  
E-mail. dugarhep@gmail.com

संख्या: एनएच/डीएचईपी/एचओपी/2021/ 143

दिनांक : 04/03/2021

एपीसीसीएफ (नोडल अधिकारी) एफसीए,  
वन विभाग, हिमाचल प्रदेश सरकार,  
शिमला -171001.

विषय: हिमाचल प्रदेश, जिला चंबा, पंगी वन विभाग के अधिकार क्षेत्र के अंतर्गत चिनाव नदी पर दुगर जल विद्युत परियोजना (500 मेगावाट) के निर्माण के लिए मेसर्स एनएचपीसी लिमिटेड के पक्ष में 211.842 हेक्टेयर वन भूमि के डायवर्सन का प्रस्ताव।

महोदय,

With reference to the subject cited matter and observations raised vide letter No. Ft. 48-5297/2021 (FCA) dated 25.02.2021 regarding diversion of 211.842 ha Forest land, please find point wise replies to the observations pertaining to user agency:

1. The 11 patches of KML files including three patches of 3.88 ha, 1.2 ha and 2.55 ha have again been uploaded on the web- portal and all are visible. The toposheet map and digital map of proposed project are signed by user agency and counter signed by concerned DFO are uploaded on the web-portal against column No- C (iii) and C (iv).
2. The justification for locating the project over the forest land has been signed by user agency and counter signed by concerned DFO is uploaded on the web-portal against column No- D (i).
3. The distance of project from the protected area or their Eco sensitive zone is counter signed by concerned DFO on NOC letter obtained from wildlife department and uploaded against additional information.
4. The settlement of Rights under the Forest Rights Act 2006 (**Complied by previous user agency i.e. DHPL for same Forest land**) on the forest land proposed to be diverted is uploaded on web-portal against column No. K (i) and same is also uploaded in the additional information column & same is visible.
5. Layout plan of the proposed project has been signed by the user agency and uploaded on the web-portal against additional information.
6. Undertaking to submit the TEC and IA has again been uploaded on the web-portal against additional information and same is visible.
7. NOCs from HPPWD and I&PH, Wildlife and fishery department have again been uploaded on the web-portal against additional information and same is visible.
8. Muck Management Plan of Dugar HE Project has been uploaded against additional information detail.
9. The details of Power Transmission of Dugar HE Project has been uploaded on web-portal against additional information detail.

Hope the above replies will satisfy the respective observations. As the project is located in tough topography, your constant support would enable us to get through the forest clearance process on time.

धन्यवाद

प्रतिलिपि:

1. महाप्रबंधक (प्रभारी) , पीआईडी (PID), निगम मुख्यालय, एनएचपीसी फरीदाबाद - सूचनार्थ हेतु।

भवदीय  
(शशी कात)

महा प्रबंधक,  
दुगर जल विद्युत परियोजना

**FORM-A****Form for seeking prior approval of Central Govt. under section-2 of the  
Forest (Conservation) Act, 1980 for diversion of fresh Forest Area.****PART-I  
(To be filled by User Agency)****A. General Details****Project Details**

1. Name of Project for which Forest Land is required : **Dugar Hydro Electric Project**
2. Short narrative of the proposal and Project/scheme for which the forest land is required: A Memorandum of Understanding (MoU) has been signed on 25-09-2019 between Government of Himachal Pradesh (GoHP) & NHPC Limited for implementation of Dugar HE Project on Build Own Operate & Transfer Basis (BOOT) for a period of 70 years.
3. State: **Himachal Pradesh**
4. Category of the Project : **Hydel**
5. Shape of project land proposed to be diverted: **Non Linear**
6. Estimated cost of the Project (In Lacs). **Rs. 3393.21**
7. Total period for which the forest land is proposed to be diverted: **70 years**
8. Total Area of Forest Land proposed for diversion (in ha): **211.842**
9. Total Area of Non-forest Land required for this Project (in ha): **8.78**

**Details of User Agency**

1. Name: **NHPC Limited**
2. Address1: **NHPC Office Complex, Sector-33, Faridabad, Haryana**
3. Address2: **NHPC Office Complex, Sector-33, Faridabad, Haryana**
4. State: **Haryana**
5. District: **Faridabad**
6. Pin: **121003**
7. Landmarks: **Sector-33**
8. Email Address: **envdivmgn-co@nhpc.nic.in**
9. Landline Telephone No: **0129 - 2256065**
10. Fax No:
11. Mobile No: **9958381010**
12. Website: **www.nhpcindia.com**
13. Legal status of User Agency: **Central PSU**

**Details of Person Making Application**

1. First Name: **Shashi**
2. Middle Name: **NIL**
3. Last Name: **Kant**
4. Gender: **Male**
5. Designation: **General Manager**
6. Address 1: **Dugar Hydroelectric Project, Luj, Pangi, Chamba**
7. Address 2: **Dugar Hydroelectric Project, Luj, Pangi, Chamba**

  
 सदाशान्तिक  
 General Manager  
 दुगर जल विद्युत विकास निगम  
 Dugar Hydro Electric Project  
 नगरपाली, निलगीर रोड, निलगीर - 175121  
 Nagwan, Distt. Kullu (H.P)-175121

8. State: **Himachal Pradesh**
9. District: **Chamba**
10. Pin: **176323**
11. Landmarks: Luj, Killar
12. Email Address. [dugarhep@nhpc.nic.in](mailto:dugarhep@nhpc.nic.in)
13. Landline Telephone No: **89881 36260**
14. Fax No:
15. Mobile No: **88941 76020**
16. Upload a copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency: **Annexure-I , Page No.- 189 (Authorization Letter)**

#### **B. Details of Land required for the Project**

Details of proposal seeking prior approval of Central Government under the Act for diversion of forest land for this Project already submitted in the past:

1. Whether any proposal seeking prior approval of Central Government under the Act for diversion of forest land required for this project has been submitted in the past? : **NIL**

#### **2. Details of forest land proposed to be diverted:**

1. No. of Divisions (Nos.) 01

##### **B-2.1 Division wise details of land**

1. Division Name: **Pangi**
2. Forest Land (in ha) : **211.842**
3. Non-Forest Land (in ha): **8.78**

##### **B-2.2 Details of Districts involved**

1. No. of Districts (Nos.): 01

##### **District wise breakup**

1. District Name: **Chamba**
2. Forest Land (in ha): **211.842**
3. Non-Forest Land (in ha): **8.78**

##### **B-2.3 Village wise breakup (Note: Multiple entries of villages allowed)**

1. Village Name:
2. Forest Land (in ha)
3. Non-Forest Land (in ha)

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

Villages wise breakup			
Sl. No.	Village	Forest Land (ha)	Non-Forest Land (ha)
1	Findpar	2.4	0
2	Kagal	15.95	0
3	R F Punto	6.9	0
4	Punto	5.5	0
5	R F Kalatop	25.8	0
6	R F Chllkot	35.59	0
7	R F Luj	13.09	0
8	Luj	12.02	8.78
9	Dharwas	0.31	0
10	R F Kanyun	18.30	0
11	R F Urnu	3.42	0
12	Ghangeet	22.32	0
13	Paragwal	14.52	0
14	Karel	15.72	0
15	R F Chatwani	8.70	0
16	Chacherwas	11.30	0

**B-2.4 Component wise breakup (Note: Multiple entries of Component allowed)**

If, shape of project land proposed to be diverted is Non-Linear, then, Component wise Non- Linear breakup:

Component and Dimension wise land breakup							
Sl. No.	Component	Forest Land (ha)	Non-Forest Land (ha)	Maximum Length (in Meter)	Width (in Meter)	Area (in Sqm)	Area (in ha)
1	Submergence including River Area	160.45	0	16050	100	1605000	160.5
2	Dam	5.83	0	390	150	58500	5.85
3	Approach Roads	8.168	0	5445	15	81675	8.1675
4	Quarry Area	8.625	0	620	140	86800	8.68
5	Borrow Area	3.88	0	259	150	38850	3.885
6	Muck Dumping Area	8.5797	0	446	192	85632	8.5632
7	Job Facility Area	7.08	0	695	102	70890	7.089
8	Construction Facility Area	0	6.62	530	125	66250	6.62

9	Owner / Developer Colony including Permanent & Temporary establishments excluding Administrative Building / Offices	0	1.98	130	150	19500	1.95
10	Owner's Office	0	0.18	50	35	1750	0.17
11	Power House	3.64	0	250	146	36500	3.65
12	HRT	0.4	0	220	20	4400	0.44
13	TRT	1.81	0	1000	18	18000	1.8
14	TRT Outfall	0.74	0	180	41	7380	0.738
15	Diversion Tunnel	1.84	0	660	28	18480	1.848
16	MAT	0.8	0	610	14	8540	0.854
Total		211.8427	8.78				
Grand Total		220.6227					

c. Maps of forest land proposed to be diverted (Note: Multiple entries of division wise patches/segments are allowed.)

1. Division name: Pangi
2. Area (in ha): 211.842

If, shape of project land proposed to be diverted is Non-Linear, then, Enter Patch wise details

1. Select No. of Patches: Eleven

- a. Area of Patch (in ha)
- b. Upload KML File (kml format only)

Patch wise details		
Patch No.	Area of Patch (in ha)	KML File of Patches
1	160.45	Annexure Patch-1
2	5.83	Annexure Patch-2
3	8.168	Annexure Patch-3
4	8.625	Annexure Patch-4
5	3.88	Annexure Patch-5
6	8.579	Annexure Patch-6
7	7.08	Annexure Patch-7
8	3.64	Annexure Patch-8
9	1.20	Annexure Patch-9
10	2.55	Annexure Patch-10
11	1.84	Annexure Patch-11

2. Upload a copy of Survey of India Toposheet in 1:50,000 scale indicating boundary of forest land proposed to be diverted (pdf only): **Annexure-II, Page No.- 31 SoI Toposheet**
3. Upload a scanned copy of the Geo-referenced map of the forest land proposed to be diverted prepared by using DGPS or Total Station (pdf only): **Annexure-III, Page No.- 32 to 40 Scanned copy of the Geo-referenced map along with DGPS Coordinates**

**D. Justification for locating the Project in forest land and details of alternates examined:**

1. Upload a copy of note containing justification for locating the Project in forest land (pdf only): **Annexure-IV, Page No.- 51 to 52 Justification**
2. Whether a copy of map indicating location of alternative examined is required to be provided? (Yes/No): **Yes**  
*If yes, then, 'Upload a copy of map indicating location of alternative examined'. If No, then 'Enter reason for not providing such map': Annexure -V, Page No.- 53 map alternative*

**E. Employment likely to be generated**

1. Whether the project is likely to generate employment?: **Yes**
  - a. If yes, then,
    - i. Permanent/Regular Employment (Number of persons): **80 persons**
    - ii. Temporary Employment (Number of man-days): **56,57,500 man days during Construction Period.**

**F. Displacement of People due to the project, if any**

1. Whether project involves displacement?: **No**

**G. Details of Cost-Benefit analysis for the Project**

1. Whether the Project requires Cost-Benefit analysis?: **Yes**
  - a. If yes, then, 'Upload a copy of Cost-Benefit analysis' (pdf only): **Annexure-VI, Page No. 177 to 181 Cost-Benefit analysis**

**H. Status of Environmental Clearance**

1. Whether the Project requires Clearance under the Environment (Protection) Act 1986?: **Yes**
  - a. If yes, then,
    - i. Provide the Status of the Environmental Clearance Project: **TOR accorded, EC application yet to be submitted after completion of EIA/EMP Study and Conducting Public Hearing (TOR Copy enclosed as Annexure-VII, Page No.- 168 to 175). EIA/EMP Studies is under progress.**

**I. Status of Wildlife Clearance**

1. Whether the Project or a part thereof is located in any Protected Area or their Eco sensitive zone?: **No**

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

**J. Applicability of special provisions governing Scheduled Areas**

1. Whether the Project or a part thereof is located in a Scheduled Area ?: No

**K. Status of settlement of rights under the Forest Rights Act, 2006 on the forest land proposed to be diverted**

1. Whether the process for settlement of Rights under the Forest Rights Acts 2006 on the forest land proposed to be diverted has been completed?: Yes

a. If yes, then,

- i. Upload a copy of documentary evidence in support of settlement of rights under the Forest Rights Act,2006 on the forest land proposed to be diverted (pdf only): **Copy enclosed as Annexure-VIII, Page No. 59 to 134**

**L. Details of land identified for Compensatory Afforestation**

1. Whether non-forest or Revenue forest land is required to be provided by User Agency?: **Not Applicable**
2. Whether the area of non-forest land or Revenue forest land required to be provided by User Agency for raising Compensatory Afforestation is less than area of forest land proposed to be diverted? (Yes/No): **Not Applicable**
3. Reason for not providing Non-Forest Land: **Not Applicable**

**M. Irrigation and Hydel Details (If Category of Proposal is Irrigation or Hydel)**

1. Installed power generation capacity of the project (in MW): **500**
  - a. If Installed power generation capacity of the project is greater than 9 MW then
    - i. Upload a copy of the approval of competent authority to the Catchment Area Treatment Plan (CAT Plan) (pdf only): **Annexure –IX, Page No. 190**
    - ii. Upload a copy of the approved CAT plan (pdf only): **Annexure – IX, Page No. 190**
2. Total command area of the project (in ha): **220.6227**

**Additional Information (if any) (Note: Multiple entries allowed)**

1. Upload Additional Information (pdf only)
  - i. **Copy of MoU – Page No.- 184 to 186**
  - ii. **Short Narrative of the proposal – Page No.- 191**
  - iii. **Salient Features of the Project – Page No.- 192 to 202**
  - iv. **Layout Plan map of the Project – Page No.- 41**
  - v. **Undertaking for CA – Page No.- 56**
  - vi. **Undertaking for NPV – Page No.- 57**
  - vii. **Undertaking for TEC & IA – Page No.- 203**
  - viii. **NOC from Fisheries - Page No.- 204**
  - ix. **NOC from IPH - Page No.- 205**
  - x. **NOC from HPPWD – Page No.- 206**
  - xi. **NOC from Defense – Page No.- 207**
  - xii. **NOC from Wild Life and letter regarding distance from**

protected area – Page No.- 208  
xiii. NOC from Mining- Page No.- 209  
xiv. NOC from ASI- Page No.- 210  
xv. Certificate from DC regarding Non availability of alternative Non Forest Land for CA – Page No.- 211  
xvi. Certificate from DC regarding Non availability of alternative Non Forest Land For implementation of Project– Page No.- 212  
xvii. Breakup of Land detail – Page No.- 55  
xviii. Settlement of rights under FRA 2006 – Page No.- 59 to 134  
xix. Muck Management Plan – Page No.- 213  
xx. Power Transmission - Page No.- 214 to 216

2. Remarks

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

**FORM - A**

Form for seeking prior approval of Central Government under section 2 of the Forest(Conservation) Act,1980 for  
Diversion of fresh forest area

**PART - I**

(To be filled up by User Agency)

**A. General Details**A- Project Details  
1.

(i). Proposal No. : FP/HP/HYD/123533/2021

(ii). Name of Project for which Forest Land is required : Dugar HE Project

(iii). Short narrative of the proposal and Project/scheme for which the forest land is required : A Memorandum of Understanding (MoU) has been signed on 25-09-2019 between Government of Himachal Pradesh (GoHP) & NHPC Limited for implementation of Dugar HE Project on Build Own Operate & Transfer Basis (BOOT) for a period of 70 years.

(iv). State : Himachal Pradesh

(v). Category of the Proposal : Hydel

(vi). Shape of forest land proposed to be diverted : Non Linear

(vii). Estimated cost of the Project(Rupees in lacs) : 3393.21

(viii). Area of forest land proposed for diversion(in ha.): 211.8427

(ix). Non-forest land required for this project(in ha.): 8.78

(x). Total period for which the forest land is proposed to be diverted(in years): 70

A- Details of User Agency  
2.

(i). Name : NHPC LIMITED

(ii). Address1 : NHPC OFFICE COMPLEX, SECTOR-33, FARIDABAD, HARYANA

(iii). Address2 : NHPC OFFICE COMPLEX, SECTOR-33, FARIDABAD, HARYANA

(iv). State : Haryana

(v). District : Faridabad

(vi). Pin : 121003

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

(vii). Landmark : SECTOR - 33

(viii). Email address : envdivnhpc@gmail.com

(ix). Landline Telephone No. : 129-2278026

(x). Fax No. : 129-2278026

(xi). Mobile No. : 9990275252

(xii). Website (if any) : www.nhpcindia.com

(xiii). Legal status of User Agency : Central PSU

#### A-3. Details of Person Making Application

(i). First Name: SHASHI

(ii). Middle Name: NIL

(iii). Last Name: KANT

(iv). Gender: Male

(v). Designation: GENERAL MANAGER

(vi). Address 1: DUGAR HYDRO ELECTRIC PROJECT

(vii). Address 2: NAGWAIN

(viii). State: Himachal Pradesh

(ix). District: Mandi

(x). Tehsil: Aut(S.T)

(xi). Pin: 175121

(xii). Landmark: PARBATI-II OFFICE COMPLEX

(xiii). Email Address: dugarhep@nhpc.nic.in

(xiv). Landline Telephone No.: 0-

(xv). Fax No.: NIL

(xvi). Mobile No.: 8894176020

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

(xvii). Copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency:

### B. Details of land required for the Project

B- Details of proposal seeking prior approval of Central Government under the Act for  
 1. diversion of forest land for the Project already submitted in the past

List of proposal submitted in Past							
S.no	Proposal Status.	Proposal No.	Moef File No.	Area Proposed for Diversion(Ha.)	Area Diverted(Ha.)	Date of In-Principle Approval	Date of Final Approval
							<b>NIL</b>

B- Details of forest land proposed to be diverted  
 2.

#### B-2.1 Details of Divisions involved

Details of Divisions involved			
S.no	Division Name	Forest Land(ha.)	Non-Forest Land(ha.)
1.	Pangi	211.8427	8.78
	Total	211.8427	8.78

#### B-2.2 Details of Districts involved

District wise breakup			
S.no	District Name	Forest Land(ha.)	Non-Forest Land(ha.)
1.	Chamba	211.8427	8.78
	Total	211.8427	8.78

#### B-2.3 Village wise breakup

Villages wise breakup			
S.no	Village	Forest Land(ha.)	Non-Forest Land(ha.)
1	Findpar	2.4	0
2	Kagal	15.95	0
3	R F Punto	6.9	0
4	Punto	5.5	0
5	R F Kalatop	25.8	0
6	R F Chilkot	35.59	0
7	R F Luj	13.09	0
8	Dharwas	0.31	0
9	R F Kanyun	18.3	0
10	R F Urnu	3.42	0
11	Ghangeet	22.32	0
12	Paragwal	14.52	0
13	Karel	15.72	0

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

16 (iv)

14	R F Chatwani	8.7	0
15	Chacherwas	11.3	0
16	Luj	12.02	8.78
	<b>Total</b>	<b>211.84</b>	<b>8.78</b>

#### B-2.4 Component wise breakup

Component wise breakup			
S.no	Component	Forest Land(ha.)	Non-Forest Land(ha.)
1	Submergence including River Area	160.45	0
2	Dam	5.83	0
3	Approach Roads	8.168	0
4	Quarry Area	8.625	0
5	Barrow 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 & tem	0	1.98
16	Owners Office	0	0.18
	<b>Total</b>	<b>211.8427</b>	<b>8.78</b>

#### C. Maps of forest land proposed to be diverted

Division 1. : Pangi

(i). Area of forest land proposed to be diverted(in ha.) : 211.8427																											
(ii). Nature of the Project: Non Linear																											
(a). No. of patches : Eleven																											
<table border="1"> <thead> <tr> <th colspan="3">Patch wise details</th> </tr> <tr> <th>Patch No.</th> <th>Area of Patch(in ha.)</th> <th>Kml File of Patches To view KML file on google the same may be downloaded and then open if in google earth install in your computer.</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>160.45</td> <td> <a href="#">View File</a></td> </tr> <tr> <td>2.</td> <td>5.83</td> <td> <a href="#">View File</a></td> </tr> <tr> <td>3.</td> <td>1.84</td> <td> <a href="#">View File</a></td> </tr> <tr> <td>4.</td> <td>1.2</td> <td> <a href="#">View File</a></td> </tr> <tr> <td>5.</td> <td>7.08</td> <td> <a href="#">View File</a></td> </tr> <tr> <td>6.</td> <td>8.5797</td> <td> <a href="#">View File</a></td> </tr> <tr> <td>7.</td> <td>3.64</td> <td></td> </tr> </tbody> </table>	Patch wise details			Patch No.	Area of Patch(in ha.)	Kml File of Patches To view KML file on google the same may be downloaded and then open if in google earth install in your computer.	1.	160.45	 <a href="#">View File</a>	2.	5.83	 <a href="#">View File</a>	3.	1.84	 <a href="#">View File</a>	4.	1.2	 <a href="#">View File</a>	5.	7.08	 <a href="#">View File</a>	6.	8.5797	 <a href="#">View File</a>	7.	3.64	
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5.	7.08	 <a href="#">View File</a>																									
6.	8.5797	 <a href="#">View File</a>																									
7.	3.64																										

(Anil)

महाप्रबंधक  
General Manager  
डुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगवारी, निला मण्डी (तिप्र.)-175121  
Nagwan, Distt. Mandi (H.P.)-175121

7.	3.64		<a href="#">View File</a>
8.	8.625		<a href="#">View File</a>
9.	8.168		<a href="#">View File</a>
10.	2.55		<a href="#">View File</a>
11.	3.88		<a href="#">View File</a>

(iii). Copy of Survey of India Toposheet indicating boundary of forest land

proposed to be diverted:



(iv). Scanned copy of the Geo-referenced map of the forest land proposed to be diverted prepared by using GPS or Total Station:



**D. Justification for locating the Project in forest land and details of alternatives examined:**

(i). Copy of note containing justification for locating the Project in forest land:



**E. Employment likely to be generated**

(i). Whether the Project is likely to generate employment ?: Yes

(ii). Permanent/Regular Employment(Number of persons): 80

(iii). Temporary Employment(Number of person-days): 5657500

**F. Displacement of People due to the Project, if any**

(i). Whether Project involves displacement?: No

**G. Details of Cost-Benefit analysis for the Project**

(i). Whether the Project requires Cost-Benefit analysis?: Yes

(a). Copy of Cost-Benefit analysis:



**H. Status of Environmental Clearance**

(i). Whether the Project requires Clearance under the Environment (Protection) Act 1986 ? : Yes

(a). Status of the Environmental Clearance to the Project: EC application yet to be submitted

**I. Status of Wildlife Clearance**

(i). Whether the Project or a part thereof is located in any Protected Area or their Eco sensitive zone? : No

*Bhawna*  
Bhawna  
General Manager  
Dugar Jat Panchayat  
Dugar Hydro Electric Project  
नगदाई, जिला मण्डी (हर.)-175121  
Nagdai, Distt. Mandi (H.P.)-175121

### Applicability of special provisions governing Scheduled Areas

(i). Whether the Project or a part thereof is located in a Scheduled Area? : No

### K. Status of settlement of rights under the Forest Rights Act,2006 on the forest land proposed to be diverted

(i). Whether the process for settlement of Rights under the Forest Rights Acts 2006 on the forest land proposed to be diverted has been completed? : Yes

(a). Copy of documentary evidence in support of settlement of rights under the Forest Rights Act,2006 on the forest land proposed to be diverted: 

### L. Details of land identified for Compensatory Afforestation

(i). Whether non-forest or Revenue forest land is required to be provided by User Agency?: Not Applicable

(ii). Whether the area of non-forest land or Revenue forest land required to be provided by User Agency for raising Compensatory Afforestation is less than area of forest land proposed to be diverted ?: Not Applicable

(iii) . Reason for not providing Non-Forest Land: Not Applicable

### M. Hydel/Irrigation/Multipurpose Project

(i). Installed power generation capacity of the Project(in MW): 500

(ii). Total command area of the Project(in ha.): 223.6327

(a). Copy of the approval of competent authority to the Catchment Area Treatment Plan (CAT Plan): 

(b). Copy of the approved CAT plan: 

### Additional information Details

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

Documents		
S.No	Documents	Remarks
1		Short Narrative of Proposal
2		Undertaking for CAT
3		NOC FROM ASI
4		Muck Management Plan
5		Undertaking to provide TEC & IA
6		Settlement of rights under FRA 2006

7		Layout Plan
8		NOC from FISHERIES, IPH & PWD
9		Undertaking for CA
10		Undertaking for NPV
11		Component-wise breakup of land detail
12		CERTIFICATE FROM DC REGARDING NON- AVAILABILITY OF ALTERNATIVE NON- FOREST LAND FOR CA
13		CERTIFICATE FROM DC REGARDING NON- AVAILABILITY OF ALTERNATIVE NON- FOREST LAND FOR IMPLEMENTATION OF PROJECT
14		JOINT INSPECTION REPORT
15		PART-I filled by User Agency
16		STATUS OF ENVIRONMENT CLEARANCE
17		Undertaking minimum use of forest land
18		MOU
19		NOC from Defence
20		NOC from Wildlife
21		Salient Feature
22		NOC from Mining
23		DFO letter regarding distance from protected area
24		Reply to the observations of CCF, Chamba
25		Reply to the observations of CCF, Chamba

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

## 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		

*[Signature]*  
Divisional Forest Officer  
Pangi Forest Division  
Kilar 176323

**(vii) Species-wise (scientific name)**

And diameter class-wise enumeration of trees (to be enclosed)

In case of Irrigation/hydel projects enumeration at FRL, FRL-2 meter & FRL-4 meter to be enclosed.

Species-wise local /scientific names and girth-wise enumeration of trees at FRL:

S. No.	Local Name	Scientific Name	(0-30) cm	31-60 (cm)	61-90 (cm)	91 - 120 (cm)	121-150 (cm)	>150 (cm)	Total Nos.
1	Akhrot	<i>Juglans regia</i>	47	50	28	2	0	0	127
2	Ash/Shunu	<i>Fraxinus floribunda</i>	98	55	3	0	0	0	156
3	Badah/Willow	<i>Willow/Salix</i>	956	40	0	0	0	0	996
4	Bakharu	<i>Lonicera</i>	105	6	0	0	0	0	111
5	Bhujpatra	<i>Betula utilis</i>	1	3	0	0	0	0	4
6	Chilgoza	<i>Pinus gerardiana</i>	626	272	27	13	0	0	938
7	Deodar	<i>Cedrus deodara</i>	652	596	300	82	0	0	1630
8	Fir / Spruce	<i>Pecia simithiana morinda</i>	8	5	3	1	0	0	17
9	Goon	<i>H c natt</i>	469	423	107	41	0	0	1040
10	Jammu	<i>Prunus padus</i>	3	1	0	0	0	0	4
11	Kail	<i>Pinus wallichiana</i>	182	64	33	15	0	0	294
12	Kainth	<i>Pires pisia</i>	19	21	4	0	0	0	44
13	Khadak	<i>Cettris australice</i>	1038	525	55	6	0	0	1624
14	Killar	<i>Parrotis Jacquemontiana</i>	9724	36	1	0	0	0	9761
15	Mandar / Mapple	<i>Acer Caesium</i>	626	95	1	0	0	0	722
16	Maral	<i>Almus</i>	125	89	28	4	0	0	246
17	Poplar/Safeda	<i>populus alba</i>	38	21	1	0	0	0	60
18	Payakh	<i>alnus nitida / alder</i>	951	568	89	21	0	0	1629
19	Pingyath	<i>Crataegus</i>	47	2	0	0	0	0	49
20	Robinia	<i>Robinia spedeuocacia</i>	3	3	0	0	0	0	6
21	Sanjal	<i>Fraxinus xynthozeloides</i>	945	87	1	0	0	0	1033
22	Thangi	<i>Corylus Columa</i>	185	87	9	5	0	0	286
	Total Nos of trees at FRL		16848	3049	690	190	0	0	20777

  
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## Species-wise local /scientific names and girth-wise enumeration of trees at FRL -2 meter:

S. No	Local Name	Scientific Name	(0-30) cm	31-60 (cm)	61-90 (cm)	91 - 120 (cm)	121-150 (cm)	>150 (cm)	Total Nos.
1	Akhrot	<i>Juglans regia</i>	47	49	27	2	0	0	125
2	Ash/Shunu	<i>Fraxinus floribunda</i>	98	55	3	0	0	0	156
3	Badah/Willow	<i>Willow/Salix</i>	946	38	0	0	0	0	984
4	Bakharu	<i>Lonicera</i>	105	6	0	0	0	0	111
5	Bhujpatra	<i>Betula utilis</i>	1	3	0	0	0	0	4
6	Chilgoza	<i>Pinus gerardiana</i>	618	268	26	13	0	0	925
7	Deodar	<i>Cedrus deodara</i>	631	585	298	81	0	0	1595
8	Fir / Spruce	<i>Pecia simithiana morinda</i>	8	5	3	1	0	0	17
9	Goon	<i>H c natt</i>	468	422	107	41	0	0	1038
10	Jammu	<i>Prunus padus</i>	3	1	0	0	0	0	4
11	Kail	<i>Pinus wallichiana</i>	173	63	32	15	0	0	283
12	Kainth	<i>Pires pisia</i>	19	21	4	0	0	0	44
13	Khadak	<i>Cettris australice</i>	1024	517	54	6	0	0	1601
14	Killar	<i>Parrotis Jacquemontiana</i>	9704	35	1	0	0	0	9740
15	Mandar / Mapple	<i>Acer Caesium</i>	621	92	1	0	0	0	714
16	Maral	<i>Almus</i>	122	87	28	4	0	0	241
17	Poplar/Safeda	<i>populus alba</i>	37	20	1	0	0	0	58
18	Payakh	<i>alnus nitida / alder</i>	932	557	87	21	0	0	1597
19	Pingyath	<i>Crataegus</i>	47	2	0	0	0	0	49
20	Robinia	<i>Robinia spedeuocacia</i>	3	3	0	0	0	0	6
21	Sanjal	<i>Fraxinus xynthozeloides</i>	932	86	1	0	0	0	1019
22	Thangi	<i>Corylus Columna</i>	180	87	9	5	0	0	281
	Total Nos of trees at FRL -2 M		16719	3002	682	189	0	0	20592



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## Species-wise local /scientific names and girth-wise enumeration of trees at FRL -4 meter:

S. No.	Local Name	Scientific Name	(0-30) cm	31-60 (cm)	61-90 (cm)	91 - 120 (cm)	121-150 (cm)	>150 (cm)	Total Nos.
1	Akhrot	<i>Juglans regia</i>	47	49	26	2	0	0	124
2	Ash/Shunu	<i>Fraxinus floribunda</i>	96	55	2	0	0	0	153
3	Badah/Willow	<i>Willow/Salix</i>	933	36	0	0	0	0	969
4	Bakharu	<i>Lonicera</i>	105	6	0	0	0	0	111
5	Bhujpatra	<i>Betula utilis</i>	1	3	0	0	0	0	4
6	Chilgoza	<i>Pinus gerardiana</i>	608	263	26	13	0	0	910
7	Deodar	<i>Cedrus deodara</i>	608	572	290	80	0	0	1550
8	Fir / Spruce	<i>Pecia simithiana</i> <i>morinda</i>	8	5	3	1	0	0	17
9	Goon	<i>H c natt</i>	469	422	107	41	0	0	1039
10	Jammu	<i>Prunus padus</i>	3	1	0	0	0	0	4
11	Kail	<i>Pinus wallichiana</i>	164	60	32	14	0	0	270
12	Kainth	<i>Pires pisia</i>	19	21	4	0	0	0	44
13	Khadak	<i>Cettris australice</i>	1020	513	54	6	0	0	1593
14	Killar	<i>Parrotis</i> <i>Jacquemontiana</i>	9671	34	1	0	0	0	9706
15	Mandar / Mapple	<i>Acer Caesium</i>	618	92	1	0	0	0	711
16	Maral	<i>Almus</i>	122	87	28	4	0	0	241
17	Poplar/Safeda	<i>populus alba</i>	37	19	1	0	0	0	57
18	Payakh	<i>alnus nitida / alder</i>	920	549	86	20	0	0	1575
19	Pingyath	<i>Crataegus</i>	47	2	0	0	0	0	49
20	Robinia	<i>Robinia spedeuocacia</i>	3	3	0	0	0	0	6
21	Sanjal	<i>Fraxinus</i> <i>xynthozeloides</i>	910	82	1	0	0	0	993
22	Thangi	<i>Corylus Columna</i>	174	84	9	5	0	0	272
Total Nos of trees at FRL - 4 M			16583	2958	671	186	0	0	20398

  
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**Working plan prescription for the forest land proposed for diversion:**

The 500 MW Dugar Hydro Electric Project encompasses 211.842 ha of forest land to be diverted for construction of Hydro Power Project. The working plan prescription of the Forest Land proposed for diversion has been covered under Plantation Working Circle of Pangi Forest Division.

**(viii) Brief on vulnerability of the forest vulnerable are to the erosion:**

Government of Himachal Pradesh has policy on Catchment area treatment of the Basin where the project proponent is liable to pay 1.5% of the project cost towards the treatment of Catchment. As the Project is of greater capacity of 500 MW, the project would contribute enormous amount towards the same. Further, the project proponent would perform the Reservoir Rim Treatment which is a part of Environment Management Plan prepared by the Project proponent. A reservoir would be formed submerging 160.45 ha of land, the reservoir spread would be extending along the river Chenab up to approx. 10.3 km stretch, the maximum width of the reservoir at FRL of 2114 m is expected to be about 200 m. The reservoir rim area is sparsely vegetated and mostly inaccessible. The upper reaches of reservoir rim can be approached via Killar, Chamba and Punto roads. The geological mapping has been carried out with particular reference to reservoir competency aspects like

  
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landslides, permeable rock beds, presence of economic minerals etc. Lithologically, the reservoir is located in massive crystalline rocks of gneisses, micaceous quartzite and schist.

In general, the valley slopes are found to be stable. In the entire mapped area only one small landslide has been found along the Killar road, located on the left bank of Mahal nala and restricted to its slide slope at El. 2250 m i.e., about 160 m above the FRL (El. 2114m). This landslide at present is fairly stable and otherwise also has no implication of any kind whatsoever on the competency of the proposed reservoir.

Therefore, the stabilized rim post its treatment and the good rock profile of the valley would pose less challenge on vulnerable of Forest area to erosion.

(ix) Approximate distance of proposed site For diversion from boundary of forest (in km): 0.35 km

(x) Whether forms part of National park, Wildlife Sanctuary, biosphere reserve, tiger reserve, Elephant Corridor, etc. (If so, the details of area and comments of the chief Wildlife Warden to be annexed):

No

(xi) Whether any rare/endangered/unique species of flora and fauna found in the area? If so, details thereof:

No

(xii) Whether any projected archaeological / heritage Site/defence establishment or any other important Monument is located in the area? If so, the details thereof with NOC, from competent authority, if required:

No

8. Whether requirement of Forest Land as proposed by the user agency in col.2 of part-I is unavoidable and barest minimum for the project? If no, recommended area item-wise with details of alternative examined:

Yes

9. Whether any work in violation of the Act has been carried out? If yes, details of the same including period of work done, action taken on erring officials. Whether work in violation is still in progress:

No

*A. Devaris*  
Divisional Forest Officer  
Pangi Forest Division  
Killer 176323

## 10. Details of compensatory afforestation scheme:

(i) Details of non forest area / degraded forest area identified for compensatory afforestation. Its distance from adjoining forest, number of Patches, size of each patch.

SN	Division	Name of RF/PF	Range	Village	Name of Area	Area	Compartiment no	Survey no
1	Pangi	RF	Killar	Bindrabani	Chanchalperi	15.377	20	16/3
2	Pangi	RF	Killar	Bindrabani	Bindrabani	37.44	18	5
3	Pangi	PF	Killar	Kwas	Killar Dhar	11.06	4	855/817/331
4	Pangi	RF	Killar	Chilkot	Chilkot 1	15.915	7	13/3
5	Pangi	RF	Killar	RF Kanun	Kanun	20.10	2	7/1
6	Pangi	PF	Killar	Rusmus	Sural	21.28	3	475/451
7	Pangi	RF	Killar	RF Urnu	Urnu	6.76	3	9/3
8	Pangi	PF	Killar	Ghangeet	Shelli	2.65	5	397/1
9	Pangi	RF	Killar	RF Luj	Sansari	2.12	1	5/1
10	Pangi	PF	Killar	Luj	Bistow	7.30	1	338
11	Pangi	PF	Killar	Chacherwas	Rogy	25.70	4	178
12	Pangi	RF	Killar	Chilkot	Chilkot 2	27.35	7	13/3
13	Pangi	PF	Killar	Tundroo	Shinkal Dhar1	13.36	7	298/252
14	Pangi	PF	Killar	Dhar Shinkal	Shinkal Dhar2	8.99	2	1
15	Pangi	PF	Saach	Sach	Sach Chauri 1	6.912	3	242
16	Pangi	PF	Saach	Sach	Sach Chauri 2	15.93	3	242
17	Pangi	RF	Killar	RF Chhatwani	Chhatwani	26.89	4	26/11
18	Pangi	PF	Killar	Ghangeet	Sheli DPF	9.46	5	361/38
19	Pangi	RF	Killar	Sidh Ka Dera	Sidh ka dera	38.98	5	6/4 & 7/4
20	Pangi	RF	Killar	RF Luj	Mehrote	89.71	1	4/1
21	Pangi	DPF	Killar	DPF Pinccho	Pinccho	20.40	1	2
					Total	423.684		

(ii) Map showing Non-forest / degraded forest area identified for compensatory afforestation and adjoining forest boundaries:

Attached at Page 143 to 157

  
 Divisional Forest Officer  
 Pangi Forest Division  
 Killar 176323

(iii) Details compensatory afforestation scheme including species to be planted, implementing agency time schedule, cost structure etc.

Attached at Page 158 to 161

(iv) Total financial outlay for compensatory Afforestation scheme.

Attached at Page\_160 (i) & 160 (ii)

(v) Certificate from Competent authority regarding Suitability of area identified for compensatory afforestation and from management point of view. (to be signed by the concerned Deputy Conservator of forest).

Attached at Page 164

11. Site inspection report of the DCF (to be enclosed) especially High-lighting facts asked in Col. 7(ix,xii), 8 and 9 above:

Attached at Page 141

## 12. Division / District profile:

(i) Geographical area of the district. Division =1503 Sq. Km.

District =6522 Sq Km

(ii) Forest area of District. Division =1103 Sq. Km

District = 2437 Sq. Km

(iii) Total forest area diverted since 1980 with number of cases:

18 nos. Cases. 99.5423 ha

(iv) Total compensatory afforestation stipulated in the District/ division since 1980 up till now

(a) Forest land including penal compensatory Afforestation: 251 738 Hact

(b) Non forest land.

  
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Pangi Forest Division  
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(v) Progress of compensatory afforestation as on (date) up to 31-03-2021.

(a) Forest land.	251.738 Hact.
(b) Non-forest land:	NIL

**13. Specific recommendation of the DCF for acceptance or otherwise of the proposal**  
**With reason:**

Recommended in the interest of local inhabitants of Pangi Valley, State and Nation.

However 3929 Nos of trees above 30 cm at FRL of different species and class are involved. But the Compensatory Afforestation  $211.842 \times 2 = 423.68$  ha is proposed amounting to Rs. 12,34,00,104/- (Rupees Twelve crore Thirty Four lac One hundred Four only) as well as the Net Present Value amounting to Rs. 31,61,52,808/- (Rupees Thirty One Crore Sixty One lac Fifty Two thousand and Eight hundred Eight only) is calculated.

Place: *Chamba.*

Date: *29-04-2022.*

*[Signature]*  
 Divisional Forest Officer,  
 Pangi Forest Division, Killar.  
 Divisional Forest Officer  
 Pangi Forest Division  
 KILLAR

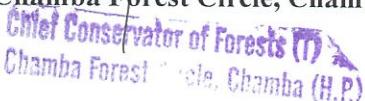
**PART – III**  
**( To be filled by the concerned Conservator of Forest )**

**Diversion of 211.8427 hectare of forest land for the construction of Dugar 500 MW Hydro Electric Project in favour of NHPC, within jurisdiction of Pangi Forest Division, District Chamba.**

S. No.	Particular	Report of C.C.F.
14.	Whether site, where the forest land is located has been inspected by the concerned Conservator of Forest ? If yes, the date of inspection and observation made, form of inspection note to be enclosed	Yes. From 22 <sup>nd</sup> to 24 <sup>th</sup> of March-2022 Detailed report of site inspection is at page No. 26(A)
15.	Whether the concerned Conservator of Forest agrees with the information give in Part-II and recommendations of the Deputy Conservator of Forest.	Yes.
16.	Specific recommendation of concerned Conservator of Forest for acceptance or otherwise of the proposal with detailed reasons.	Recommended for approval please.

Place: Chamba (HP)

Dated: 28.03.2022

  
**Chief Conservator of Forests,  
Chamba Forest Circle, Chamba (HP)**  
  
**Conservator of Forests (M)  
Chamba Forest Circle, Chamba (H.P.)**

Name of Proposal: Diversion of 211.8427 hectare of forest land for the construction of Dugar 500 MW Hydro Electric Project in favour of NHPC, within jurisdiction of Pangi Forest Division, District Chamba.

**SITE INSPECTION REPORT OF BY Sh. H.K. SARWATA, IFS,  
CHIEF CONSERVATOR OF FORESTS, (T) CHAMBA.**

A proposal has been received in this office from NHPC Limited, through Divisional Forest Officer, Pangi for the Diversion of 211.8427 hectare of forest land for the construction of Dugar 500MW Hydro Electric Project in favour of NHPC, within jurisdiction of Pangi Forest Division, District Chamba H.P.

The site inspection of the land involved in the proposal has been carried out by me along with DFO Pangi & field staff of Pangi Forest Division and General Manager ( HOP) along with staff NHPC from 22<sup>nd</sup> to 24<sup>th</sup> March-2022

During site inspection, it was found that this is a site specific project and to reduce the forest land i.e. 211.8427 hectare as proposed in this proposal is minimum and unavoidable for this project.

The user agency has proposed three quarry sites involving 8.625 hectare forest land which is minimum as per project's requirement. The geological report for stability of land has been obtained by the user agency and was shown to me during inspection, which was found correct.

Most of the muck generated will be used by the user agency in the construction activities. For the remaining muck, the user agency has proposed a single dumping site having 8.5797 hectare of forest land. The muck dumping site was inspected by the undersigned and the muck management plan was found correct as attached with proposal.

In the proposal 20777 number of trees ( above 10Cm Dia) and 3929 number of trees (above 30Cm dia) of various species and classes are found enumerated up to FRL, which includes 1525 trees ( above 10Cm dia ) and 296 trees ( above 30cm dia) over the dumping site. The sample checking for correctness of species and dia classes was checked by the undersigned along with enumeration list attached with the proposal. The enumeration list and marking was found correct. It was also found that the number of trees proposed to be felled are minimum and unavoidable.

*Keeping in view all the above circumstances, the case is recommended for approval.*

Place:- Chamba  
Date:-28.03.2022

Name : H.K. Sarwata IFS  
Designation : CCF (T) Chamba.  
Office Seal

Chief Conservator of Forests (T)  
Chamba Forest Circle, Chamba (H.P.)

## Dugar HEP (500MW) Site Inspection by CCF, Chamba

26(B)



**Site Inspection on 23-03-2022 by CCF, Chamba - Rock Quarry**

**Site DRQ- 1 & Reservoir**



**Site Inspection on 24-03-2022 by CCF, Chamba -Site: Dam, Power House & Approach Road**

Component wise land breakup and Trees affected						
Sl. No.	Component	Forest Land (ha)	Non-Forest Land (ha)	Area (in ha)	Nos. of Trees affected >10 cm	Nos. of Trees affected >30 cm
1	Submergence including River Area	160.45	0	160.45	6511	1773
2	Dam	5.83	0	5.83	1437	249
3	Approach Roads	8.168	0	8.168	7898	1220
4	Quarry Area	8.625	0	8.625	45	30
5	Borrow Area	3.88	0	3.88	0	0
6	Muck Dumping Area	8.5797	0	8.5797	1525	296
7	Job Facility Area	7.08	0	7.08	3361	361
8	Construction Facility Area	0	6.62	6.62		
9	Owner / Developer Colony including Permanent & Temporary establishments excluding Administrative Building / Offices	0	1.98	1.98		
10	Owner's Office	0	0.18	0.18		
11	Power House	3.64	0	3.64	0	0
12	HRT	0.4	0	0.4	0	0
13	TRT	1.81	0	1.81	0	0
14	TRT Outfall	0.74	0	0.74	0	0
15	Diversion Tunnel	1.84	0	1.84	0	0
16	MAT	0.8	0	0.8	0	0
	Total	211.8427	8.78			
	Grand Total	220.6227			20777	3929

  
 Divisional Forest Officer  
 Pangi Forest Division  
 Kilar 176323

  
 नगरपालिका  
 General Manager  
 डुगर जल विधुत उत्पादन  
 Dugar Hydro Electric Project  
 नगरपालिका नगर (पंजाब) - 175121  
 Nagarpalika, Nager (Punjab) - 175121

## Section

### 10.2.5

## MUCK MANAGEMENT PLAN

#### 10.2.5 MUCK MANAGEMENT PLAN

The construction would involve about 3,70,880 cum of soil excavation and 9,23,970 cum of rock excavation. About 60% of rock excavation is expected to be used for producing coarse and fine aggregate for concrete production and in fillings for developing areas for construction facilities. The total quantity of excavation in common soil and balance quantity of rock excavation would have to be disposed of in 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 **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	923270
2	Less Used in Production of Aggregates (Cum)		553962
3	Balance to be Deposited (Cum)	318412	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
	<b>Total muck to be disposed of (Cum)</b>	<b>716676</b>	

Muck dumping plan involves careful 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, 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 Statndard 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.

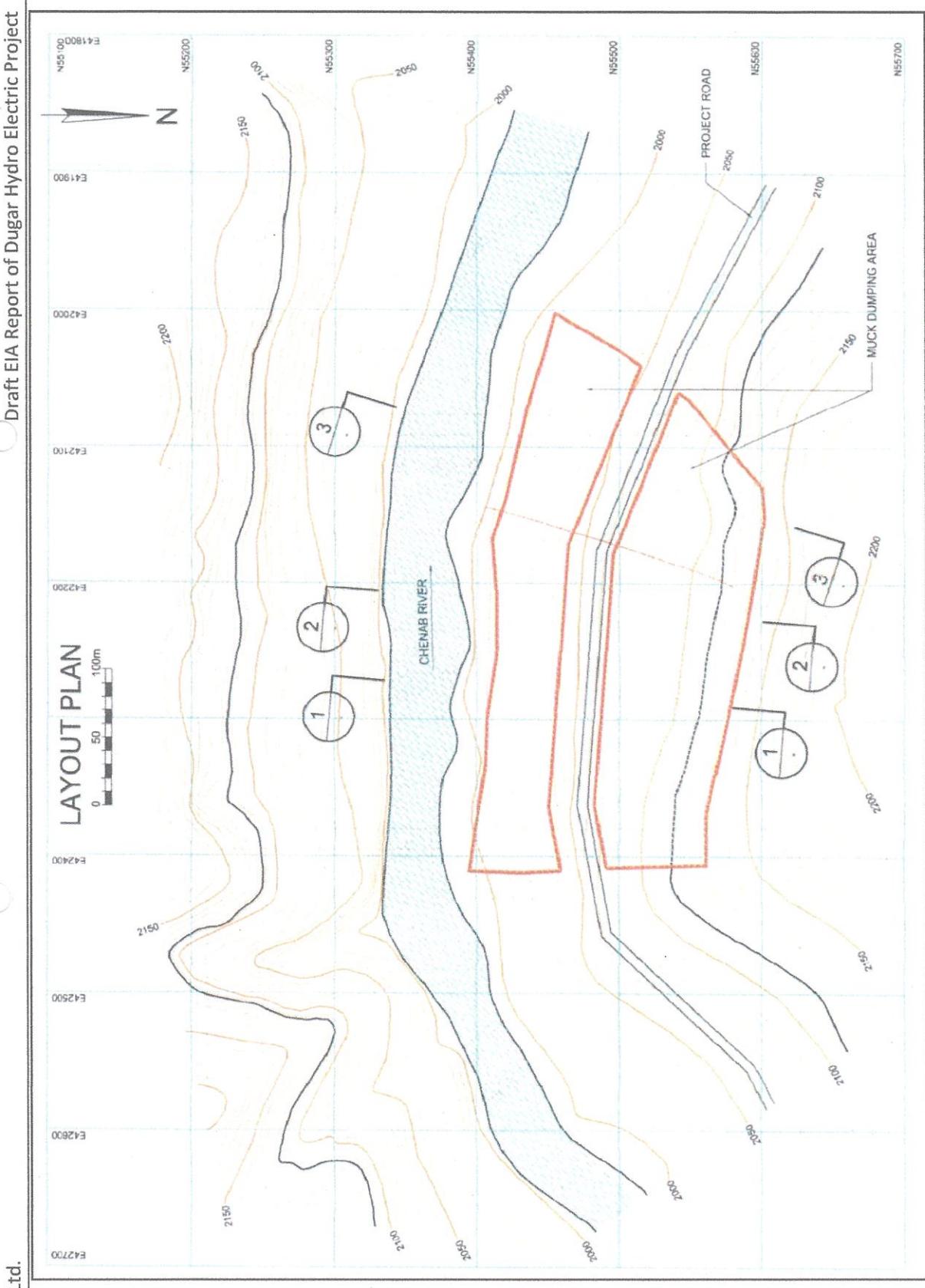


Figure 10.10: Layout of Muck Disposal area

### **10.2.5.2 Preparation of Muck Dumping Site**

The muck that needs disposal would be piled at  $\phi$  (angle of repose) between  $30^\circ$  and  $36^\circ$  at the proposed dumping sites. For this, the slopes would be broken up by creating benches across the slope. This will be done to provide stability to the slopes and to provide ample space for planting trees, which would further help in holding and consolidating the material stacked at different sites. The description regarding the stabilization of the stacked material along the proposed roads has been discussed in the following paragraphs.

The dumping of muck shall be done in stages by allowing it to consolidate/settle through the monsoon, compacting the dumped muck with Bulldozer movement. The zoning of the dump will be done judiciously to ensure the stability of the  $30^\circ$  slope under all superimposed conditions.

### **10.2.5.3 Methodology of Dumping**

The main objectives of the process of muck dumping and restoration of the muck disposal site are:

- to protect and control soil erosion.
- to create greenery in and around the muck disposal area.
- to improve and develop the site into a recreational site, if feasible.
- to ensure maximum utilization of muck for construction purposes.
- to develop the muck disposal sites/ dumping yards to blend with the surrounding landscape; and
- to minimise damages due to the spoilage of muck in the project area.

#### **10.2.5.3.1 Transportation of Muck**

The generated muck will be carried in dumper trucks covered with heavy-duty tarpaulin properly tied to the vehicle in line with international best practices. All precautionary measures will be followed during the dumping of muck. All dumpers will be well maintained to avoid any chances of loose material/soil falling during the transportation. All routes will be periodically wetted with the help of sprinklers before the movement of dump trucks. Dumping would be avoided during the high-speed wind, so that suspended particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) levels could be kept under check. For this SPM levels need to be monitored during transportation. Further, dumping will be avoided if there is heavy traffic in the area. After the dumping, the surface of dumps will be sprayed with water with the help of sprinklers and then compacted.

The cycle time of 20T Rear Dumpers for loading and transportation of muck is given below.

**Cycle time of 20 T Rear Dumper is as follows:**

Activity	Time taken (min.)
Spotting time	1.0
Loading time	6.7
Transportation @ 20 kmph for 3.5 km	10.5
Unloading	1.0
Return @ 25 kmph	8.4
<b>Total</b>	<b>27.6</b>

constructed along the river would be more than 1000 running meters. The height of these retaining walls including MSE wall panels will be approximately 10 m.

The retaining wall shall comprise 100 m thick PCC M10 base, RR Masonry blocks embedded in cement concrete (M10), and pressure relief holes at an angle of 50 for 1000 cc of discharge/drain holes of 50 cm provided for drainage.

#### **10.2.5.3.3 Compaction**

Compaction is an engineering measure, which would reduce bulk density of the muck thereby optimising the use of muck disposal area and would make it suitable for the plantation and other biological measures. The top surface would be leveled and graded to make the alternative use. The muck will be spread in layers of 500-700 mm thick layers. The top surface would be leveled and graded to make the alternative use. On top, a layer of soil would be spread to make the land suitable for plantation. The total cost for the process of compaction is **Rs. 50.00 lakh**.

The total financial outlay for the retaining walls and compaction is **Rs.605.27 lakh**, and the breakup is given in **Table 10.20**.

**Table 10.20: Estimated Cost of retaining walls construction**

S. No.	Particular	Volume (cum)	Rate in Rs. per cum	Amount (Rs. in lakh)
1	Earthwork for foundation	20000	712	142.40
2	Cement concrete for retaining wall (M15)	2000	5332	106.64
3	R.R. Masonry (1:6)	4400	4529	199.27
4	Stone filled wire crates	4000	2674	109.96
5	Compacting and land leveling, etc.	Lumpsum	--	50.00
	<b>Total</b>			<b>605.27</b>

#### **10.2.5.3.4 Fencing**

After rehabilitation of muck, the dumping areas need protection for some time from disturbing by human and domestic animals. For this reason, fencing over the muck deposits is required. Barbed wire strands with two diagonal strands, clamped to wooden/ concrete posts placed at a 3m distance are proposed around the dumping piles. Project authorities will establish temporary wind barriers around 3 sides of dumps in nearby settlement areas.

#### **10.2.5.3.5 Biological Measures**

Vegetation cover controls the hydrological and mechanical effects on soils and slopes. Therefore, biological measures to stabilize the loose slope are essential. Top surfaces and slopes of all dumping areas would be left with a total area of about 8.58 ha. These areas will be treated for plantation. To implement the biological measures in dumping areas the following activities would be considered. The biological measures include the following:

## PART - IV

(To be filled in by the Nodal Officer or Principal Chief Conservator of Forests or Head of Forest department)

17	Detailed opinion and specific recommendation of the State Forest Department for acceptance of otherwise of the proposal with remarks. (While giving opinion, the adverse comments made by concerned Conservator of Forests or Deputy Conservator of Forests should be Categorically reviewed and critically commented upon).	
----	---	--

Dated:

Place:

Signature

Name

Office Seal:

## PART – V

(To be filled in by the Secretary in charge of Forest Department or by any other authorized Office of the State Government not below the rank of an Under Secretary)

18	<p>Recommendation of the State Government:</p> <p>(Adverse comments made by any officer or authority in Part-B or Part-C or Part-D above should be specifically commented upon)</p>	
----	---	--

Dated:

Place:

Signature

Name

Office Seal:

PART-II

(To be filled by the concerned Deputy Conservator of Forest)



State Serial No. of proposal : HP-092/2021

## 1. Location of the project/Scheme : Himachal Pradesh

- (i) State / Union Territory : Himachal Pradesh
- (ii) District : Chamba
- (iii) Forest Division : Pangi
- (iv) Area of forest land proposed for diversion (in ha.) : 211.8427
- (v) Category of the Proposal: Hydel

## 2. Legal status of forest land proposed for diversion :

S. No.	Division	Forest Land(ha.)	Legal Status
1	Pangi	2.4	River
2	Pangi	127.75	Reserved Forest
3	Pangi	81.69	Protected Forest
<b>Total</b>		<b>211.84</b>	

Division 1. : Pangi

## 3. District wise area to be diverted in the division :

S. No.	District	Area(ha.)
1	Chamba	211.8427
	<b>Total</b>	<b>211.8427</b>

## 4. Details of Vegetation available in the forest land proposed for diversion :

## (i) Density of vegetation

S. 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



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Total.		211.84						
(ii) Species-wise local/scientific names and girth-wise enumeration of trees at FRL :								
S. No.	Scientific Name	Local Name	(0-30)cm.	(31-60)cm.	(61-90)cm.	(91-120)cm.	(121-150)cm.	(>150)cm.
1	Others	Ash/Shanu/fraxinus floribunda	98	55	3	0	0	0
2	Others	Badah /Willow / Salix spp	956	40	0	0	0	0
3	Others	Bakharu / Lonicera	105	6	0	0	0	0
4	Others	Bhojpatra / Betula utula D. don	1	3	0	0	0	0
5	Others	Chilgoza / Pinus giardina	626	272	27	13	0	0
6	Others	Devdara / Cedurus devdara	652	596	300	82	0	0
7	Others	Fir / spruce / Picea samithiana morinda	8	5	3	1	0	0
8	Others	Goon / HC Nut	469	423	107	41	0	0
9	Others	Jammu / Prunus padus	3	1	0	0	0	0
10	Others	Kail / Pinus wallichiana	182	64	33	15	0	0
11	Others	Kainth / Pyrus pisia	19	21	4	0	0	0
12	Others	Khadak / Cetris australis	1038	525	55	6	0	0
13	Others	Killar / Parrotis jacquemontiana	9724	36	1	0	0	0
14	Others	Mandar / Mapple / acer caesium	626	95	1	0	0	0
15	Others	Almus / Maral	125	89	28	4	0	0
16	Populus spp	Safeda / Popular	38	21	1	0	0	0
17	Others	Payakh / Alnus nitida / alder	951	568	89	21	0	0
18	Others	Pingyath / Crataegus	47	2	0	0	0	0
19	Others	Robinia spedeuocacia	3	3	0	0	0	0
20	Others	Sanjal / Fraxinus xynthozeloides	945	87	1	0	0	0
21	Others	Thangi / Corylus columa	185	87	9	5	0	0
22	Juglans regia	Akhrot	47	50	28	2	0	0
Total			16848	3049	690	190	0	0
Sub Total (No of Trees.)						20777		

(iii) Species-wise local/scientific names and girth-wise enumeration of trees at FRL-2 meter :

S. No.	Scientific Name	Local Name	(0-30)cm.	(31-60)cm.	(61-90)cm.	(91-120)cm.	(121-150)cm.	(>150)cm.
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1	Juglans regia	Akhrot	47	49	27	2	0	0
2	Others	Ash/Shunu / Fraxinus floribunda	98	55	3	0	0	0
3	Others	Badah/Willow / Willow/Salix	946	38	0	0	0	0
4	Others	Bakharu / Lonicera	105	6	0	0	0	0
5	Others	Bhojpatra / Betula utelis	1	3	0	0	0	0
6	Others	Chilgoza / Pinus gerardiana	618	268	26	13	0	0
7	Others	Deodar / Cedrus deodara	631	585	298	81	0	0
8	Others	Fir / Spruce / Pecia simithiana morinda	8	5	3	1	0	0
9	Others	Goon / H c natt	468	422	107	41	0	0
10	Others	Jammu / Prunus padus	3	1	0	0	0	0
11	Others	Kail / Pinus wallichiana	173	63	32	15	0	0
12	Others	Kainth / Pires pisia	19	21	4	0	0	0
13	Others	Khadak / Citrus australis	1024	517	54	6	0	0
14	Others	Killar / Parrotis jacquemontiana	9704	35	1	0	0	0
15	Others	Mandar /Maple acer caesium	621	92	1	0	0	0
16	Others	Maral / Almus	122	87	28	4	0	0
17	Populus spp	Polular / safeda	37	20	1	0	0	0
18	Others	Payakh / alnus nitida / alder	932	557	87	21	0	0
19	Others	Pingyath/ Crataegus	47	2	0	0	0	0
20	Others	Robinia / Robinia spedeuocacia	3	3	0	0	0	0
21	Others	Sanjal / Fraxinus xynthozeloides	932	86	1	0	0	0
22	Others	Thangi / Corylus Columa	180	87	9	5	0	0
Total			16719	3002	682	189	0	0
Sub Total (No of Trees.)			20592					

(iv) Species-wise local/scientific names and girth-wise enumeration of trees at FRL-4 meter :

S. No.	Scientific Name	Local Name	(0-30)cm.	(31-60)cm.	(61-90)cm.	(91-120)cm.	(121-150)cm.	(>150)cm.
1	Juglans regia	Akhrot	47	49	26	2	0	0
2	Others	Ash/Shunu Fraxinus floribunda	96	55	2	0	0	0
3	Others	Badah/Willow	933	36	0	0	0	0

		Willow/Salix					
4	Others	Bakharu Lonicera	105	6	0	0	0
5	Others	Bhujpatra Betula utilis	1	3	0	0	0
6	Others	Chilgoza Pinus gerardiana	608	263	26	13	0
7	Others	Deodar Cedrus deodara	608	572	290	80	0
8	Others	Fir / Spruce Pecia simithiana morinda	8	5	3	1	0
9	Others	Goon H c natt	469	422	107	41	0
10	Others	Kail Pinus wallichiana	164	60	32	14	0
11	Others	Kainth Pires pisia	19	21	4	0	0
12	Others	Khadak Cettris australice	1020	513	54	6	0
13	Others	Killar Parrotis Jacquemontiana	9671	34	1	0	0
14	Others	Mandar / Mapple Acer Caesium	618	92	1	0	0
15	Others	Maral Almus	122	87	28	4	0
16	Populus spp	Poplar/Safeda populus alba	37	19	1	0	0
17	Others	Payakh alnus nitida / alder	920	549	86	20	0
18	Others	Pingyath Crataegus	47	2	0	0	0
19	Others	Robinia Robinia spedeuocacia	3	3	0	0	0
20	Others	Sanjal Fraxinus xynthozeloides	910	82	1	0	0
21	Others	Thangi Corylus Columa	174	84	9	5	0
22	Others	Jammu Prunus padus	3	1	0	0	0
<b>Total</b>		<b>16583</b>	<b>2958</b>	<b>671</b>	<b>186</b>	<b>0</b>	<b>0</b>
<b>Sub Total (No of Trees.)</b>		<b>20398</b>					

5. Working plan prescription for the forest land proposed for diversion :

The 500 MW Dugar Hydro Electric Project encompasses 211.842 ha of forest land to be diverted for construction of Hydro Power Project. The working plan prescription of the Forest Land proposed for diversion has been covered under Plantation Working Circle of Pangi Forest Division.

6. Brief note on vulnerability of the forest area to erosion :

The project is required to spent 1.5% of the project cost towards Catchment Area Treatment Plan. The project is also required to perform the Reservoir Rim Treatment Plan as per EIA

7. Approximate distance of the proposed site for diversion from boundary of forest(in km.) : 0.35

8. Significance of the forest land proposed for diversion from wildlife point of view :

(i). Details of wildlife present in and around the forest land proposed for diversion :  
Fox, Bear

(ii).

Whether forms part of national park, wildlife sanctuary, biosphere reserve, tiger reserve, elephant corridor, wildlife migration corridor etc. : No

(iii). Whether the forest land proposed for diversion is located within eco-sensitive zone(ESZ) of the Protected Area notified under Wildlife(Protection) Act,1972  
(Note: In case, ESZ of a Protected Area is not notified,then, 10kms distance from boundary of the Protected Area should be treated as ESZ): No

(iv). Whether any national park, wildlife sanctuary, biosphere reserve, tiger reserve, elephant corridor, wildlife migration corridor etc., is located within 1 Km. from boundary of the forest land proposed for diversion : No

(v). Whether any rare/endangered/unique species of flora and fauna found in the area : No

9.

Details of any protected archaeological/heritage site/defence establishment or any other important monument located in the area, if any :

(i). Whether any protected archaeological/heritage site/defence establishment or any other important monument is located in the area : No

10. Comment as to the reasonability of the extent of the forest land proposed for diversion :

(i). Whether the requirement of forest land as proposed by the user agency is unavoidable and bare minimum for the project : Yes

11. Details of violation(s), if any ,committed :

(i). Whether any work in violation of the Act or guidelines issued under the Act has been carried out : No

12. Whether work in violation is still in progres(Yes/No) : No Data

13. Details of compensatory afforestation scheme :

(i). Patch wise details for Degraded Area (To be earmarked by DFO)  
(ii). Total Financial Outlay for C.A(lacs): 1234.00

Patch Wise Details						
S.no	Patch No.	Area(ha.)	Name of PF/RF	Range	Compartment No	Uploaded KML file of patch
1	2	11.06	Killar Dhar	Killar	4	 <a href="#">View file</a>
2	6	22.35	Shinkal Dhar 1&2	Killar	7, 2	 <a href="#">View file</a>
3	7	52.59	Rogy Chatwani	Killar	4	 <a href="#">View file</a>
4	1	38.98	Sidh ka dera	Killar	5	 <a href="#">View file</a>
5	3	43.265	Chilkot	Killar	7	 <a href="#">View file</a>
6	4	12.11	Sheli	Killar	5	 <a href="#">View file</a>
7	12	20.10	Kanun	Killar	2	 <a href="#">View file</a>
8	13	21.28	Sural	Killar	3	 <a href="#">View file</a>
9	5	99.13	Sansari Bishtow Mehrote	Killar	1	 <a href="#">View file</a>
10	8	27.16	Urnu Pinccho	Killar	3 7 1	 <a href="#">View file</a>
11	9	22.842	Sach Chauri 1& 2	Saach	3	 <a href="#">View file</a>
12	10	15.377	Chanchalperi	Killar	20	 <a href="#">View file</a>

  
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13	11	37.44	Bindrabani	Killar	18		<a href="#">View file</a>
(ii). Copy of CA scheme details: 							
(iii). Scanned copy of the Geo-referenced map of the forest land proposed for C.A. prepared by using DGPS or Total Station: 							
(iv). Copy of Survey of India Toposheet indicating boundary of forest land proposed for C.A.: 							
(V). Copy of NOC from Competent Authority : 							
Additional information Details :							
S. No.	Documents	Remarks					
1		Compensatory Afforestation Scheme					
2		Land Suitability Certificate for CA					
3		Site Inspection Report					
4		Certificate no alternative Non Forest land available for implementation of the project					
5		NPV of forest land					
6		Brief Note on Vulnerability of Forest area to erosion					
7		No alternative Non Forest land available for the Compensatory Afforestation					
8		Recommendation of DFO					
9		tree enumeration list					
10		Working Plan Prescription					
11		Revenue records of forest land					
12		Check List of Proposal					
13		Joint Inspection Report					
14		Endorsement of reply letter submitted by User agency to the observations of CCF, Chamba.					
15		Part-II					
16		Endorsement of reply letter submitted by user agency to the observations of CCF, Chamba					

## 14. District Profile :

S.no	District Name	Geographical area of the district (in ha.)	Forest area of the district (in ha.)	Total forest area diverted since 1980 (in ha.)	No. of Approved Cases	Forest Land including penal C.A. (in ha.)	Progress of compensatory afforestation as on(date)	A) Forest land (in ha.)	B) Non-forest land (in ha.)
1	Chamba	652200	243700	99.5423	18	251.738	31/03/2021	251.738	0

## 15. Site inspection report of the DFO/CCF/Nodal Officer highlighting important facts pertaining to the forest land :

Division Name	Circle	Site inspected By	Whether site inspected	No. of times site visited	Site inspection report	Date of visit
Pangi	Chamba	DFO	Yes	One		18/08/2021

  
 Divisional Forest Officer  
 Pangi Forest Division  
 KILLAR

Chamba	CF	Yes	One		22/03/2022
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## (Specific recommendation of the DFO/CCF/Nodal Officer with(Part II,III &amp; Part IV))

16. Specific recommendation of the DFO/CCF/Nodal Officer for acceptance or otherwise of the proposal with reason :

Division	Circle	Recommendation By	Recommendation	Reason	Letter	Whether CF agreed
Pangi	Chamba	DFO	Recommended	Recommended in the interest of local inhabitants of Pangi Valley, State and Nation. However 3929 Nos of trees above 30 cm at FRL of different species and class are involved. But the Compensatory Afforestation 211.842 x 2 423.68 ha is proposed amounting to Rs. 6,20,58,797/ Rupees Six crore Twenty lac fifty Eight thousand Seven hundred Ninety Seven only as well as the Net Present Value amounting to Rs. 20,66,35,822/ Rupees Twenty Crore Sixty Six lac Thirty Five thousand and Eight hundred Twenty Two only is calculated.		
	Chamba	CF	Recommended	Recommended for approval please.		Yes

Print page



Divisional Forest Officer  
Pangi Forest Division  
KILLAR

## SHORT NARRATIVE OF THE PROPOSAL AND PROJECT/SCHEME FOR WHICH FOREST LAND IS REQUIRED

Government of Himachal Pradesh (GoHP) has signed Memorandum of Understanding (MoU) with NHPC Limited on 25<sup>th</sup> September 2019 for the implementation of Dugar Hydroelectric Project on Build Own Operate & Transfer Basis (BOOT) for a period of 70 years including DPR and pre construction periods. The project is proposed on Chenab River and is located in the Pangi Valley (killar) which is remote area of Chamba district of Himachal Pradesh. This project has been envisaged as Run of River scheme with underground Power House.

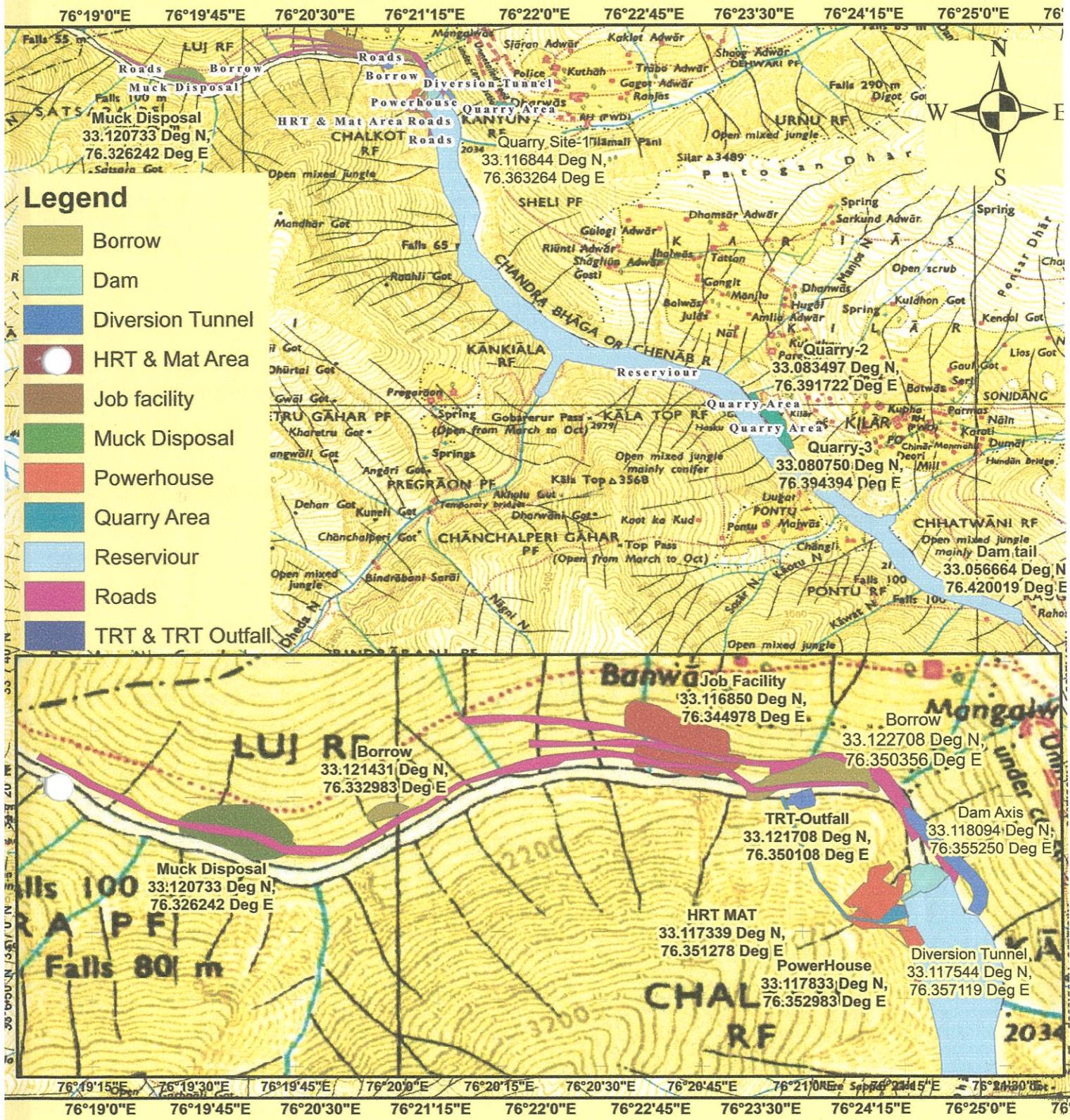
The Dugar Hydro Electric Project (500 MW) is envisaged as a run-of-river scheme for utilizing the flows of Chenab River to harness the head created by constructing a 128 m high (from deepest foundation) dam near Luj village with FRL of EL 2114.00 masl and the proposed underground power house located on the left bank of Chenab River just downstream of dam. It is a medium head scheme with rated net head of 91.21 m having Full Reservoir Level (FRL) and Minimum Draw Down Level (MDDL) as 2114.00 masl and 2102.35 masl respectively. It is essentially a run-of river scheme with diurnal storage for generation of electricity. The project comprises of a 128 m high concrete gravity dam (from deepest foundation level), 2 Nos. underground circular pressure shafts of length 270 m and 307 m. Each pressure shaft is bifurcated upstream of the unit valves. An underground power house is envisaged followed by a tailrace surge chamber and two tail race tunnels of finished diameter as 7.8 m. The tail race tunnels, located on the left bank of the Chenab River, are discharging back into Chenab River at a distance of about 725 m downstream of dam axis with normal tail water level as 2015.00 masl (under normal operating condition) and minimum tail water level as 2012.26 masl.

An underground Power House cavern, housing 4 units of 103 MW each, is envisaged along with a d/s Surge Chamber & u/s Transformer Cavern & a Tail Race Tunnel. To harness the environmental flow during lean season and non-lean non-monsoon season three units each of 44 MW are housed in the power house cavern. Therefore the total capacity of plant shall be 500 MW (412 + 88 MW).

The main components of the project are:

- A 128 m high concrete gravity dam (from the deepest foundation level) located on River Chenab at Latitude N 33° 07' 05" and longitude E 76° 21' 20.7".
- Two numbers main intakes and one intake for auxiliary power house located at the left bank.
- Two numbers main pressure shafts and one pressure shaft for auxiliary power house.
- Underground cavern housing four number main units of 103 MW each and two units of 44 MW each for auxiliary power house.
- Transformer Cavern located upstream of power house cavern.
- Four number main TRTs having Surge Chamber at the upstream end and one TRT for auxiliary power house discharging downstream of dam.

## TOPOSHEET - PROJECT COMPONENTS.

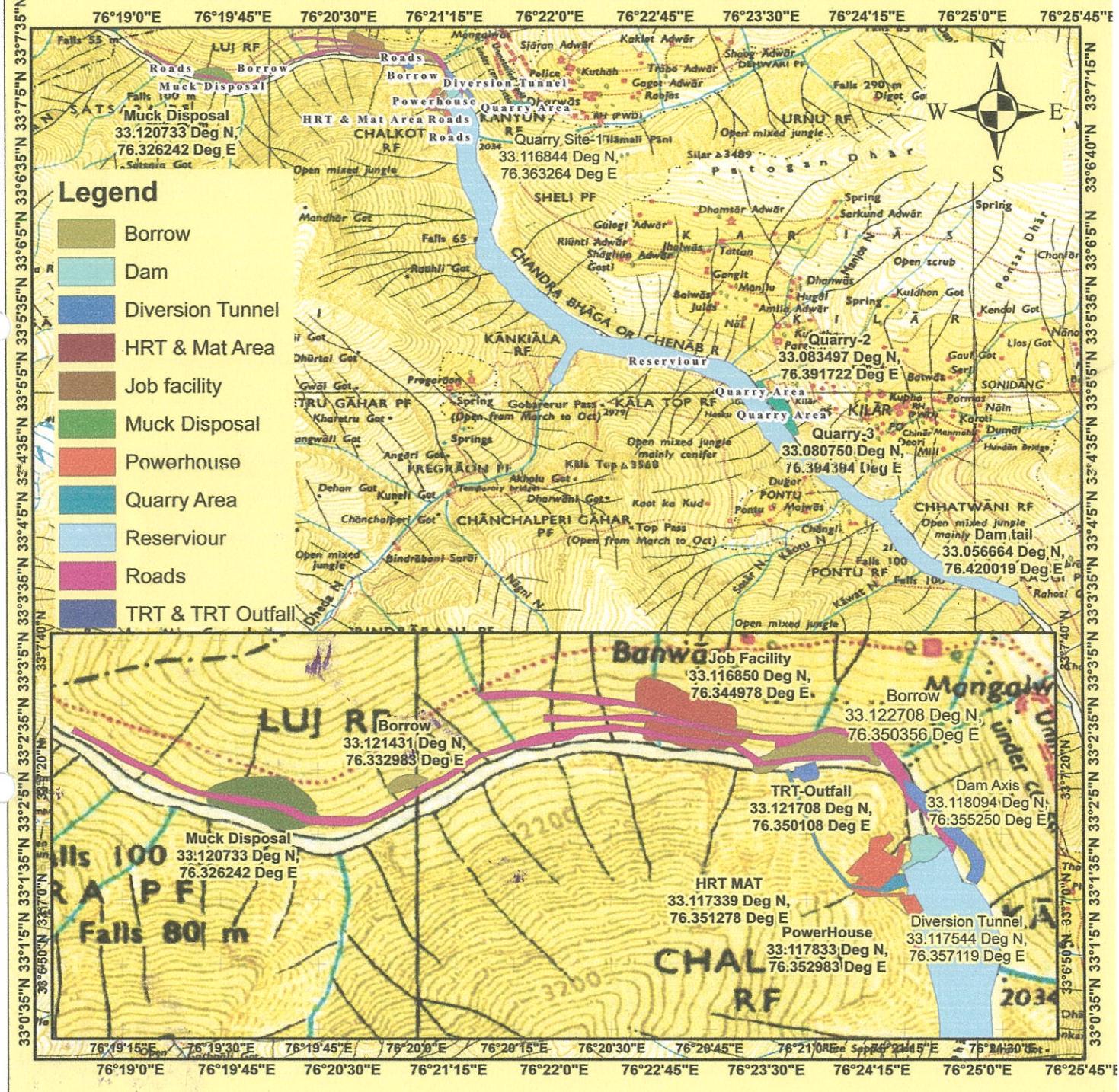
Dugar HEP (500 MW) Chamba District, Himachal Pradesh  
Project Components Overlaid over Toposheet 52 C/8

*D. J. Lewis*  
Divisional Forest Officer  
Pangi Forest Division  
Kilar 176323

*B. K. B.*  
महाप्रबंधक  
General Manager  
डुगर जल परियोजना  
Dugar Hydro Electric Project  
नगवाई, पिंजी, चम्बा 176323  
Nagwain, Distt. Chamba, H.P. 176323

## DIGITAL MAP - PROJECT COMPONENTS.

## Dugar HEP (500 MW) Chamba District, Himachal Pradesh Project Components Overlaid over Toposheet 52 C/8



Divisional Forest Officer  
Pangi Forest Division  
Kitter 176323

महाप्रबंधक  
General Manager  
दुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगवाई, जिला मांडी (H.P.)-175121  
Nagwain, Distt. Mandi (H.P.)-175121

## Borrow Area

## DAM Area

S.NO	EASTING	NORTHING	LAT	LONG	S.NO	EASTING	NORTHING	LAT	LONG
<b>AREA-A</b>									
1	624281.843	3665646.042	33,7,20.64	76,19,55.952	1	626330.289	3665172.496	33,7,4.414	76,21,14.746
2	624302.795	3665639.511	33,7,20.419	76,19,56.758	2	626401.371	3665219.470	33,7,5.91	76,21,17.511
3	624325.549	3665647.220	33,7,20.66	76,19,57.639	3	626405.092	3665213.839	33,7,5.725	76,21,17.652
4	624403.994	3665673.959	33,7,21.495	76,20,0.679	4	626417.406	3665213.705	33,7,5.716	76,21,18.127
5	624364.329	3665676.129	33,7,21.582	76,19,59.15	5	626421.578	3665216.462	33,7,5.803	76,21,18.289
6	624348.053	3665683.755	33,7,21.836	76,19,58.525	6	626433.231	3665217.331	33,7,5.827	76,21,18.739
7	624330.153	3665683.104	33,7,21.823	76,19,57.834	7	626466.935	3665239.604	33,7,6.536	76,21,20.051
8	624302.552	3665665.187	33,7,21.252	76,19,56.761	8	626470.980	3665251.986	33,7,6.936	76,21,20.213
<b>AREA-B</b>									
9	625743.524	3665648.891	33,7,20.125	76,20,52.346	9	626475.152	3665254.743	33,7,7.024	76,21,20.375
10	625770.309	3665656.259	33,7,20.353	76,20,53.383	10	626482.173	3665262.619	33,7,7.276	76,21,20.65
11	625843.137	3665685.069	33,7,21.258	76,20,56.207	11	626486.344	3665265.376	33,7,7.364	76,21,20.812
12	625870.681	3665698.292	33,7,21.676	76,20,57.276	12	626492.537	3665274.503	33,7,7.658	76,21,21.056
13	625961.204	3665719.363	33,7,22.322	76,21,0.779	13	626490.139	3665278.132	33,7,7.777	76,21,20.965
14	626007.639	3665729.591	33,7,22.635	76,21,2.575	14	626509.495	3665290.923	33,7,8.184	76,21,21.718
15	626097.050	3665719.828	33,7,22.281	76,21,6.02	15	626503.996	3665299.244	33,7,8.456	76,21,21.51
16	626165.964	3665704.518	33,7,21.755	76,21,8.671	16	626460.521	3665338.028	33,7,9.734	76,21,19.852
17	626206.342	3665685.964	33,7,21.135	76,21,10.22	17	626453.586	3665333.445	33,7,9.588	76,21,19.582
18	626195.765	3665715.095	33,7,22.086	76,21,9.826	18	626442.449	3665350.297	33,7,10.139	76,21,19.161
19	626195.674	3665732.971	33,7,22.666	76,21,9.831	19	626429.764	3665341.917	33,7,9.873	76,21,18.668
20	626163.764	3665751.898	33,7,23.294	76,21,8.61	20	626417.205	3665342.426	33,7,9.895	76,21,18.183
21	626132.409	3665775.364	33,7,24.069	76,21,7.412	21	626413.034	3665339.669	33,7,9.807	76,21,18.021
22	626047.315	3665802.008	33,7,24.969	76,21,4.142	22	626396.282	3665346.518	33,7,10.036	76,21,17.378
23	626016.746	3665776.971	33,7,24.169	76,21,2.95	23	626362.577	3665324.244	33,7,9.327	76,21,16.067
24	625994.123	3665775.859	33,7,24.143	76,21,2.077	24	626362.971	3665305.147	33,7,8.707	76,21,16.073
25	625986.560	3665780.563	33,7,24.298	76,21,1.787	25	626358.800	3665302.390	33,7,8.619	76,21,15.91
26	625961.223	3665764.759	33,7,23.796	76,21,0.802	26	626359.513	3665295.490	33,7,8.395	76,21,15.934
27	625865.999	3665741.283	33,7,23.074	76,20,57.117	27	626353.681	3665291.635	33,7,8.272	76,21,15.707
28	625831.520	3665725.725	33,7,22.583	76,20,55.779	28	626361.069	3665280.456	33,7,7.906	76,21,15.987
29	625807.166	3665706.595	33,7,21.972	76,20,54.83	29	626356.897	3665277.699	33,7,7.819	76,21,15.825
30	625788.714	3665695.096	33,7,21.607	76,20,54.112	30	626369.476	3665240.164	33,7,6.595	76,21,16.291
31	625764.592	3665664.790	33,7,20.633	76,20,53.166	31	626365.305	3665237.408	33,7,6.507	76,21,16.129
					32	626361.436	3665220.588	33,7,5.963	76,21,15.971
					33	626342.665	3665208.183	33,7,5.568	76,21,15.241
					34	626339.266	3665190.654	33,7,5.0	76,21,15.101
					35	626324.776	3665180.839	33,7,4.688	76,21,14.537

  
 महाप्रबंधक  
 General Manager  
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 Nagwain, Distt. Mandi (H.P.)-175121

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## Diversion Tunnel

## HRT

S.NO	EASTING	NORTHING	LAT	LONG	S.NO	EASTING	NORTHING	LAT	LONG					
<b>AREA-A</b>														
1	626583.380	3665137.454	33,7,3.171	76,21,24.492	1	626257.3737	3665099.846	33,7,2.087	76,21,11.897					
2	626596.106	3665126.945	33,7,2.824	76,21,24.978	2	626271.4331	3665087.021	33,7,1.664	76,21,12.433					
3	626621.165	3665177.021	33,7,4.439	76,21,25.969	3	626346.6936	3665116.664	33,7,2.595	76,21,15.351					
4	626622.978	3665209.308	33,7,5.487	76,21,26.055	4	626356.5975	3665101.334	33,7,2.093	76,21,15.725					
5	626597.134	3665269.919	33,7,7.465	76,21,25.089	5	626268.0994	3665066.403	33,7,0.996	76,21,12.294					
6	626356.534	3665548.533	33,7,16.611	76,21,15.945	6	626243.4064	3665082.739	33,7,1.537	76,21,11.349					
7	626344.006	3665559.422	33,7,16.97	76,21,15.468	<b>AREA-B</b>									
8	626350.831	3665529.891	33,7,16.008	76,21,15.715	7	626267.9349	3665112.781	33,7,2.502	76,21,12.31					
9	626584.645	3665259.135	33,7,7.12	76,21,24.601	8	626278.7084	3665126.108	33,7,2.93	76,21,12.733					
10	626606.509	3665207.177	33,7,5.424	76,21,25.419	9	626287.5563	3665120.361	33,7,2.74	76,21,13.071					
11	626604.695	3665179.586	33,7,4.529	76,21,25.335	10	626339.9384	3665141.772	33,7,3.413	76,21,15.103					
<b>AREA-B</b>														
12	626612.518	3665117.176	33,7,2.5	76,21,25.606	11	626342.6664	3665124.132	33,7,2.839	76,21,15.199					
13	626627.716	3665109.670	33,7,2.25	76,21,26.188	12	626283.6494	3665100.078	33,7,2.083	76,21,12.91					
14	626646.131	3665139.798	33,7,3.22	76,21,26.914	13	626291.3446	3665141.454	33,7,3.423	76,21,13.228					
15	626658.609	3665209.121	33,7,5.466	76,21,27.43	14	626299.3697	3665151.283	33,7,3.739	76,21,13.542					
16	626652.284	3665242.443	33,7,6.55	76,21,27.202	15	626307.5583	3665144.289	33,7,3.508	76,21,13.855					
17	626624.002	3665293.121	33,7,8.207	76,21,26.137	16	626338.1739	3665155.714	33,7,3.866	76,21,15.041					
18	626377.017	3665579.129	33,7,17.596	76,21,16.751	17	626339.2877	3665145.979	33,7,3.55	76,21,15.08					
19	626351.332	3665596.324	33,7,18.165	76,21,15.769	18	626302.8593	3665130.74	33,7,3.07	76,21,13.667					
20	626332.305	3665602.659	33,7,18.378	76,21,15.038										
21	626337.418	3665583.566	33,7,17.756	76,21,15.225										
22	626364.529	3665568.344	33,7,17.251	76,21,16.264										
23	626611.514	3665282.337	33,7,7.862	76,21,25.65										
24	626634.173	3665244.323	33,7,6.619	76,21,26.505										
25	626642.449	3665200.378	33,7,5.189	76,21,26.802										
26	626635.062	3665156.428	33,7,3.765	76,21,26.495										

## Job Facility &amp; CAMP AREA

## Main Access Tunnel

S.NO	EASTING	NORTHING	LAT	LONG	S.NO	EASTING	NORTHING	LAT	LONG
<b>AREA-1</b>									
1	625299.394	3665792.946	33,7,24.987	76,20,35.282	1	626113.012	3665092.048	33,7,1.894	76,21,6.323
2	625554.063	3665740.568	33,7,23.181	76,20,45.082	2	626123.354	3665099.930	33,7,2.145	76,21,6.726
3	625556.352	3665750.315	33,7,23.496	76,20,45.175	3	626004.795	3665264.670	33,7,7.543	76,21,2.235
4	625605.191	3665739.603	33,7,23.128	76,20,47.054	4	625872.417	3665648.815	33,7,20.069	76,20,57.318
5	625611.619	3665768.906	33,7,24.077	76,20,47.316	5	625860.127	3665644.580	33,7,19.937	76,20,56.842
6	625660.071	3665759.603	33,7,23.754	76,20,49.181	6	625992.504	3665260.434	33,7,7.411	76,21,1.758
7	625661.777	3665769.463	33,7,24.074	76,20,49.252					
8	625686.549	3665764.018	33,7,23.887	76,20,50.205					
9	625692.901	3665793.338	33,7,24.836	76,20,50.464					
10	625570.179	3665818.928	33,7,25.718	76,20,45.742					
11	625315.510	3665871.306	33,7,27.524	76,20,35.943					
<b>AREA-2</b>									
12	625655.816	3665825.995	33,7,25.911	76,20,49.05					

*Q/H*  
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 नगवाई, जिला मण्डी (हिमाचल) - 175121  
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13	625724.125	3665810.701	33,7,25.386	76,20,51.678
14	625726.310	3665820.459	33,7,25.702	76,20,51.767
15	625658.001	3665835.753	33,7,26.227	76,20,49.139
16	625651.873	3665825.539	33,7,25.898	76,20,48.897
17	625585.824	3665844.258	33,7,26.534	76,20,46.358
18	625483.342	3665868.123	33,7,27.351	76,20,42.416
19	625412.818	3665894.776	33,7,28.246	76,20,39.709
20	625387.334	3665913.340	33,7,28.859	76,20,38.735
21	625326.934	3665933.534	33,7,29.54	76,20,36.414
22	625260.028	3665949.243	33,7,30.077	76,20,33.841
23	625298.392	3666072.627	33,7,34.067	76,20,35.382
24	625528.041	3665969.714	33,7,30.63	76,20,44.191
25	625667.279	3665920.587	33,7,28.978	76,20,49.539
<b>AREA -3</b>				
26	625428.078	3666056.919	33,7,33.503	76,20,40.378
27	625448.586	3666097.623	33,7,34.816	76,20,41.189
28	625429.290	3666108.970	33,7,35.192	76,20,40.45
29	625439.403	3666142.693	33,7,36.283	76,20,40.857
30	625469.274	3666138.719	33,7,36.141	76,20,42.008
31	625516.858	3666165.303	33,7,36.985	76,20,43.857
32	625531.306	3666188.253	33,7,37.724	76,20,44.425
33	625693.539	3666137.655	33,7,36.013	76,20,50.66
34	625661.493	3665987.013	33,7,31.136	76,20,49.349
35	625607.546	3666008.030	33,7,31.841	76,20,47.278
36	625571.796	3665993.837	33,7,31.395	76,20,45.891
<b>AREA -4</b>				
37	625445.345	3666160.216	33,7,36.849	76,20,41.095
38	625469.021	3666178.561	33,7,37.435	76,20,42.018
39	625493.120	3666205.190	33,7,38.289	76,20,42.96
40	625411.239	3666225.904	33,7,38.996	76,20,39.812
41	625386.969	3666208.207	33,7,38.432	76,20,38.866
42	625363.293	3666189.862	33,7,37.846	76,20,37.944
<b>AREA -5</b>				
43	625731.054	3666150.051	33,7,36.4	76,20,52.113
44	625730.067	3666077.429	33,7,34.043	76,20,52.039
45	625729.489	3666022.833	33,7,32.271	76,20,51.99
46	625717.299	3665937.596	33,7,29.509	76,20,51.477
47	625760.202	3665931.316	33,7,29.287	76,20,53.129
48	625811.568	3665939.065	33,7,29.517	76,20,55.115
49	625838.426	3665917.593	33,7,28.809	76,20,56.14
50	625856.994	3665907.294	33,7,28.467	76,20,56.852
51	625887.897	3665906.135	33,7,28.416	76,20,58.043
52	625897.433	3666021.537	33,7,32.159	76,20,58.469
53	626016.283	3666020.621	33,7,32.079	76,21,3.053
54	626028.181	3665982.493	33,7,30.836	76,21,3.494
55	626021.186	3665910.113	33,7,28.49	76,21,3.188
56	626207.091	3665920.377	33,7,28.745	76,21,10.365
57	626227.189	3665988.028	33,7,30.933	76,21,11.174
58	626082.421	3666161.636	33,7,36.629	76,21,5.675
59	626072.637	3666197.811	33,7,37.808	76,21,5.316
60	625971.313	3666169.554	33,7,36.933	76,21,1.393
61	625976.745	3666149.470	33,7,36.279	76,21,1.592

**Muck Disposal Area**

S.NO	EASTING	NORTHING	LAT	LONG
1	623505.622	3665392.721	33,7,12.735	76,19,25.882
2	623535.786	3665375.964	33,7,12.179	76,19,27.038
3	623671.435	3665346.944	33,7,11.181	76,19,32.257
4	623929.095	3665343.239	33,7,10.955	76,19,42.195
5	623999.528	3665375.808	33,7,11.983	76,19,44.928
6	623997.568	3665405.735	33,7,12.955	76,19,44.867
7	623970.223	3665455.710	33,7,14.589	76,19,43.837
8	623934.231	3665504.569	33,7,16.19	76,19,42.472
9	623866.401	3665501.742	33,7,16.126	76,19,39.854
10	623685.232	3665533.877	33,7,17.244	76,19,32.88
11	623581.178	3665541.561	33,7,17.536	76,19,28.87
12	623563.022	3665483.533	33,7,15.659	76,19,28.141
13	623525.614	3665437.118	33,7,14.168	76,19,26.675

**Power House**

S.NO	EASTING	NORTHING	LAT	LONG
1	626375.076	3664944.180	33,6,56.984	76,21,16.36
2	626382.196	3664949.252	33,6,57.145	76,21,16.637
3	626382.703	3664952.996	33,6,57.267	76,21,16.658
4	626400.664	3664966.406	33,6,57.695	76,21,17.358
5	626400.460	3664969.721	33,6,57.802	76,21,17.352
6	626419.664	3664984.059	33,6,58.26	76,21,18.1
7	626379.201	3665057.277	33,7,0.654	76,21,16.575
8	626361.371	3665050.533	33,7,0.442	76,21,15.884
9	626360.103	3665053.159	33,7,0.528	76,21,15.836
10	626349.057	3665049.119	33,7,0.401	76,21,15.408
11	626347.326	3665052.255	33,7,0.504	76,21,15.343
12	626319.100	3665040.728	33,7,0.141	76,21,14.248
13	626358.676	3664968.043	33,6,57.765	76,21,15.739

  
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 Nagwain, Distt. Mandi (H.P.)-175121

## Quarry Area

S.NO	EASTING	NORTHING	LAT	LONG	TRT Outfall				
<b>AREA-A</b>									
1	627386.578	3664401.204	33,6,38.931	76,21,55.108	1	625815.774	3665634.223	33,7,19.619	76,20,55.126
2	627381.287	3664411.398	33,6,39.264	76,21,54.909	2	625867.210	3665647.021	33,7,20.013	76,20,57.117
3	627385.733	3664413.878	33,6,39.343	76,21,55.081	3	625884.133	3665657.537	33,7,20.347	76,20,57.775
4	627378.287	3664426.640	33,6,39.76	76,21,54.8	4	625918.862	3665661.007	33,7,20.446	76,20,59.116
5	627382.922	3664428.894	33,6,39.831	76,21,54.98	5	625955.463	3665677.815	33,7,20.976	76,21,0.537
6	627374.362	3664442.984	33,6,40.292	76,21,54.657	6	625992.877	3665687.351	33,7,21.27	76,21,1.985
7	627378.757	3664445.525	33,6,40.373	76,21,54.828	7	625980.315	3665724.973	33,7,22.496	76,21,1.519
8	627370.456	3664459.306	33,6,40.824	76,21,54.515	8	625870.681	3665698.292	33,7,21.676	76,20,57.276
9	627387.314	3664470.411	33,6,41.177	76,21,55.171	9	625804.730	3665670.624	33,7,20.805	76,20,54.718
10	627437.307	3664509.010	33,6,42.409	76,21,57.119	<b>TRT</b>				
11	627486.192	3664540.271	33,6,43.403	76,21,59.02	1	626118.727	3665177.787	33,7,4.675	76,21,6.587
12	627514.085	3664555.691	33,6,43.892	76,22,0.104	2	626169.375	3665239.822	33,7,6.668	76,21,8.571
13	627562.587	3664572.595	33,6,44.42	76,22,1.983	3	626158.703	3665245.811	33,7,6.866	76,21,8.163
14	627577.120	3664559.166	33,6,43.978	76,22,2.537	4	626140.457	3665248.776	33,7,6.97	76,21,7.46
15	627581.983	3664561.150	33,6,44.041	76,22,2.726	5	626109.438	3665274.102	33,7,7.805	76,21,6.276
16	627598.028	3664545.918	33,6,43.539	76,22,3.337	6	626100.642	3665286.713	33,7,8.219	76,21,5.943
17	627604.263	3664546.267	33,6,43.548	76,22,3.578	7	626087.595	3665282.217	33,7,8.078	76,21,5.438
18	627628.125	3664527.475	33,6,42.928	76,22,4.489	8	626100.710	3665263.412	33,7,7.462	76,21,5.934
19	627614.795	3664516.428	33,6,42.575	76,22,3.969	9	626131.380	3665238.372	33,7,6.636	76,21,7.105
20	627618.996	3664513.201	33,6,42.468	76,22,4.129	10	626112.593	3665215.362	33,7,5.897	76,21,6.369
21	627591.612	3664488.745	33,6,41.686	76,22,3.061	11	626070.138	3665250.025	33,7,7.04	76,21,4.748
22	627545.079	3664446.283	33,6,40.327	76,22,1.244	12	626055.098	3665280.757	33,7,8.044	76,21,4.183
23	627502.632	3664423.896	33,6,39.618	76,21,59.596	13	626061.410	3665239.335	33,7,6.697	76,21,4.406
24	627416.397	3664404.561	33,6,39.027	76,21,56.259	14	626104.215	3665204.387	33,7,5.544	76,21,6.04
<b>AREA-B</b>									
25	627543.262	3664830.487	33,6,52.801	76,22,1.367	15	626110.770	3665187.103	33,7,4.981	76,21,6.284
26	627547.656	3664863.556	33,6,53.872	76,22,1.554	16	625990.514	3665606.303	33,7,18.64	76,21,1.853
27	627542.918	3664865.325	33,6,53.932	76,22,1.372	17	625977.461	3665601.805	33,7,18.499	76,21,1.348
28	627545.339	3664889.006	33,6,54.7	76,22,1.477	18	625964.931	3665612.425	33,7,18.849	76,21,0.869
29	627540.494	3664890.260	33,6,54.742	76,22,1.291	19	625958.652	3665624.241	33,7,19.235	76,21,0.633
30	627543.560	3664914.579	33,6,55.53	76,22,1.421	20	625948.964	3665620.903	33,7,19.131	76,21,0.258
31	627588.786	3664909.628	33,6,55.351	76,22,3.163	21	625951.297	3665607.727	33,7,18.702	76,21,0.341
32	627645.375	3664908.124	33,6,55.278	76,22,5.346	22	625947.970	3665591.642	33,7,18.182	76,21,0.205
33	627689.002	3664907.340	33,6,55.234	76,22,7.028	23	625934.917	3665587.144	33,7,18.041	76,20,59.699
34	627685.960	3664888.302	33,6,54.617	76,22,6.901	24	625922.387	3665597.764	33,7,18.391	76,20,59.221
35	627690.906	3664889.125	33,6,54.642	76,22,7.093	25	625916.107	3665609.580	33,7,18.777	76,20,58.984
36	627686.428	3664875.928	33,6,54.215	76,22,6.913	<i>Q.W.H.</i>				
37	627633.190	3664854.267	33,6,53.535	76,22,4.849	महाप्रबंधक General Manager दुगर जल विद्युत परियोजना Dugar Hydro Electric Project नगवाई, जिला मण्डी (हि.प्र.)-175121 Nagwain, Distt. Mandi (H.P.)-175121				
38	627605.474	3664828.389	33,6,52.706	76,22,3.766					
39	627568.666	3664823.916	33,6,52.577	76,22,2.344					
<b>AREA-C</b>									
40	627614.808	3664919.027	33,6,55.645	76,22,4.172					
41	627608.559	3664940.541	33,6,56.346	76,22,3.942					
42	627612.634	3664940.040	33,6,56.328	76,22,4.099					
43	627608.549	3664950.542	33,6,56.67	76,22,3.946					

44	627686.712	3664999.101	33,6,58.214	76,22,6.986	
45	627722.577	3665000.018	33,6,58.228	76,22,8.37	
46	627738.309	3664997.956	33,6,58.155	76,22,8.976	
47	627742.792	3664976.020	33,6,57.441	76,22,9.138	
48	627737.777	3664975.583	33,6,57.429	76,22,8.944	
49	627739.991	3664952.262	33,6,56.671	76,22,9.018	
50	627735.093	3664951.261	33,6,56.64	76,22,8.828	
51	627736.993	3664929.476	33,6,55.932	76,22,8.891	
52	627709.386	3664921.379	33,6,55.681	76,22,7.822	
53	627670.525	3664916.742	33,6,55.547	76,22,6.32	
<b>AREA-D</b>					
54	627208.258	3665052.883	33,7,0.162	76,21,48.556	
55	627214.796	3665066.477	33,7,0.601	76,21,48.815	
56	627219.368	3665064.291	33,7,0.528	76,21,48.99	
57	627227.990	3665085.086	33,7,1.199	76,21,49.333	
58	627232.446	3665082.499	33,7,1.113	76,21,49.504	
59	627240.867	3665102.598	33,7,1.762	76,21,49.839	
60	627245.509	3665100.653	33,7,1.697	76,21,50.017	
61	627254.031	3665121.105	33,7,2.357	76,21,50.356	
62	627258.563	3665118.779	33,7,2.28	76,21,50.529	
63	627266.381	3665136.798	33,7,2.862	76,21,50.84	
64	627271.225	3665135.549	33,7,2.819	76,21,51.026	
65	627279.014	3665153.467	33,7,3.397	76,21,51.336	
66	627283.817	3665152.077	33,7,3.35	76,21,51.52	
67	627292.133	3665172.912	33,7,4.023	76,21,51.852	
68	627262.545	3665178.430	33,7,4.215	76,21,50.713	
69	627187.065	3665184.865	33,7,4.456	76,21,47.804	
70	627104.370	3665212.379	33,7,5.384	76,21,44.628	
71	627095.548	3665188.295	33,7,4.606	76,21,44.276	
72	627100.714	3665187.499	33,7,4.578	76,21,44.474	
73	627095.006	3665169.881	33,7,4.008	76,21,44.245	
74	627100.443	3665169.647	33,7,3.998	76,21,44.455	
75	627096.884	3665156.493	33,7,3.573	76,21,44.311	
76	627102.321	3665156.259	33,7,3.563	76,21,44.521	
77	627099.156	3665143.923	33,7,3.164	76,21,44.393	
78	627137.663	3665130.997	33,7,2.728	76,21,45.872	
79	627155.738	3665096.536	33,7,1.601	76,21,46.552	
80	627164.964	3665074.749	33,7,0.89	76,21,46.897	
					S.NO EASTING NORTHING LAT LONG
					26 625896.444 3665606.383 33,7,18.682 76,20,58.224
					27 625886.032 3665609.308 33,7,18.781 76,20,57.824
					28 625881.276 3665623.109 33,7,19.231 76,20,57.647
					29 625899.686 3665617.937 33,7,19.055 76,20,58.355
					30 625909.466 3665619.990 33,7,19.118 76,20,58.733
					31 625908.816 3665621.876 33,7,19.179 76,20,58.709
					32 625911.508 3665622.804 33,7,19.208 76,20,58.814
					33 625900.287 3665649.783 33,7,20.089 76,20,58.394
					34 625901.965 3665650.362 33,7,20.107 76,20,58.459
					35 625896.804 3665658.836 33,7,20.384 76,20,58.264
					36 625912.670 3665660.397 33,7,20.428 76,20,58.877
					37 625914.040 3665654.533 33,7,20.237 76,20,58.927
					38 625912.362 3665653.956 33,7,20.219 76,20,58.862
					39 625921.822 3665626.369 33,7,19.32 76,20,59.213
					40 625933.851 3665630.589 33,7,19.452 76,20,59.679
					41 625924.391 3665658.177 33,7,20.351 76,20,59.328
					42 625922.264 3665657.349 33,7,20.325 76,20,59.246
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					44 625934.919 3665668.065 33,7,20.668 76,20,59.739
					45 625936.619 3665662.332 33,7,20.481 76,20,59.802
					46 625934.771 3665661.696 33,7,20.461 76,20,59.73
					47 625944.231 3665634.109 33,7,19.562 76,21,0.082
					48 625953.453 3665637.267 33,7,19.66 76,21,0.439
					49 625943.992 3665664.854 33,7,20.56 76,21,0.088
					50 625942.076 3665664.195 33,7,20.539 76,21,0.013
					51 625939.808 3665670.626 33,7,20.749 76,20,59.929
					52 625953.342 3665676.048 33,7,20.919 76,21,0.454
					53 625955.406 3665668.807 33,7,20.683 76,21,0.53
					54 625955.905 3665668.978 33,7,20.689 76,21,0.549
					55 625964.866 3665641.220 33,7,19.784 76,21,0.881
					56 625974.088 3665644.378 33,7,19.883 76,21,1.239
					57 625964.128 3665671.794 33,7,20.777 76,21,0.868
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					62 625977.060 3665677.767 33,7,20.965 76,21,1.37
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					66 625991.509 3665635.564 33,7,19.589 76,21,1.906
					67 625993.303 3665630.651 33,7,19.429 76,21,1.973

## Reservoir Area

1	Latitude	33° 7'10.71"N	Longitude	76°21'13.58"E
2	Latitude	33° 7'14.88"N	Longitude	76°21'16.74"E
3	Latitude	33° 7'18.91"N	Longitude	76°21'21.25"E
4	Latitude	33° 7'14.52"N	Longitude	76°21'23.08"E
5	Latitude	33° 7'11.10"N	Longitude	76°21'24.26"E
6	Latitude	33° 7'3.98"N	Longitude	76°21'24.44"E
7	Latitude	33° 6'57.26"N	Longitude	76°21'23.77"E
8	Latitude	33° 6'53.14"N	Longitude	76°21'23.81"E
9	Latitude	33° 6'49.02"N	Longitude	76°21'23.79"E
10	Latitude	33° 6'43.79"N	Longitude	76°21'23.71"E
11	Latitude	33° 6'40.81"N	Longitude	76°21'23.65"E
12	Latitude	33° 6'35.96"N	Longitude	76°21'25.16"E
13	Latitude	33° 6'32.95"N	Longitude	76°21'26.13"E
14	Latitude	33° 6'29.01"N	Longitude	76°21'27.67"E
15	Latitude	33° 6'24.43"N	Longitude	76°21'29.31"E
16	Latitude	33° 6'20.58"N	Longitude	76°21'30.85"E
17	Latitude	33° 6'15.88"N	Longitude	76°21'31.54"E
18	Latitude	33° 6'12.38"N	Longitude	76°21'33.13"E
19	Latitude	33° 6'6.76"N	Longitude	76°21'35.17"E
20	Latitude	33° 6'0.36"N	Longitude	76°21'36.28"E
21	Latitude	33° 5'55 28"N	Longitude	76°21'38.30"E
22	Latitude	33° 5'51.22"N	Longitude	76°21'40.77"E
23	Latitude	33° 5'47.27"N	Longitude	76°21'44.43"E
24	Latitude	33° 5'43.71"N	Longitude	76°21'49.75"E
25	Latitude	33° 5'41.00"N	Longitude	76°21'54.98"E
26	Latitude	33° 5'37.99"N	Longitude	76°22'0.40"E
27	Latitude	33° 5'34.57"N	Longitude	76°22'4.64"E
28	Latitude	33° 5'31.65"N	Longitude	76°22'8.03"E
29	Latitude	33° 5'28.99"N	Longitude	76°22'13.93"E
30	Latitude	33° 5'25.46"N	Longitude	76°22'19.01"E
31	Latitude	33° 5'23.60"N	Longitude	76°22'23.64"E
32	Latitude	33° 5'22.86"N	Longitude	76°22'29.01"E
33	Latitude	33° 5'23.17"N	Longitude	76°22'35.43"E
34	Latitude	33° 5'23.22"N	Longitude	76°22'38.08"E
35	Latitude	33° 5'20.07"N	Longitude	76°22'45.38"E
36	Latitude	33° 5'16.59"N	Longitude	76°22'57.08"E
37	Latitude	33° 5'13.45"N	Longitude	76°23'7.18"E
38	Latitude	33° 5'10.09"N	Longitude	76°23'14.85"E
39	Latitude	33° 5'5.14"N	Longitude	76°23'21.25"E
40	Latitude	33° 4'56.00"N	Longitude	76°23'30.29"E
41	Latitude	33° 4'50.46"N	Longitude	76°23'34.83"E
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45	Latitude	33° 4'28.73"N	Longitude	76°23'56.51"E
46	Latitude	33° 4'20.62"N	Longitude	76°24'3.60"E
47	Latitude	33° 4'14.45"N	Longitude	76°24'10.71"E
48	Latitude	33° 4'15.60"N	Longitude	76°24'22.36"E
49	Latitude	33° 4'9.07"N	Longitude	76°24'16.50"E

50	Latitude	33° 4'4.70"N	Longitude	76°24'23.60"E
51	Latitude	33° 3'58.13"N	Longitude	76°24'27.02"E
52	Latitude	33° 3'46.53"N	Longitude	76°24'39.29"E
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63	Latitude	33° 4'8.37"N	Longitude	76°24'5.34"E
64	Latitude	33° 4'20.56"N	Longitude	76°23'54.68"E
65	Latitude	33° 4'29.49"N	Longitude	76°23'43.04"E
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67	Latitude	33° 4'54.46"N	Longitude	76°23'20.87"E
68	Latitude	33° 5'3.73"N	Longitude	76°23'8.42"E
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72	Latitude	33° 5'21.74"N	Longitude	76°22'10.07"E
73	Latitude	33° 5'5.52"N	Longitude	76°21'58.78"E
74	Latitude	33° 5'6.37"N	Longitude	76°21'56.10"E
75	Latitude	33° 5'22.11"N	Longitude	76°22'2.15"E
76	Latitude	33° 5'34.65"N	Longitude	76°21'49.78"E
77	Latitude	33° 5'45.61"N	Longitude	76°21'35.75"E
78	Latitude	33° 6'3.02"N	Longitude	76°21'24.71"E
79	Latitude	33° 6'21.00"N	Longitude	76°21'16.70"E
80	Latitude	33° 6'41.94"N	Longitude	76°21'15.80"E
81	Latitude	33° 7'1.20"N	Longitude	76°21'15.45"E
82	Latitude	33° 7'10.47"N	Longitude	76°21'13.50"E

R.M.H.

महाप्रबंधक  
General Manager  
दुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगवाई, जिला सर्ही (हिमप.)-175121  
Negwain, Distt. Mandi (H.P.)-175121

## Approach Roads

1	Latitude	33° 7'25.48"N	Longitude	76°19'46.35"E
2	Latitude	33° 7'26.16"N	Longitude	76°19'46.80"E
3	Latitude	33° 7'27.67"N	Longitude	76°19'52.86"E
4	Latitude	33° 7'31.60"N	Longitude	76°19'55.72"E
5	Latitude	33° 7'32.25"N	Longitude	76°20'2.02"E
6	Latitude	33° 7'32.00"N	Longitude	76°20'11.89"E
7	Latitude	33° 7'31.06"N	Longitude	76°20'29.34"E
8	Latitude	33° 7'28.00"N	Longitude	76°20'41.38"E
9	Latitude	33° 7'25.40"N	Longitude	76°20'59.31"E
10	Latitude	33° 7'25.60"N	Longitude	76°21'9.14"E
11	Latitude	33° 7'17.85"N	Longitude	76°21'16.33"E
12	Latitude	33° 7'8.53"N	Longitude	76°21'23.19"E
13	Latitude	33° 7'7.22"N	Longitude	76°21'22.70"E
14	Latitude	33° 7'7.21"N	Longitude	76°21'22.03"E
15	Latitude	33° 7'14.16"N	Longitude	76°21'17.50"E
16	Latitude	33° 7'21.43"N	Longitude	76°21'11.64"E
17	Latitude	33° 7'22.61"N	Longitude	76°20'55.41"E
18	Latitude	33° 7'24.29"N	Longitude	76°20'55.37"E
19	Latitude	33° 7'26.86"N	Longitude	76°20'40.63"E
20	Latitude	33° 7'27.29"N	Longitude	76°20'19.88"E
21	Latitude	33° 7'28.37"N	Longitude	76°20'19.77"E
22	Latitude	33° 7'28.00"N	Longitude	76°20'38.93"E
23	Latitude	33° 7'30.73"N	Longitude	76°20'25.17"E
24	Latitude	33° 7'31.93"N	Longitude	76°20'5.46"E
25	Latitude	33° 7'31.23"N	Longitude	76°20'1.24"E
26	Latitude	33° 7'29.94"N	Longitude	76°19'54.65"E
27	Latitude	33° 7'27.19"N	Longitude	76°19'53.41"E
28	Latitude	33° 7'25.44"N	Longitude	76°19'46.27"E

## AREA -B

1	Latitude	33° 6'51.32"N	Longitude	76°21'18.65"E
2	Latitude	33° 6'50.40"N	Longitude	76°21'16.43"E
3	Latitude	33° 6'59.05"N	Longitude	76°21'18.12"E
4	Latitude	33° 6'3.87"N	Longitude	76°21'13.21"E
5	Latitude	33° 7'0.71"N	Longitude	76°21'19.66"E

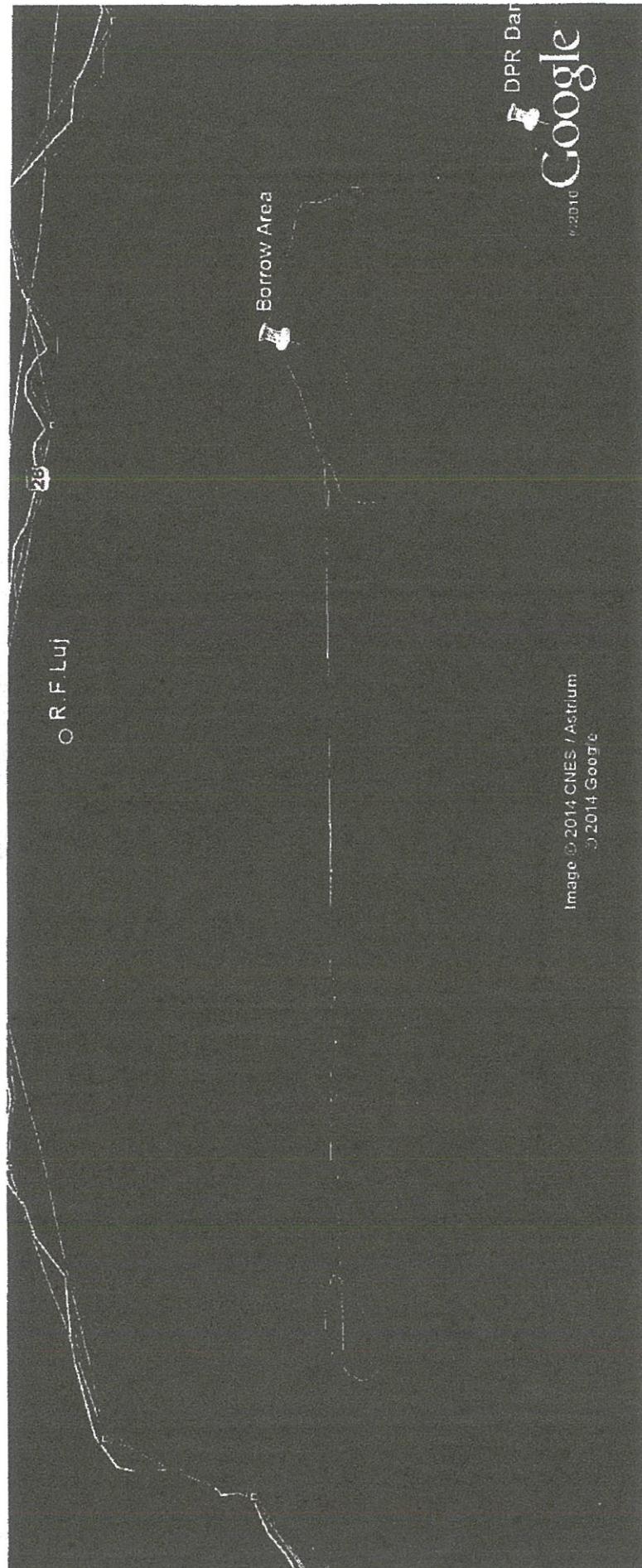
## AREA-C

35	Latitude	33° 7'2.39"N	Longitude	76°21'25.36"E
36	Latitude	33° 7'1.81"N	Longitude	76°21'25.96"E
37	Latitude	33° 7'0.40"N	Longitude	76°21'26.08"E
38	Latitude	33° 6'58.34"N	Longitude	76°21'26.90"E
39	Latitude	33° 6'57.38"N	Longitude	76°21'26.44"E
40	Latitude	33° 6'57.34"N	Longitude	76°21'25.29"E
41	Latitude	33° 6'57.75"N	Longitude	76°21'25.11"E
42	Latitude	33° 6'59.93"N	Longitude	76°21'25.38"E
43	Latitude	33° 7'2.37"N	Longitude	76°21'25.35"E

40(i)

Page 1

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महाप्रबन्धक  
General Manager  
डुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगवाई, निला चौकी (हिज) - 175121  
Nagwain, Distt. Mandi (H.P.)-175121

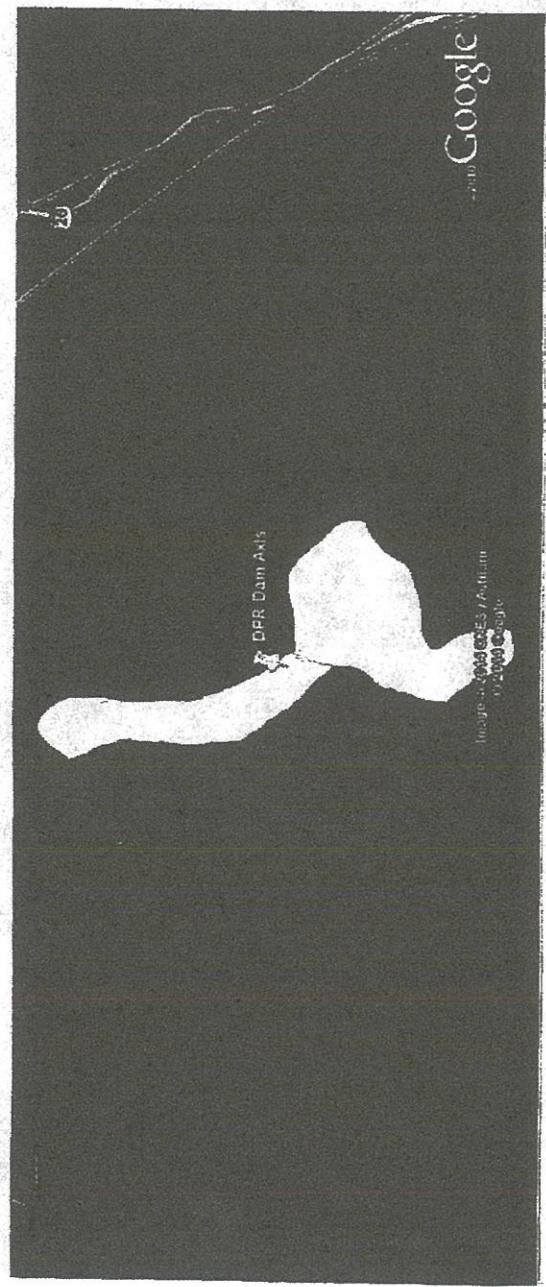
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Nagmain, Dist. MDC (H.P.)-175121  
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Block: Nag Main  
Panchayat: Nag Main  
Gram Panchayat: Nag Main  
Village: Nag Main  
Age: 2000



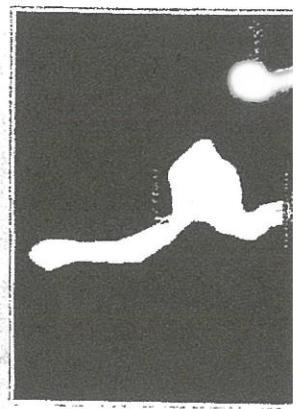
Page 1





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 Untitled Polygon

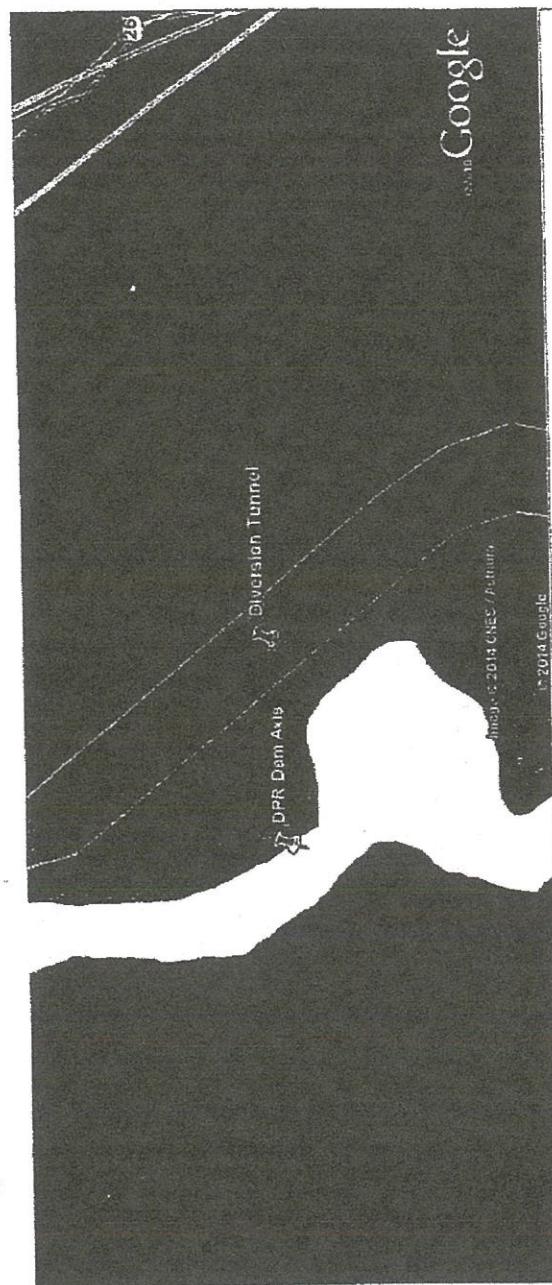


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महाप्रबंधक  
General Manager  
झार जल विद्युत परियोजना  
Digar-Hydro Electric Project  
नगवान, झारा, मध्य (हिम) - 175121  
Nagwan, Distt. Mandi (H.P.) - 175121

Page 1



Diversion Tunnel

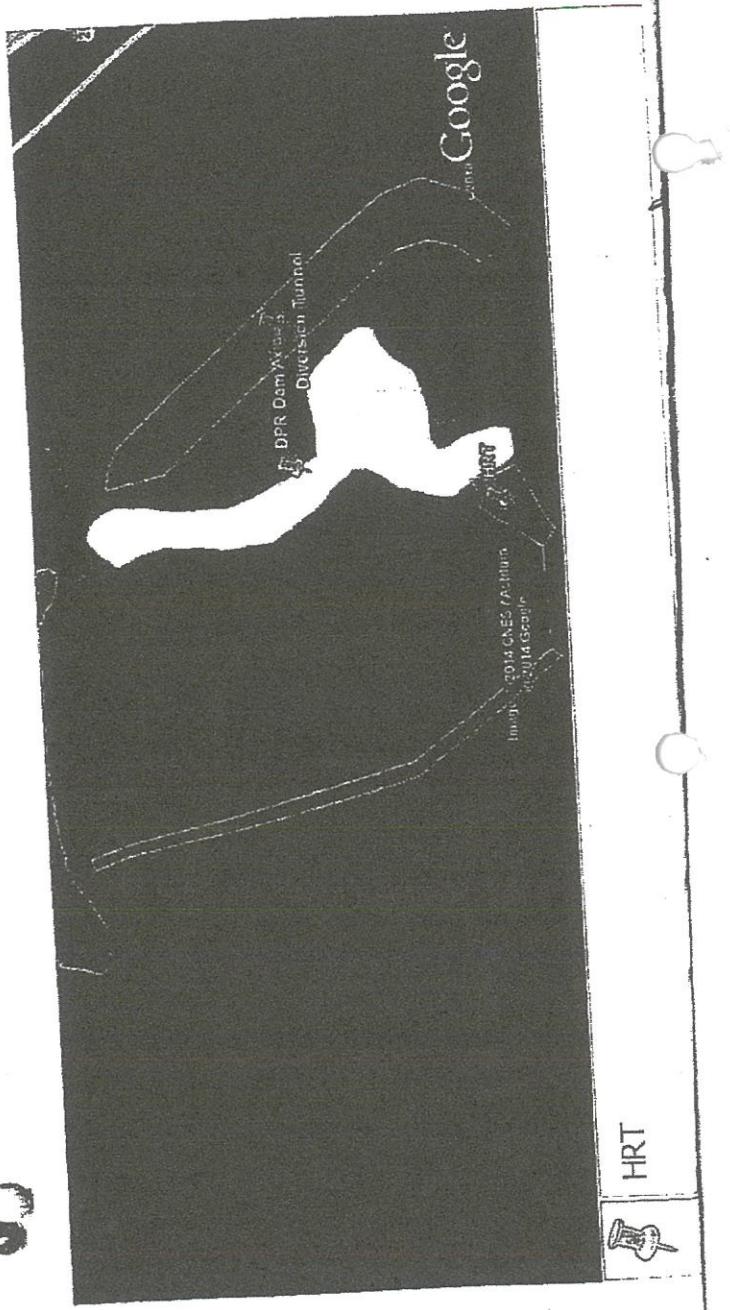


40(iv) 37

नियमित  
General Manager  
राजस्थान विद्युत परिवर्तन  
डुगर हाउन इलेक्ट्रिक प्रोजेक्ट  
डुगर, तिला, अमृतपुर, 175121  
नगवाई, जिला, मण्डी (H.P.), 175121

राजा प्रदीप कुमार

Page 1



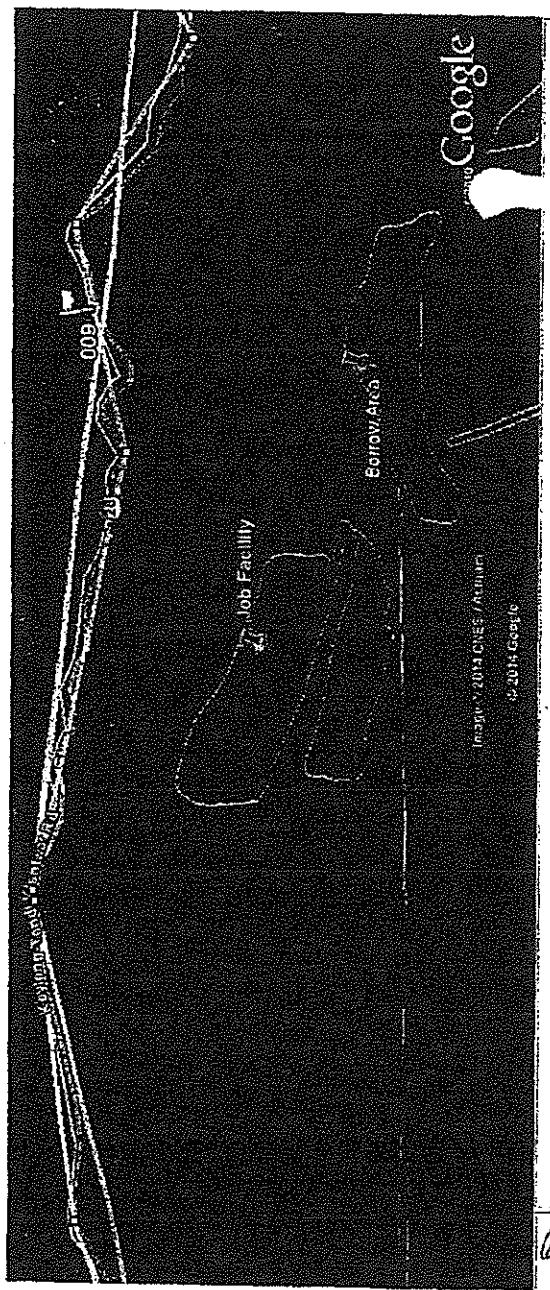
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মালয়েলা  
General Manager  
SIR প্রক্রিয়া প্রক্রিয়া  
Durgabari Electric Project  
District Project No. 13512  
Nagawan, Dist. Jhansi (U.P)-17321

Page 1

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প্রক্রিয়া

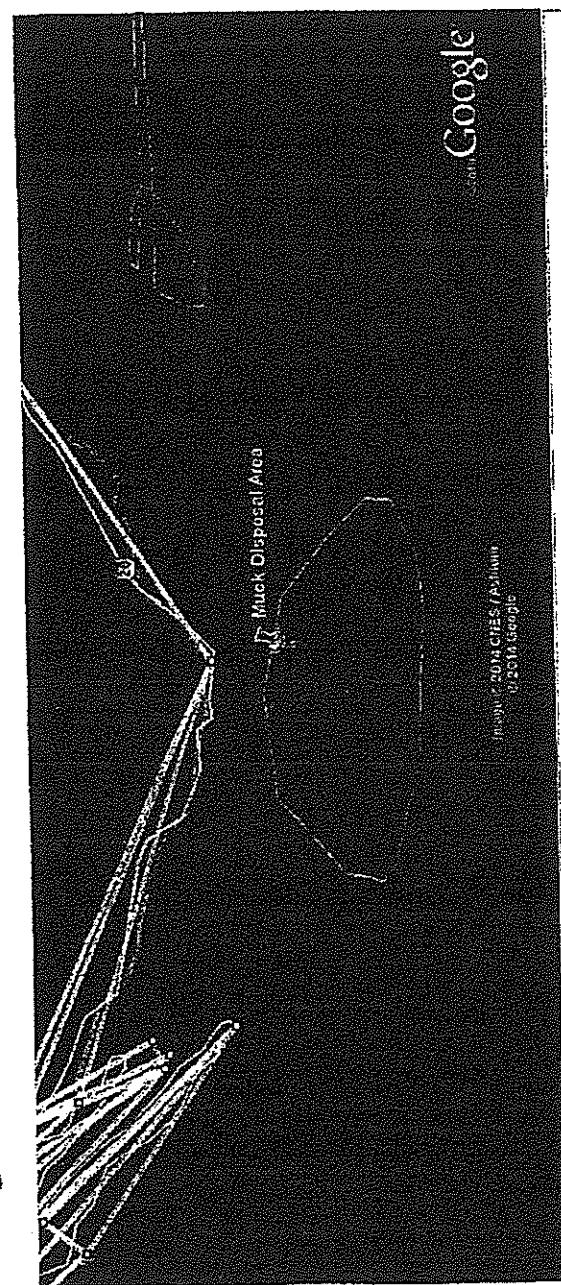
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Job Facility

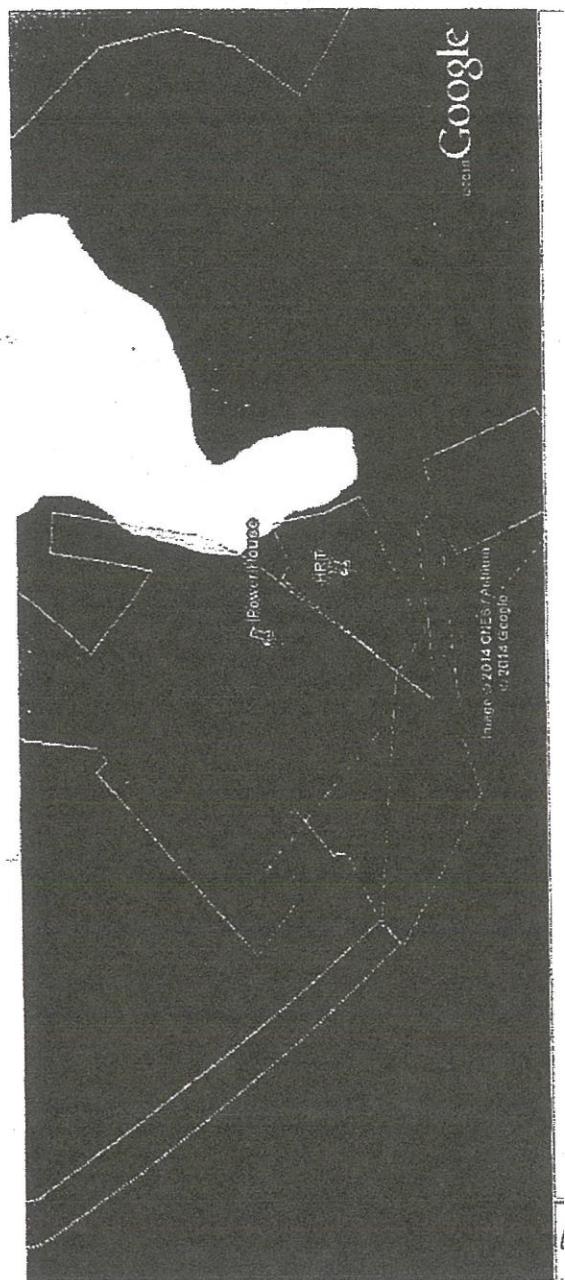
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संस्कारित वर्ष  
१९५८

Page 1



Google



*Balbir*

महाप्रबंधक  
General Manager  
दुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगराय, जिला बलौ (हिमाचल प्रदेश) - 175121  
Nagrawain, Dist. Mandi (H.P.)-175121

# Untitled Map Area

Write a description for your map.

## Legend

- Feature 1
- Golchori
- Hp.45 pangi Valley
- Untitled Polygon

لپی سنج

Sheetla Mangir

Kuththah کٹھا

Dharwas ڈھارواس

R.F. Chilkot

R.F. Kanyun

D.P.F. Pinccho

R.F. Urnu

Hughai ہویہ

Jhaiwas ڈالوواس

Chenab River

26

Ghangit گھانگی

37

26

37

26

Praghwal گھرگھوال

Killar کیلار

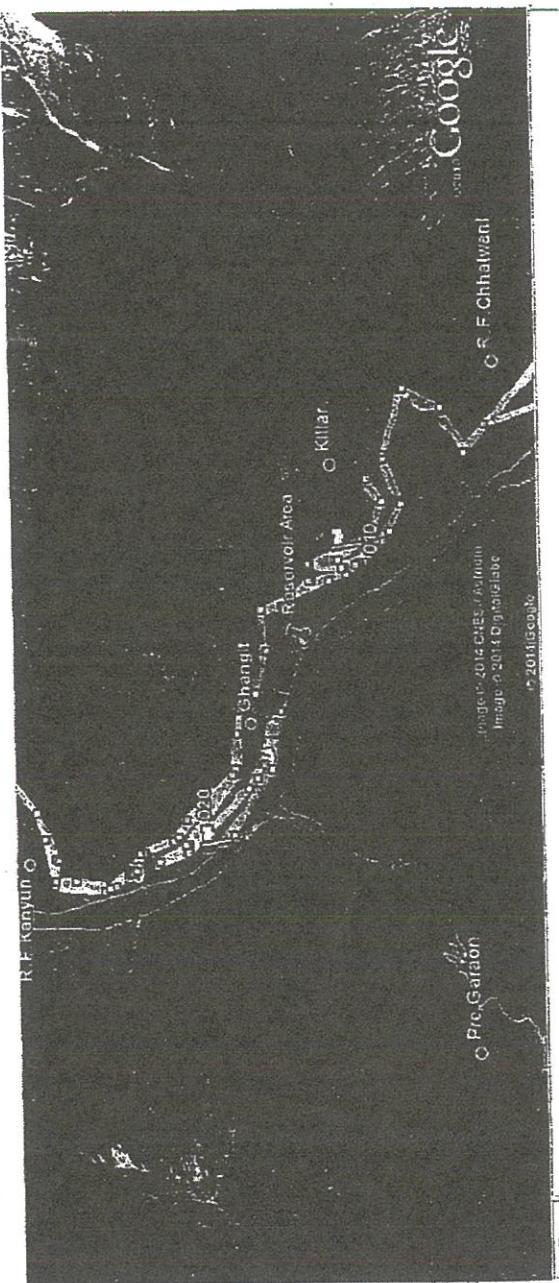
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Nagwan, Distt. Mandi (H.P.) 175/21



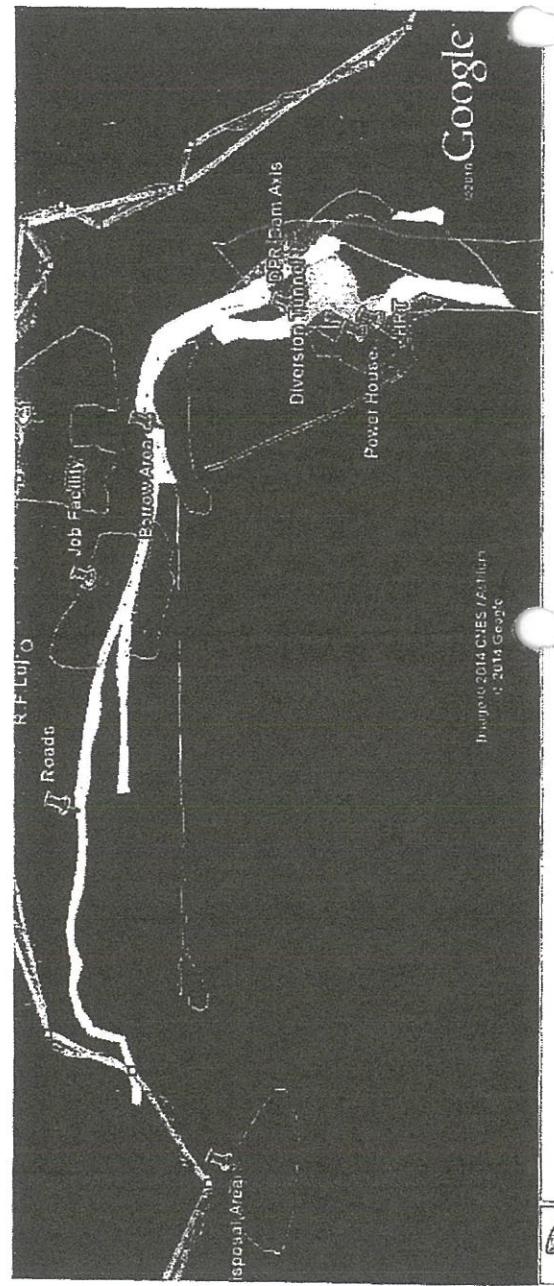
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Om  
महाप्रबोधक  
General Manager  
डुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगवाई तिला मुमुक्षी (H.P.)-175121  
Nagwain, Dist. Mandi (H.P)-175121

Page 1

Ranu

महाप्रबंधक  
General Manager  
दुर्गा जल विद्युत परिवर्तन प्रा. LTD  
Dugar Hydro Electric Project  
नगरकोट, नेपाल (हार्डिंग) 175121  
Nagarkot, Distt. Mandi (H.P.)-175121

Google

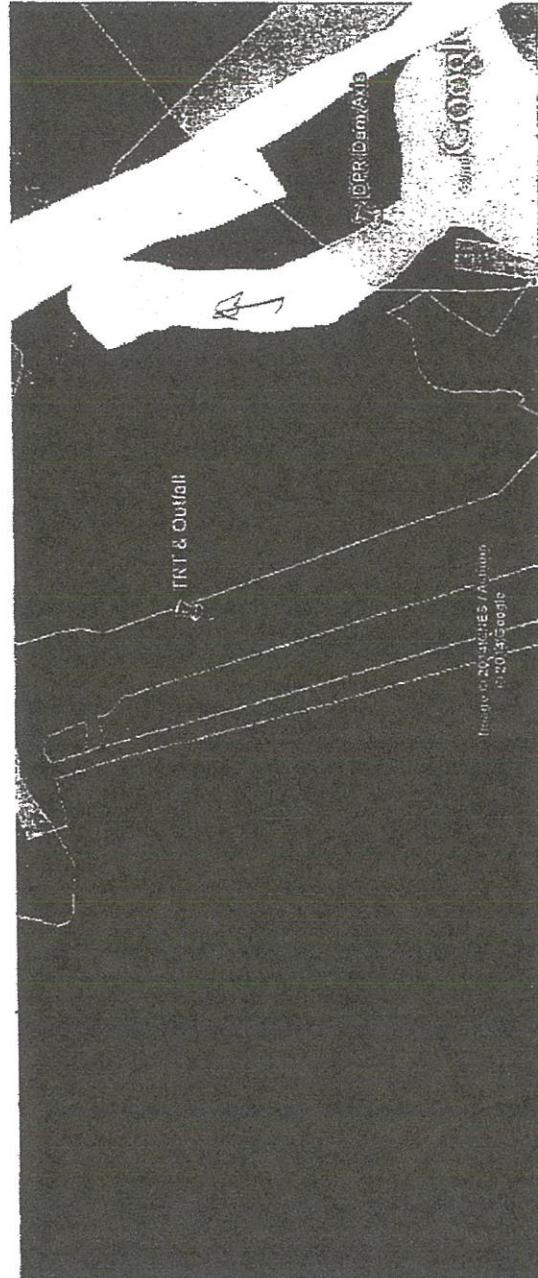


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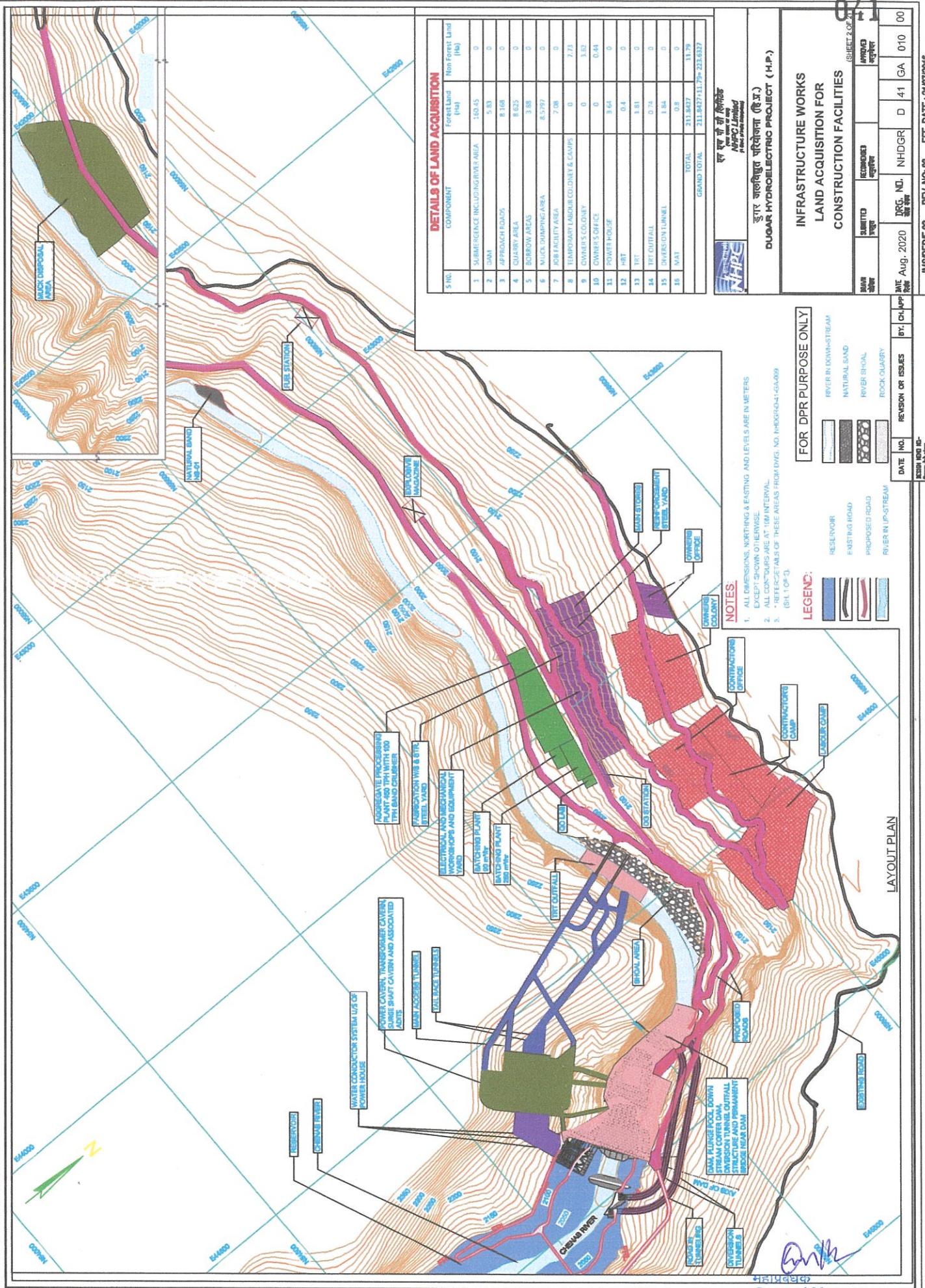
महाराष्ट्राचे  
General Manager  
दुर्ग विद्युत परियोजना  
Durg Hydro Electric Project  
नगदार, निवा, नारकी (हि.प्र.)-175121  
Nagda, Nivva, Naraki (H.P.)-175121

Ranbir

Page 1



TRT & Outfall



**General Manager  
दुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगवाई, जिला मण्डी (हिमाचल) - 17512  
Nagwain, Distt. Mandi (H.P.)-17512**

## CHECKLIST No. - 07

## Statement showing details of Forest Area proposed for diversion

1	2	3	4	5	6	7	Remarks	
							Forest Area proposed for diversion (ha)	Legal status of Forest Area
1	2	3	4	5	6	7		
1	Chamba	Pangi at Killar	Findpar	259/1	1.9500	River		Borrow Area
2	Chamba	Pangi at Killar	Findpar	424/1	0.4400	River		Borrow Area
3	Chamba	Pangi at Killar	Kagal	2/1-	10.1500	R F		Submergence
4	Chamba	Pangi at Killar	Kagal	3/1-	0.0900	Nullah		Submergence
5	Chamba	Pangi at Killar	Kagal	4-	0.9900	River		Submergence
6	Chamba	Pangi at Killar	Kagal	5/1-	4.7200	River		Submergence
7	Chamba	Pangi at Killar	RF Punto	4/1-	0.0700	Nullah		Submergence
8	Chamba	Pangi at Killar	RF Punto	5/1-	2.2000	R F		Submergence
9	Chamba	Pangi at Killar	RF Punto	26/1-	3.0600	R F		Submergence
10	Chamba	Pangi at Killar	RF Punto	27-	0.5200	River		Submergence
11	Chamba	Pangi at Killar	RF Punto	28-	0.9600	River		Submergence
12	Chamba	Pangi at Killar	RF Punto	29/1-	0.0900	Nullah		Submergence
13	Chamba	Pangi at Killar	Punto	321/1-	2.0400	Charragah Darkhtan		Submergence
14	Chamba	Pangi at Killar	Punto	351-	1.7400	River		Submergence
15	Chamba	Pangi at Killar	Punto	459/399/1-	1.6500	Charragah Darkhtan		Submergence
16	Chamba	Pangi at Killar	Punto	352/1-	0.0700	Nullah		Submergence
17	Chamba	Pangi at Killar	RF Kalatop	1-	1.2400	River		Submergence
18	Chamba	Pangi at Killar	RF Kalatop	2-	2.4000	River		Submergence
19	Chamba	Pangi at Killar	RF Kalatop	3/1-	16.3700	R F		Submergence
20	Chamba	Pangi at Killar	RF Kalatop	4/1-	0.0400	Road		Submergence
21	Chamba	Pangi at Killar	RF Kalatop	5-	1.7400	River		Submergence
22	Chamba	Pangi at Killar	RF Kalatop	6/1-	3.9300	R F		Submergence

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 Division of Forest  
 Pangi Killar  
 Division of Forest  
 Pangi Killar

23	Chamba	Pangi at Killar	R F Kalatop	8/1-		0.2800 Nullah		Submergence
24	Chamba	Pangi at Killar	R F Chilkot	2/1-		1.7500 River		Submergence
25	Chamba	Pangi at Killar	R F Chilkot	2/2-		0.4000 River		Dam
26	Chamba	Pangi at Killar	R F Chilkot	2/3-		0.2100 River		Dam
27	Chamba	Pangi at Killar	R F Chilkot	2/4-		0.4600 River		Dam
28	Chamba	Pangi at Killar	R F Chilkot	12/3/1-		0.5100 PWD Road		Submergence
29	Chamba	Pangi at Killar	R F Chilkot	13/3/1-		14.7100 R F		Submergence
30	Chamba	Pangi at Killar	R F Chilkot	13/3/2-		0.2800 R F		Submergence
31	Chamba	Pangi at Killar	R F Chilkot	13/3/3-		0.5800 R F		Pothead yard
32	Chamba	Pangi at Killar	R F Chilkot	13/3/4-		1.8000 R F		Dam
33	Chamba	Pangi at Killar	R F Chilkot	13/3/5-		0.6500 R F		Dam
34	Chamba	Pangi at Killar	R F Chilkot	13/3/6-		0.0500 R F		Dam
35	Chamba	Pangi at Killar	R F Chilkot	13/3/7-		3.6400 R F		Power house underground
36	Chamba	Pangi at Killar	R F Chilkot	13/3/8-		1.8400 R F		TRT Underground
37	Chamba	Pangi at Killar	R F Chilkot	13/3/9-		0.8000 R F		MAT Underground
38	Chamba	Pangi at Killar	R F Chilkot	13/3/10-		0.1100 R F		HRT Underground
39	Chamba	Pangi at Killar	R F Chilkot	13/3/11-		0.1200 R F		HRT Underground
40	Chamba	Pangi at Killar	R F Chilkot	13/3/12-		0.1700 R F		HRT Underground
41	Chamba	Pangi at Killar	R F Chilkot	1/1-		0.3700 River		TRT Outfall
42	Chamba	Pangi at Killar	R F Chilkot	15/3-		4.7600 R F		Submergence
43	Chamba	Pangi at Killar	R F Chilkot	16/7-		0.2200 PWD Road		Submergence
44	Chamba	Pangi at Killar	R F Chilkot	17/7-		1.1100 River		Submergence
45	Chamba	Pangi at Killar	R F Chilkot	18/7-		1.4700 River		Submergence
46	Chamba	Pangi at Killar	R F Chilkot	8/1-		0.0800 Nullah		Submergence
47	Chamba	Pangi at Killar	R F Luj	5/1/1-		1.7800 R F		Project Road
48	Chamba	Pangi at Killar	R F Luj	5/1/2-		0.1500 R F		Road to explosive magazine
49	Chamba	Pangi at Killar	R F Luj	5/1/3-		0.1100 R F		Explosive magazine
50	Chamba	Pangi at Killar	R F Luj	5/1/4-		0.1500 R F		Fuel station
51	Chamba	Pangi at Killar	R F Luj	5/1/5-		0.3400 R F		Borrow Area
52	Chamba	Pangi at Killar	R F Luj	5/1/6-		8.5800 R F		Muck disposal Area
53	Chamba	Pangi at Killar	R F Luj	5/1/7-		1.9600 R F		Road to dumping area

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 J. S. D. Office  
 Divisional Forest Officer  
 Divisional Forest Officer  
 Pangj KILLAR

~~Dividend Fund~~  
Dividend Fund

85	Chamba	Pangi at Killar	Praghwal	699/28/1-	4.0600	Charaghharh billa darkhtan	Submergence
86	Chamba	Pangi at Killar	Praghwal	707/578/1-	1.6200	Charaghharh billa darkhtan	Submergence
87	Chamba	Pangi at Killar	Praghwal	587/179/1-	0.0500	Nullah	Submergence
88	Chamba	Pangi at Killar	Praghwal	722/431/1-	1.3300	Charaghharh billa darkhtan	Submergence
89	Chamba	Pangi at Killar	Praghwal	540/1-	0.2400	Charaghharh billa darkhtan	Submergence
90	Chamba	Pangi at Killar	Praghwal	547/1-	0.8300	Charaghharh billa darkhtan	Quarry DRQ_02
91	Chamba	Pangi at Killar	Praghwal	541-	2.3900	River	Submergence
92	Chamba	Pangi at Killar	Praghwal	542/1-	1.1700	Charaghharh billa darkhtan	Submergence
93	Chamba	Pangi at Killar	Praghwal	542/1-	0.7200	Charaghharh billa darkhtan	Quarry DRQ-02
94	Chamba	Pangi at Killar	Praghwal	547/1-	2.8900	Charaghharh billa darkhtan	Submergence
95	Chamba	Pangi at Killar	Praghwal	548/1-	0.0800	Road	Submergence
96	Chamba	Pangi at Killar	Praghwal	549/1-	0.1700	Charaghharh billa darkhtan	Submergence
97	Chamba	Pangi at Killar	Karel	2/1-	3.5300	NDPF	Submergence
98	Chamba	Pangi at Killar	Karel	2/1-	3.0600	NDPF	Quarry DRQ-01
99	Chamba	Pangi at Killar	Karel	3-	0.9300	River	Submergence
100	Chamba	Pangi at Killar	Karel	4/1-	2.5100	NDPF	Submergence
101	Chamba	Pangi at Killar	Karel	4/1-	2.4100	NDPF	Quarry DRQ-01
102	Chamba	Pangi at Killar	Karel	237/219/1-	0.2300	NDPF	Submergence
103	Chamba	Pangi at Killar	Karel	220/1-	0.0300	Nullah	Submergence
104	Chamba	Pangi at Killar	Karel	221/1-	4.0900	NDPF	Submergence
105	Chamba	Pangi at Killar	Karel	222-	1.2400	River	Submergence
106	Chamba	Pangi at Killar	Karel	223-	0.5400	River	Submergence
107	Chamba	Pangi at Killar	R F Chatwani	17/7/1-	0.0100	Nullah	Submergence
108	Chamba	Pangi at Killar	R F Chatwani	26/11/1-	6.6400	R F	Submergence
109	Chamba	Pangi at Killar	R F Chatwani	13/1-	0.0300	Nullah	Submergence
110	Chamba	Pangi at Killar	R F Chatwani	14-	1.1200	River	Submergence
111	Chamba	Pangi at Killar	R F Chatwani	15-	0.9000	River	Submergence
112	Chamba	Pangi at Killar	Chacherwas	194/179/1-	0.0100	Nullah	Submergence
113	Chamba	Pangi at Killar	Chacherwas	181/1-	6.4200	NDPF	Submergence
114	Chamba	Pangi at Killar	Chacherwas	182/1-	4.8700	River	Submergence
115	Chamba	Pangi at Killar	Luj	702/577/1-	0.0100	Nullah	Project Road

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Divisional Forest  
Dandu Killa

116	Chamba	Pangi at Killar	Luj	702/577/2-	0.0100	Nullah	Project Road
117	Chamba	Pangi at Killar	Luj	752/694/1-	0.2000	Charaghbar billa darkhtan	Project Road
118	Chamba	Pangi at Killar	Luj	752/694/2	0.5600	Charaghbar billa darkhtan	Project Road
119	Chamba	Pangi at Killar	Luj	752/694/3-	0.4200	Charaghbar billa darkhtan	Project Road
120	Chamba	Pangi at Killar	Luj	752/694/4-	0.5000	Charaghbar billa darkhtan	Borrow Area
121	Chamba	Pangi at Killar	Luj	288/1-	0.0100	Charaghbar billa darkhtan	Project Road
122	Chamba	Pangi at Killar	Luj	748/293/1-	0.8000	Charaghbar billa darkhtan	Project Road
123	Chamba	Pangi at Killar	Luj	748/293/2-	1.4400	Charaghbar billa darkhtan	Project Road
124	Chamba	Pangi at Killar	Luj	748/293/3-	3.9400	Charaghbar billa darkhtan	JFA
125	Chamba	Pangi at Killar	Luj	748/293/4	0.1600	Charaghbar billa darkhtan	JFA
126	Chamba	Pangi at Killar	Luj	748/293/5-	2.7000	Charaghbar billa darkhtan	JFA
127	Chamba	Pangi at Killar	Luj	748/293/6-	0.2600	Charaghbar billa darkhtan	Project Road
128	Chamba	Pangi at Killar	Luj	748/293/7-	0.3200	Charaghbar billa darkhtan	Borrow Area
129	Chamba	Pangi at Killar	Luj	748/293/8	0.3200	Charaghbar billa darkhtan	Borrow Area
130	Chamba	Pangi at Killar	Luj	294/1-	0.3700	River	TRT Outfall
				<b>Total</b>	<b>211.8400</b>		

Place:

Killar

Date:

28/8/21



Divisional Forest Officer  
**Pangi Forest Division, Killar**  
 Divisional Forest Officer  
 Pangi Forest Division  
 KILLAR

## CERTIFICATE

It is certified that as per the Govt. Notification, 1952 all waste lands are Forest Land. Hence no alternative Non Forest Land is available for the implementation of the project for diversion of forest land i.e. 449 MW for Dugar HEP.

DATED 6.4.2015

*S. S. S.*  
Divisional Forest Officer  
Divisional Forest Officer  
Pangi Forest Division, Killar  
Pangi Killar

*S. S. S.*  
Deputy Commissioner  
Chamba, Distt. Chamba, H.P.  
Distt Chamba.

*S. S. S.*  
Divisional Forest Officer  
Pangi Forest Division  
Killar 176323

*S. S. S.*  
12/06/15

## JUSTIFICATION FOR LOCATING THE PROJECT IN FOREST LAND

Hydroelectric projects are generally planned on the river located in the mountainous/hilly region which is mostly forest areas and the land required for the project is forest land only. Dugar Hydro Electric Project is located in the similar terrain and topography in Chamba district of Himachal Pradesh. To minimise the requirement of forest land, layout of the proposed hydroelectric project has been optimised to the maximum possible extent and only unavoidable, minimum forest land is being proposed for the diversion of the project. Even the areas falling under submergence in the reservoir have been proposed to be utilised for construction of temporary infrastructure facilities.

Projects components such as dam structure, Power house and other infrastructure facilities like roads, dumping area, quarry area etc. have been fixed after detailed survey, investigation and examination of available alternatives.

Project as well as infrastructure facilities shall not result in displacement of people of the project area.

### Alternatives Considered

Three different dam sites have been taken into consideration during Alternative Study. Dam axes have been selected within the concession limits of Dugar HEP defined in between FRL as 2114.0 m asl and normal tail water level as 2015.0 m asl. Alternative-II is situated approximately 1.06 km downstream of the bridge (Shukrali Bridge) of the Sach-Pass road at km 8+240 while Alternative-III is positioned at km 10+309. Alternative-IV is located after the 90° bend of the river at km 11+010. Water conductor system is planned at left bank of Chenab River. An underground power house is planned just downstream of Alternative-III dam axis. The layout of the surge shaft, pressure shaft and pressure tunnel, the power house including transformer cavern and tailrace tunnels has been kept the same for all three alternatives.

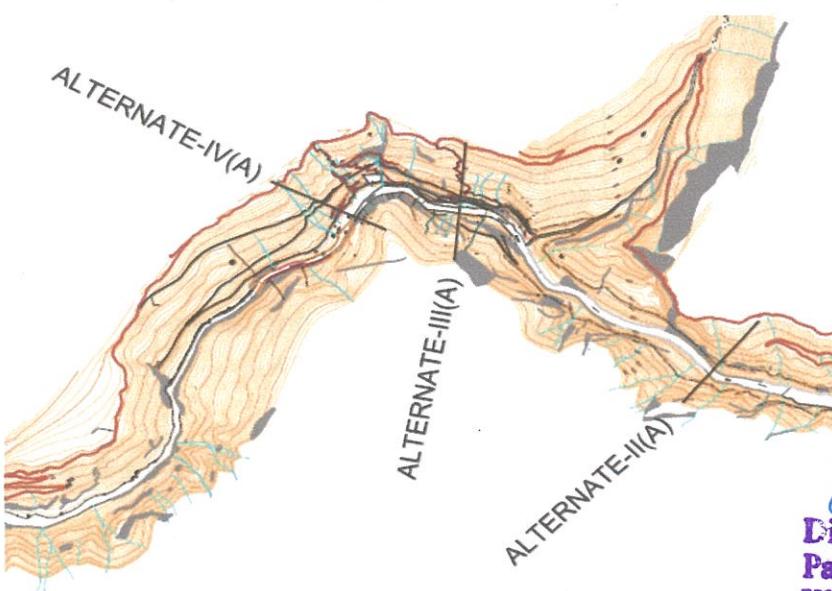


Fig - Alternatives considered in the Project

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

  
 Divisional Forest Officer  
 Pangi Forest Division  
 Kiflai 176323

**Alternative IIA :** This alternative is the most upstream alternative, with dam at location where river bed is about EI 2035 masl . This alignment involve comparatively less submergence in the reservoir, whereas long underground water conductor system. At the same time abutment on both banks at dam axis are not that stable so may trigger slide during dam abutment excavation. Longer water conductor system means more muck to be generated during construction, which will eventually need bigger dumping area.

**Alternative IIIA:** In this alternative Dam is proposed at location where river bed level is about 2017 masl. Abutments at both banks are steep rocky faces, with less of Geological problems. Layout of the project will be comparatively compact with smaller underground water conductor system; hence less muck generation. This layout will have more submergence area comparison to ALT II but less dumping area. Based on the technoeconomical evaluation it was found that Alternative-III is the most attractive solution.

**Alternative IVA:** This alternative involve dam toe surface power house. In this alternative reservoir submergence will be maximum. To accommodate surface power house on the right bank significant surface excavation will be involve which may trigger slides in long run or may need very elaborate slope stability arrangements. This alternative also has some geological challenges in the reservoir bank stability due to presence of fault.

Based on the investigation done on the three alternatives, the findings are referred below:

Parameters	Alternative II A	Alternative III A	Alternative IV A
DAM type- Gravity	Concrete	Feasible	Feasible
Underground works	Long Tunnel (4800m)	Small Tunnel (1000 m)	V. Small length Tunnel (800 m)
Energy Production	1500 MU	1758 MU	1690 MU
Geological Risks	High	Moderate	Moderate
Submergence area	155 Ha	160 Ha	210 Ha
Dumping area	25 Ha	9.0 Ha	7.8 Ha
Other Area	30 Ha	42 Ha	40 Ha
<b>Total forest area</b>	<b>210 Ha</b>	<b>211 Ha</b>	<b>257.8 Ha</b>

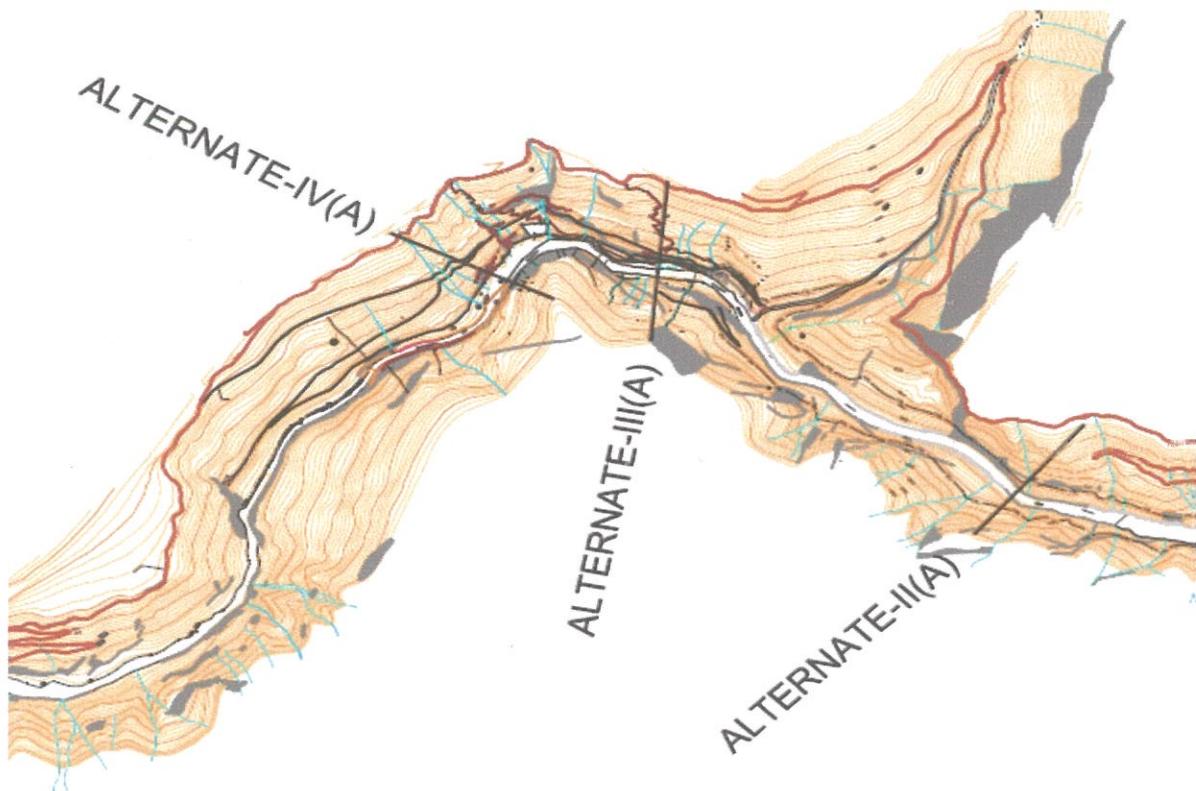
Considering all the engineering and environmental consideration it is decided to develop the project at Alternative III A, which has least probability of increase in area medium geological risk.

Considering all the above factors, Alternative III A has been considered for the Project as it is technoeconomically viable.

*Appld.*  
Divisional Forest Officer  
Pangi Forest Division  
Kilar 176323

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

Map: Alternatives considered in the Project

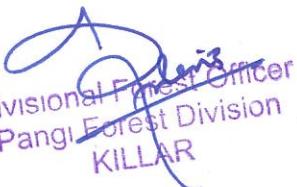


*[Signature]*  
Divisional Forest Officer  
Pangi Forest Division  
Kilar 176323

*[Signature]*  
महाप्रबंधक  
General Manager  
दुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगदार्ह, जिला मण्डी (हि.प.) -175121  
Nagdari, Dist. Mandi (H.P.)-175121

### UNDERTAKING

This is to certify that the forest area involved in the proposal is unavoidable and barest minimum i.e. 211.842 ha which is proposed diversion.

  
Divisional Forest Officer  
Pangi Forest Division  
KILLAR



**General Manager  
Dugar HE Project.**

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

## Component and Dimension wise land breakup

Sl. No.	Component	Forest Land (ha)	Non-Forest Land (ha)	Maximum Length (in Meter)	Width (in Meter)	Area (in Sqm)	Area (in ha)
1	Submergence including River Area	160.45	0	16050	100	1605000	160.5
2	Dam	5.83	0	390	150	58500	5.85
3	Approach Roads	8.168	0	5445	15	81675	8.1675
4	Quarry Area	8.625	0	620	140	86800	8.68
5	Borrow Area	3.88	0	259	150	38850	3.885
6	Muck Dumping Area	8.5797	0	446	192	85632	8.5632
7	Job Facility Area	7.08	0	695	102	70890	7.089
8	Construction Facility Area	0	6.62	530	125	66250	6.62
9	Owner / Developer Colony including Permanent & Temporary establishments excluding Administrative Building / Offices	0	1.98	130	150	19500	1.95
10	Owner's Office	0	0.18	50	35	1750	0.17
11	Power House	3.64	0	250	146	36500	3.65
12	HRT	0.4	0	220	20	4400	0.44
13	TRT	1.81	0	1000	18	18000	1.8
14	TRT Outfall	0.74	0	180	41	7380	0.738
15	Diversion Tunnel	1.84	0	660	28	18480	1.848
16	MAT	0.8	0	610	14	8540	0.854
	Total	211.8427	8.78				
	Grand Total	220.6227					

  
 Divisional Forest Officer  
 Pangi Forest Division  
 KILLAR

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

 <p>एन एच पी सी <b>NHPC</b></p> <p>CIN:L40101HR19 75GOI032564</p>	<p>एनएचपीसी लिमिटेड (भारत सरकार का सूची 'ए' उद्यम) <b>NHPC Limited</b> (A Schedule 'A' Enterprise of Govt. of India)</p> <p>सरकार भारत एक कदम सशक्ति की ओर</p>	<p>डुगर जल विद्युत परियोजना पार्बती परिसर, नगवाई, जिला मण्डी (हिंप्र०) 175121 <b>Dugar HE Project</b> Parbati Complex, Nagwain, Distt.- Mandi (H.P.) 175121 फोन/ Tel. 01905 280260 E-mail: dugarhep@gmail.com</p> <p> <b>Digital India</b> Power To Empower</p>
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### UNDERTAKING

We undertake that the project shall bear the cost of raising and maintenance of compensatory afforestation and / or penal compensatory as well as cost for protection and regeneration of safety zone, etc. as per the scheme prepared by the State Government as per prevalent Act/Rules/Policy in this regard.

  
Divisional Forest Officer  
Pangi Forest Division  
Kilar 176323

महाप्रबंधक  
General Manager  
डुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगवाई, जिला मण्डी (हिंप्र०)  
Nagwain, Distt. Mandi (H.P.)-175121  
(शासी कांत)  
महा प्रबंधक,  
डुगर जल विद्युत परियोजना

 <p>एन एच पी सी <b>NHPC</b></p> <p>CIN:L40101HR19 75GOI032564</p>	<p>एनएचपीसी लिमिटेड (भारत सरकार का सूची 'ए' उद्यम) <b>NHPC Limited</b> (A Schedule 'A' Enterprise of Govt. of India)</p> <p>सरकार भारत एक कदम सरकार की ओर</p>	<p>डुगर जल विद्युत परियोजना पार्बती परिसर, नगवाईं, जिला मण्डी (हिंप्र०) 175121 <b>Dugar HE Project</b> Parbati Complex, Nagwain, Distt.- Mandi (H.P.) 175121 फोन/ Tel. 01905 280260 E-mail: dugarhep@gmail.com</p> <p> <b>Digital India</b> Power To Empower</p>
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### UNDERTAKING

We undertake that the project shall make the payment of Net Present Value (NPV) against the environmental damages likely to be caused due to the project, as per the prevalent Act /Rules / Policy in this regard and additional amount of NPV of Forest land if determined as per final decision of Hon'ble Supreme Court of India.



Divisional Forest Officer  
Pangi Forest Division  
Kiflai 176323

महाप्रबंधक  
General Manager  
डुगर जल विद्युत परियोजना  
Dugar Hydro Electric Project  
नगवाईं, जिला मण्डी (हिंप्र०) 175121  
Nagwain, Distt. Mandi (H.P.)-175121  
महा प्रबंधक,  
डुगर जल विद्युत परियोजना



**UNDERTAKING**

We undertake that the project shall make the payment of additional amount of NPV of Forest land if determined as per final decision of Hon'ble Supreme Court of India.



**General Manager  
Dugar HE Project.**

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

  
Divisional Forest Officer  
Pangi Forest Division  
KILLAR