सत्यमेव जयते

File No: F.No- 01(19)/2023

Government of India

Ministry of Environment, Forest and Climate Change

(Issued by the State Environment Impact Assessment Authority(SEIAA), UTTARAKHAND)

***

Date **30/09/2025**

To,

Girish Chandra Joshi
UJVN LIMITED
Ujjwal Bhawan, Maharani Bagh, GMS Road , DEHRADUN, UTTARAKHAND, , 248001
eeciviltp2020ujvnl@gmail.com

Subject: Grant of prior Environmental Clearance (EC) to the proposed project under the provision of the EIA Notification 2006 -regarding.

Sir/Madam,

This is in reference to your application submitted to SEIAA vide proposal number SIA/UK/RIV/552855/2025 dated 24/09/2025 for grant of prior Environmental Clearance (EC) to the proposed project under the provision of the EIA Notification 2006 and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC25B0501UK5500131N
(ii) File No.	F.No- 01(19)/2023
(iii) Clearance Type	Fresh EC
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(c) River Valley/Irrigation projects
(vii) Name of Project	Tiuni Plasu HEP (72 MW)
(viii) Name of Company/Organization	UJVN LIMITED
(ix) Location of Project (District, State)	DEHRADUN, UTTARAKHAND
(x) Issuing Authority	SEIAA
(xi) Applicability of General Conditions as per EIA Notification, 2006	No

Plot/Survey Khasra Nos.:

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A, B and C)/ EIA & EMP Reports were submitted to the SEIAA for an appraisal by the SEIAA under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by SEIAA in the meeting held on . The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed from the PARIVESH portal by scanning the QR Code above or through the following web link click here.
5. The brief about configuration of products and byproducts as submitted by the Project Proponent in orm-1 (Part A, B and C)/ EIA & EMP Reports / presented during SEIAA are annexed to this EC as Annexure (1).
6. The SEIAA, in its meeting held on , based on information submitted viz: Form 1 (Part A, B and C), EIA/EMP report etc & clarifications provided by the project proponent and after detailed deliberations on all technical aspects and public hearing issues and compliance thereto furnished by the Project Proponent, recommended the proposal for grant of Environment Clearance under the provision of EIA Notification, 2006 and as amended thereof subject to compliance of Specific and Standard EC conditions as given in this letter.
7. The SEIAA has examined the proposal in accordance with the provisions contained in the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and based on the recommendations of the State Environment Impact AssessmentAuthority(SEIAA) Appraisal Committee hereby accords Environment Clearance to the instant proposal of M/s. Girish Chandra Joshi under the provisions of EIA Notification, 2006 and as amended thereof subject to compliance of the Specific and Standard EC conditions as given in Annexure (1)
8. The Ministry reserves the right to stipulate additional conditions, if found necessary.
9. The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
10. The Project Proponent is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.
11. Validity of EC is upto 30/09/2025 to the start of production operations by the project or activity. Validity of EC becomes perpetual subject to the start of production operations by the project or activity on or before the [Project_Date] In case the project proponent fails to start the production operations within the EC validity date, application for EC validity extension shall be submitted to the regulatory authority as per the provision contained in the Para 9.0 of EIA notification, 2006 and its amendment.
12. General Instructions:

    (a) The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC/SEIAA website where it is displayed.
    (b) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
    (c) The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions.
    (d) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during perational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.
    (e) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
    (f) The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
    (g) Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
13. This issues with the approval of the Competent Authority

Copy To
N/A

Annexure 1

Standard EC Conditions for (River Valley/Irrigation projects)

1. Statutory Compliance

S. No	EC Conditions
1.1	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
1.2	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.

Additional EC Conditions

Project Overview

Tiuni Plassu Hydro-Electric Project, conceived as R-O-R scheme across river Tons in Dehradun District of Uttarakhand, envisages utilisation of gross head of 67 m for annual power generation of 298.51 MU in a 90 % dependable year with 95% machine availability. The proposed barrage shall be 89.50m long and shall divert river discharge (Maximum;145cumec) into one power intake structure, connected to 4.155 km long 7m diameter modified horse shoe shaped Head Race Tunnel having at its lower end a restricted Orifice type surge shaft of 30 m diameter; 2 penstock of 5m diameter and 110m length leading water to a Surface Power House (2X36 MW) discharging to river through 50m long rectangular TRC. The catchment area is 3320 sq. km and the submergence area is 14.569 ha. Total land requirement is 54.636 ha of which private, forest land shall be 7.089 ha and 47.547ha respectively. There shall be 43 project affected families of which five shall be displaced. The total cost of Project at July 2021 price level shall be 905.80 Cr. The levelized sale price is Rs. 6.34 per Kwh.

Project Location.

The Project Site is located on SH-1 (Dehradun – Koti – Atal – Tiuni) in Dehradun district of Uttarakhand State and is about 180 km from the nearest railhead Dehradun. The nearest airfield is at Jolly Grant about 206 km from Barrage site. Barrage site on river Tons is 200m d/s of its confluence with river Pabbar and Surface Power House (2X36 MW,) on the left bank of river Tons near Naval village upstream of confluence of Suker Khad with the Tons.

Scoping Clearance

The MoEF&CC, New Delhi, vide letter no. J-12011/22/2017-IA-I(R) dated 06-09-2017, issued the "Terms of Reference" (TOR) to Uttarakhand Project Development and Construction Corporation Ltd., Yamuna Colony, Dehradun (UPDCC) for preparation of EIA/EMP report for project with installed capacity 72MW. The Government of Uttarakhand vide letter No. 377/11(02)-2020-04(08)/2018, dated 8th May,2020, transferred the project to Uttarakhand Jal Vidyut Nigam Limited (UJVN Ltd.), Dehradun. The MoEF&CC, New Delhi vide its F. No. J-12011/22/2017-IA-I(R) dated 14th July,2022, assented to the transfer of ToR, dated 6.9.2017, to UJVN Ltd.

Salient Features of Project

LOCATION	
Village / Tehsil/District/ State	Raigi/Tiuni/ Dehradun /Uttarakhand
River	Tons
Coordinates of Barrage	30^0 57'02" N, $77^0$51'20" E
Coordinates of Powerhouse	$30^0$55' N, 77^0 50'23" E
Nearest rail head	Dehradun
Nearest airport	Jolly Grant
HYDROLOGY	
Catchments area at Intake Site	3320 Sq. km
Snow Catchment	962 Sq. km
90%,75% and 50% Dependable Yield	2378 MCM;2649 MCM and 3489 MCM

90%,75% and 50% dependable flow	32.92 cumec; 47.57 cumec and 88.18cumec
SPF	9830 cumec
GLOF	558 cumec
Design Flood	10388 cumec
DIVERSON STRUCTURE	
Type	Barrage
FRL /MWL	EL. 930.50 masl
MDDL	EL. 927.00 masl
Gross Storage Capacity at FRL/MDDL	1.224 MCM/0.664 MCM
Live Storage between FRL and MDDL	0.58 MCM
Total Length of barrage	89.50 m
Under Sluice Bay	2 no., 15m X 20.30
Crest level of under sluice	EL. 910.50 masl
Barrage Bays	3 no., 15m X 18.80m
Spillway Sill Level	EL. 912.00 masl
Width of Divide Wall	4m
Width of Pier	3.5m
POWER INTAKE	
No. of Intakes	1 no
No. of bays	6 nos
Gate sill level	EL. 919.50 masl
Design discharge	145 cumec
HEAD RACE TUNNEL	
Diameter	7.00 m
Profile	Modified Horse Shoe Shapped
Length	4155 m
Design discharge	145 cumec
SURGE SHAFT	
Type	Restricted Orifice
Diameter	30.00 m
Height above riser	30.3 m
Surge Shaft Gate	12 Nos, 5m(W) X 4.00 m(H)
Maximum/minimum surge level	EL. 941.01 masl / El.913.67masl
PENSTOCK	
Number,size and length	2 no., 5m internal diameter, 110m long each
Design discharge /Velocity	72.50 cumec each / 3.69 m/sec
POWERHOUSE	
Type	Surface
Installed capacity	72 MW (2 x 36MW)
Size of Powerhouse	59.03 m (L) x 23 m (W) x 49.05 m (H)
Gross /Net head	68.3 m /58.6 m
Turbine	2, Vertical axis Francis (36 MW each)
TAIL RACE CHANNEL	
Shape	Rectangular
Length	40m
Maximum/minimum tail level	EL. 864.15 masl/ El. 862.20masl
ANNUAL ENERGY GENERATION (WITH 95% MACHINE AVAILABILITY)	
50% dependable year (1985-86)	362.08 MU
75% dependable year (2005-06)	301.82 MU
90% dependable year (2004-05)	298.51 MU
ESTIMATED COST	

ESTIMATED COST	905.80 crore (July 2021 price level)
Cost of Installation per kw	Rs. 1,25,805
Construction Period	4 years

Land requirement

Requirement of private and forest land shall be 7.089 ha and 47.547 ha respectively.

Status of Private Land Acquisition

Private land is yet to be acquired. The preliminary notification for acquisition of land u/s 11 of the Act has been issued by DM, Dehradun.

Status of Forest Land Diversion

The proposal for utilization of forest land for Tiuni Plasu HEP, for the first time, was considered in 6th FAC meeting of MoEF&CC held on 24-06-2025. After deliberation, the FAC raised EDS which were responded on 09.07.2025. The proposal scheduled for consideration in next meeting on 26-09-2025.

Environmental Sensitivity and other Relevant Features

The project area lies in Western Himalayas in physiographic province of Garhwal Himalayas in District Dehradun of State of Uttarakhand. The study area lies in the inner lesser Himalayas, which encompasses steep, rugged terrain. The rocks exposed in the project area comprises of red and grey slate, quartzite, phyllites and basic rock with lenticular bands of limestone. As per seismic zoning map of India (IS 1893:2002), the project area falls within Zone IV (high risk zone, intensity viii).

No dynamic land slide/slips have been observed at barrage and intake complex, powerhouse site and along the alignment of water conductor system. No major occurrence of economic deposit (major mineral) has been found in the area.

No National Park, Sanctuary, Defence Establishments, Archaeological Monuments, Notified Eco-sensitive areas or protected area under Wild Life (Protection) Act exists within the project area or within 10 km distance from it.

Brief Description on Hydrology and Water Availability:

The water availability series for Tiuni Plasu HEP, as recommended by the CWC vide letter no. 2/UTR/16/CEA/09-PAC/7375-77 dated 19/21st Oct. 2011, was adopted for project planning. Water flow series for 32 years (1977-78 to 2008-2009) as approved by CWC was utilized and further updated to year 2019-20. On the basis of It is seen that the year 2004-05,1987-88 and 1992-93 would constitute 90% ,75% and 50% dependable year. Even after extending the flow data to year 2019-20, the 90% dependable year (year 2004-05) still remains same as recommended by CWC in earlier studies considering river flow data up to year 2008-09.

The design flood for Tiuni Plasu HEP has been adopted as 10388 cumec, which is comprised of SPF value of 9830 cumec as recommended by the CWC and the anticipated GLOF (558cumec) as recommended by NIH, Roorkee, vide GLOF Study Report for Tons basin,2018.

The maximum diversion flood for 1 in 25-year frequency has been calculated as 543.15 m3/sec. The maximum observed instantaneous discharge at Tiuni in non-monsoon months from 1977 to 2007 is 558.19 m3/sec. Therefore, according to IS:14815-2000, Design flood for diversion works is considered as 560 m3/sec.

Brief of Base Line Environment:

To establish the base line environmental status of the physico-chemical, biological and socio-economic parameters in the project area and within the project influence area the baseline study and primary data collection has been earlier carried out during post-monsoon,2017, pre-monsoon 2018 and monsoon ,2018. After transfer of project by Government of Uttarakhand vide letter No. 377/11(02)-2020-04(08)/2018, dated 8th May,2020, to Uttarakhand Jal Vidyut Nigam Limited, the latter viewing that the earlier baseline monitoring/sampling data has become more than 3-year-old from the date of public hearing (23.12.2019), has re-conducted the baseline study for three season covering post-monsoon 2021; pre-monsoon 2022 and monsoon2022 and incorporated it in EIA report

Air:

Ambient air quality monitoring has been done at 06 locations. The pollutants concentration in the air, during both baseline monitoring period, werewithin the NAAQS prescribed by CPCB. The maximum concentration of PM10, PM2.5, NOx and SO2 was 58.6 **g**/m^3, 36.4 **g**/m^3 16.8 **g**/m^3 and below 5**g**/m^3 respectively. There are no industries in the area and the density of vehicular traffic is not alarming. Based on 24-hourly average values of air pollutants at each station, the AQI Category for monitoring stations during both baseline period was found to vary from good to satisfactory.

Noise:

Noise level monitoring in Ambient air has been done at 06 locations for three seasons. The maximum L-equivalent noise levels recorded at barrage site and power house site on bank of Tons River and were 74.2 dB(A) and 72.6dB(A) during day and night time respectively. These were high due to fast current of the river. However, at other locations are within the limits prescribed by CPCB.

Water:

Surface and ground water samples were taken from six locations each.

Surface Water

The pH values of all analysed surface water samples, during both baseline monitoring period, ranged between 7.12 to 7.90 and were within the acceptable limit (6.5-8.5). The TDS levels ranged from 85 to 156 mg/l and were less than the acceptable limit of 500 mg/l. Total hardness levels ranged from 54 to 84 mg/l and were within acceptable limit of 200 mg/l. The dissolved oxygen values ranged between 7.1-9.6 mg/l and were within the acceptable limit of 6mg/l. The chlorides level in surface water samples ranged from 11 to 27 mg/l and were within the acceptable limit of 250 mg/l. The sulphates level ranged from 4.0 to 13.0 mg/l and were within acceptable limit of 200 mg/l. The fluorides level ranged between 0.05 to 0.38 mg/l was lower than the acceptable limit of 1.0 mg/l. The nitrate level ranged between 0.90 to 7.1mg/l and were within the acceptable limit of 45 mg/l. The iron level ranged between 0.10 to 0.36 mg/l and were within the acceptable limit of 1 mg/l. The concentration of toxic elements and phenolic compounds is also below the detectable limits.

The bacteriological parameter (i) BOD values ranged between <1.0mg/l to 1.7mg/l and were below 2mg/l, (ii) Total Coliform organism were between 6 MPN/100ml to 38 MPN/100ml and below 50 MPN/100ml, CPCB criteria for Class A water for designated best use of Drinking Water Source without conventional treatment but after disinfection. The Water Quality Index for sampling sites in both baseline sampling periods was found as Good to Excellent.

Ground Water

The analysis of results for ground water indicate that the pH ranged between 7.25 to 8.0, which are well within the specified acceptable limit (6.5 to 8.5). Total hardness recorded ranged from 80 to 186 mg/l, which is within the acceptable limit 200 mg/l at all locations. The Total Dissolved Solids (TDS) concentration recorded ranged between 131-285mg/l and was within the acceptable limit (500 mg/l).Chlorides at all the locations were within the acceptable limit (250 mg/l) as it ranged between 17.9-49.3 mg/l. Sulphates at all the locations were within the acceptable limit (200 mg/l) as it ranged between 5.4-46.6mg/l. Nitrates at all the locations were within the acceptable limit (45 mg/l) as it ranged between 1.4-12.9 mg/l. Iron and Fluoride concentrations at all the locations were within their acceptable limit. Bacteriological studies reveal that no coliform bacterial are present in the samples. The toxic metal contents were observed to be below detectable limits. All physical and general parameters were observed within the desirable limit as per IS 10500:2012 (Second Revision). Thus, it is recommended that ground water be filtered and disinfected prior to be given to villages for meeting their drinking water requirements.

Soil:

Soil samples were taken from 6 locations. The texture of the soil is sandy loam. Soil is slightly alkaline with pH varying from 7.39 to 7.85 and has high organic carbon (0.88 % - 1.86%). Soils are low to medium in available nitrogen content. (270 to 332.6 kg/ha); medium in available phosphorus (15.9 kg/ha to 32.5kg/ha) and medium in potassium content (117 kg/ha to 148 kg/ha). Based on Nutrient Index Value for N, P and K, the soils of study area fall into medium fertility status. Soils have good organic carbon and are capable of supporting agriculture. The soils are neither saline nor sodic as pH value of soils in all analysed samples is less than 8.5; the value of EC is less than 4 dS/m and ESP less than 15%. Soils have excellent SAR values, being less than 1.

Flora and Fauna of the Project Area

During Primary survey, herb flora was recorded as the dominant flora with 49 species (26 families) followed by shrub with 29 species (22 families), tree with 22 specie (14 families) and 10 grasses (2 families). Ten economically important plant and 32 important medicinal/ethnobotanical importance plant species were recorded. The faunal study reveals that 12 mammalian species were recorded of which four (Jackal, Indian Porcupine, Jungle Cat and Tendua) belongs to Schedule-I species as per the wildlife Act 1972. 23 bird species of birds were recorded/reported of which none belongs to Schedule-1. 4 species of herpetofauna were recorded /reported of which one (Oriental Rat snake) belongs to Schedule-I. During the survey a total of 12 species (4 families) of butterfly were encountered from the study area. 8 species of fishes belonging to 3 families were recorded/reported from in the project area. Total 4 fish species were collected during fishing; *Schizothorax* sp., *Glyptothorax* sp*., Garra gotyla.* However, *Schizothoraxa* sp. was predominant in the total catch.

Brief description on Anticipated Environment Impacts and Mitigation measures:

Land Degradation and Mitigation Measures:

Land degradation may take place due to excavation and disposal of surplus muck besides quarrying operation at rock quarries. Total quantity of muck to be generated due to the project with 42% swell shall be 8.89 lakh cum of which 5.67 lakh cum (64%) shall be consumed on project work leaving 3.22 lakh cum to be disposed at six muck disposal sites. The muck shall be laid in such a manner that rock mass is properly stacked behind the wall with minimum of voids. Muck disposal sites shall be developed from below the ground level by providing hard engineering measures such as retaining structures, crate walls and gabions. Garland drains shall be laid all along outer periphery of the muck piles for carrying

rain water. On this count a provision of Rs.780 lakh has been earmarked under Muck Management Plan, which has been approved by the Forest Department. For mitigating the degradation of land around the quarry and on biota around it, the works like construction of drains, retaining structure, silt settling tank and plantation have been proposed under Restoration Plan for Quarry Sites (Rs.24lakh)

Loss of Forest Landand Mitigation Measures:

The implementation of project shall cause habitat loss due to diversion of 47.547ha forestland. The diversion of forestland for non-forestry purpose destabilises the existing eco-system balance and cause the loss of benefits from ecological services from such land in addition to loss of timber, fuelwood and NTFP products for mitigation of which compensatory afforestation shall be carried out by the Forest Department. On this count a provision of Rs.864 lakh, which *inter alia* includes NPV of Forest Land to be diverted, has been earmarked under Compensatory Afforestation Plan.

Fragmentation of Habitat and Mitigation Measures:

The proposed Pond/Reservoir shall cause fragmentation of natural areas on either bank of river. The surface works like barrage and appurtenant works, intake structure, haul and project roads, exposed penstock line and surface power house also cause physical barrier and fragmentation. Habitat fragmentation bisects the landscape and leaves smaller, more isolated land for wildlife, causing local and population level changes to native flora and fauna. Fragmentation of habitat and consequent increase in temporary stress levels of wildlife during construction phase for mitigation of which Wildlife and Bio-diversity Management Plan (Rs 175 lakh) has been approved by the PCCF(Wildlife) Dehradunvide letter No. 2099/12-1. Dated 24.2.2025.

Impact on Spawning Movement of Fishes and Mitigation Measures:

The construction of barrage shall adversely impact the fishes especially the migratory fishes (*Schizothorax sp* and *Tor sp.*) as their movement for spawning on upstream of barrage shall be impacted. To facilitate movement of fishes, a provision of a fish ladder (3mx2m) has been proposed in the divide wall of barrage. In addition to this a hatchery at a suitable place shall be established and manned through the State Fisheries Department for which Project Proponents would provide funds (Rs 210 lakh) under Fisheries Management Plan approved by the Director, Fisheries, Uttarakhand, Dehradun vide No. 1022/Tiuni HEP/2022-23, dated 2.12.2022.

Reduction in Flow d/s of barrage and Mitigation Measures:

The flows downstream of the barrage shall be reduced due to diverted discharge through water conductor system to surface power house for power generation. To address the environmental flow requirement (EFR) downstream of barrage. The minimum ecological flow during all seasons shall be finally adopted after acceptance of the recommendation of EAC by the Ministry.

Impact on Air Environment and Mitigation Measures:

Temporary changes in air quality during construction phase are expected due to emission of hydrocarbons from vehicles and gases from blasting operations. The air quality modelling reveals thatwithin barrage complex excavation area,the predicted24-hourly maximum concentration of pollutants PM_{10}, $PM_{2.5}$, NOx and $SO_2$was found to be 8.77 $\mu g/m^3$, 1.0 $\mu g/m^3$,9.12 $\mu g/m^3$ and 2.33 $\mu g/m^3$ respectively, while the resultant concentrations shall be 62.47 $\mu g/m^3$, 33.00 $\mu g/m^3$, 25.32 $\mu g/m^3$ and 7.33 $\mu g/m^3$ respectively, which are within the NAQQS limits.

Due to increased transportation during construction phase at 25 m, predicted concentration for PM10 is 8.6 $\mu g/m^3$, which reduces to 5.4 $\mu g/m^3$, 2.4 $\mu g/m^3$ and 1.0 $\mu g/m^3$ at 50m, 150m and 500m respectively. Thus the impact on the pollutant level (PM10) due to increased traffic due to transportation of material shall be minimal. The increased GLC in respect of NOx were insignificant being 0.12 $\mu g/m^3$ up to 25m and 0.11 $\mu g/m^3$ up to 50m and 0.10 $\mu g/m^3$ up to 1km,

For mitigation of which various steps shall be undertaken which include periodical air quality monitoring (Rs 10.50 lakh) and copious sprinkling at construction site under Air Pollution Control Plan (Rs 21.90 lakh) and on roads for dust suppression shall be done under Safeguards during road construction (Rs 20.00 lakh).

Impact on Noise Environment and Mitigation Measures:

Temporary increase in noise levels is expected during construction phase only. The estimated noise level atat barrage complex shall be 79 dB(A),whereas at three receptors i.e. Begal, Raigi and Tiuni Market shall be 46 dB(A), 43 dB(A) and 48 dB(A) respectively and the resultant levels (estimated +background level) at these receptors shall be 48 dB(A), 46 dB(A) and 58 dB(A) respectively which are less than the standard values 55 dB(A) for day time for Begal and Raigi and 65 dB(A) for Tiuni Market during day time but at night time these marginally exceeds the standard limit by 3 dB(A), 1 dB(A) and 3dB(A) respectively and are not much perceptible. An increase of about 8 –10 dB(A) is required before the sound subjectively appears to be significantly louder.Sound emitting construction equipment shall not be used or operated during night time in residential areas and silence zones. For mitigation of which various steps shall be undertaken which include periodical noise level monitoring (Rs 3.50 lakh)

and the workers deployed at such locations where the noise levels are high shall be provided with earplugs under Noise Pollution Control Plan (Rs 0.60 lakh).

Impact due to Labor Immigrationand Mitigation Measures

Due to labour influx (800) in the area, there shall be an increase in biotic pressure in nearby forest area due to felling of trees for fuel wood for redressal of which LPG for cooking shall be provided under Energy Conservation Plan (Rs 33 lakh).

The health of the people and the environment shall be significantly impacted, if sewage and solid waste will be generated from the colonies is not properly disposed. It is very essential that from the planning stage, sewerage management and solid waste disposal facilities should be conceptualized to maintain the health of the people and the environment. It is estimated that total solid waste generation per day by labour population residing in labour colony would be approximately 225 kg dry weight. This would be to 6750 kg dry weight, and 324000 kg dry weight per month and per annum respectively. The influx of labour-force during construction warrants proper arrangement for solid waste management and sanitation and hygiene facilities for which Rs 70 lakh have been earmarked.

During construction, the risk is involved to the labour in various activities like excavation on hill slope, excavation, quarrying and blasting operation, works related to Electrical and Mechanical components, various activities in workshop. Workers are exposed to various risks and occupational diseases and health hazards which sometimes cause grave injuries and prolong illness. For ensuring occupational health and measures for safety of labour during construction provision has been made under Labour Management Plan (Rs 45 lakh).

Construction of the proposed project will increase fuel and dust emission which in turn may cause respiratory problems like asthma. Localized stagnation in borrow pit areas is expected during construction in some of the areas, which may propagate malaria and bacteria related disease The new environment shall increase the incidence of waterborne disease and migration of people(labour) help spreading the diseases. Thus, it is necessary to provide both preventive and curative measures, controlling both incidences, spread of these diseases. Onsite medical facility shall be provided in the labour colony/camp along with first aid facilities at all the working sites for which a provision of Rs 100 lakh has been earmarked under Public Health Delivery Plan.

Impact due to Land Acquisitionand Mitigation Measures:

Due to acquisition of 7.089 ha private land from three villages 43 families shall be affected of which 5 families shall be displaced, who shall be resettled and rehabilitated as per RFCTLARRA 2013conjointly read with Rules ,2016, enforced by Government of Uttarakhand. The total financial requirement for the implementation of Resettlement and Economic Rehabilitation Plan including cost of land acquisition would be about Rs. 898 lakhs. Besides these provisions of Rs 470 lakh has been made by the project proponent under Local Area Development Plan for the infrastructure development in the project area as per the needs of the local population.

Risk Management and Disaster Management and Mitigation Measures:

The problem likely to be encountered during construction/operation inter alia include (i) accidents due to explosives/blasting, (ii) failure of stripped slope, (iii) accidents due to HEMM, (iv) sabotage in case of magazine, Hazards due to blasting can be avoided by handling of explosives, charging and blasting by competent persons and provision of magazine at a safe place with proper fencing and necessary watch and ward. Most of accidents during operation of HEMM can be significantly averted by periodical maintenance and operation. In case of barrage break the flood peak discharge as it propagates through valley shall inundate downstream stretch of five km within 19.5 minutes. Therefore, disaster management plan is based on such measures, which are purely preventive in nature.

Project Benefit:

Project benefits include benefits like (i) additional annual generation of 298.51 MU in a 90 % dependable year; (ii) 12 % free power of total generation will be given to state, which will help in regular power supply in the area; (iii) Annual 1 % of free power towards local area development fund. (iv) Access to improved infrastructure facilities and (v) Employment opportunities to 800 people during peak construction phase and about 25 people will be employed during O&M of project.

Public Hearing Details:

Public Hearing, presided by Additional District Collector, Dehradun, was conducted on 23rd December, 2019, at barrage site. Sixty-five stake holders attended the meeting of which six discussed their views in person and three recorded their views in writing. The main issues raised were about adequate compensation, employment for PAF and establishing of a Central School in Tiuni. Compliance of these suggestion has been incorporated in the report.

Status of Other Statutory Clearances.

Approval of Central Water Commission and Central Electricity Authority has been obtained

Litigation & Court Cases

At present no litigation & court case is pending in any court of law.

Environment Management Plans

To ameliorate the negative effects of the project construction and overall improvement of the environment following management plans are formulated for implementation concurrent to the project construction. The cost of the management

plans is shown in following Table.

S.No.	EMP	Cost (Rs. Lakh)	Capital Cost (Rs lakh)	Annual Recurring (Rs lakh)
1.	Catchment Area Treatment Plan	2446.00	2446.00	00.00
2.	Compensatory Afforestation Scheme	864.00	824.00	10.00
3.	Wildlife and Bio-diversity Management plan	175.00	143.00	8.00
4.	Resettlement & Rehabilitation Plan	898.00	898.00	0.00
5.	Green Belt Development Plan	22.00	14.00	2.00
6.	Reservoir Rim Treatment Plan	24.00	24.00	0.00
7.	Landscape and Restoration Plan	6.00	6.00	0.00
8.	Fisheries Management Plan	210.00	91.00	29.75
9	Muck Management Plan	780.00	772.00	2.00
10.	Restoration Plan for Quarry Sites	24.00	8.00	4.00
11.	Disaster Management Plan	15.00	15.00	0.00
12.	Water, Air and Noise Management Plan	38.00	16.00	5.50
13.	Public Health Delivery Plan	100.00	0.00	25.00
14.	Labour Management Plan	45.00	9.00	9.00
15.	Sanitation & Solid Waste Management Plan	70.00	30.00	10.00
16.	Local Area Development Plan	470.00	466.00	1.00
17.	Environmental Safeguard During Construction	20.00	0.00	5.00
18.	Energy Conservation Measures	33.00	5.00	7.00
19.	Environmental Monitoring Plan	44.00	0.00	11.00
Grand Total		**6284**	**5767.00**	**129.25**

Replies to ADS Raised in 4th SEAC Meeting held on 1.3.2023

S.N.	ADS Point	Reply
1-	The Project Proponent informed the committee that, Stage-I Forest Clearance under FC Act 1980, has not been granted yet	The proposal for diversion of 47.547 ha forest land for Tiuni Plasu HEP (Agenda No. 13) was considered in 6th FAC meeting of MoEFCC held on 24-06-2025. There is no adverse comment by the FAC **(along with project report)**. The information desired by the FAC has been submitted **(along with project report)**. The proposal is again recall for consideration under agenda item No. 30 before upcoming FAC meeting scheduled on 26-09-2025 **(along with project report)**.
2-	The Project Proponent informed the committee that, CAT plan is yet to be approved	The CAT plan has been approved in the meeting Chaired by HoFF, Uttarakhand in meeting held on 14-05-2025. The approved copy of CAT plan is attached **(along with project report)**.
3-	The study of floral and faunal diversity submitted in the EIA report seems to be inadequate. The Project Proponent is advised to further substantiate it.	The updated EIA report with substantiated study of floral and faunal diversity is attached **(along with project report)**.
4-	Approved Rehabilitation & Resettlement plan shall also be submitted as per RFCT LARRA, 2013	The RIGHT TO FAIR COMPENSATION AND TRANSPARENCY IN LAND ACQUISITION, REHABILITATION AND RESETTLEMENT ACT (RFCT LARRA), 2013 issued by the Govt. of Uttarakhand is being implemented for this project **(along with project report).** The specific R&R policy as per R&R Act 2013 is also under progress by District Magistrate, Dehradun and District Magistrate Uttarkashi. Section-4, Section-5 & Section-7 has been completed by DM Dehradun as per Act 2013. Section-11 is under final stage. Section-4 & Section-5 has been completed by DM Uttarkashi as per Act 2013. Section-7 is under final stage.

Details of Consultant Engaged

EQMS Global Pvt. Ltd. (formerly known as EQMS India Pvt. Ltd.), 305, 3rd floor, Rishabh Corporate Tower, Community Centre, Karkardooma, Delhi-11009, has conducted the Environment Impact study. The organization is accredited with

NABET/ Quality Control of India to conduct the Environment Impact Assessment Studies for river valley projects among others (NABET/ EIA/2225/RA0303, dt.18.9.2023) valid up to 23.11.2025. The three-season data has been collected by the EIA Consultant by engaging J.P. Test & Research Centre, Sahibabad Industrial Area, Ghaziabad, U.P.

The Committee after examining the original proposal and after going through the presentation done by the consultant has made the following observations-

In the 4th meeting of SEAC dated- 01.03.2023 the above proposal was considered & SEAC raised following queries -

With regards to the above mentioned observation raised before, the SEAC examine the proposal and made the following observations-

The SEIAA finally observed that following environmental safeguards can be imposed by SEIAA as conditions to the project proponent while granting Environmental Clearance to the proposal –

The Authority along with following additional conditions :-

1- The Authority observed that mining activity will also be carried out by PP for which separate EC will be required

2- The validity of EC is initially 10 years which can be extended subject to the compliance and the further appraisal.

3- The PP shall provide STP facility for there residential colony and offices.

4- Sewerage facility shall be developed for the near by villages falling within 5 Km radius of the project site.

5- During construction phase the turbidity of the river will increase which will reduce the primary productivity of the river and this in turn will affect the reproduction of troute and mahasheer, Hence the PP shall adopt mitigating measures in consultation with the fisheries department of Uttarakhand.

Standard EC Conditions for River Valley and Hydroelectric projects

I. Statutory compliance:

II. Air quality monitoring and preservation

III. Water quality monitoring and preservation

IV. Noise monitoring and prevention

V. Catchment Area Treatment Plan

VI. Waste management

VII. Green Belt and Wildlife Management

VIII. Public hearing and Human health issues

IX. Miscellaneous

Annexure 2

Details of the Project

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>a.</td><td>Details of the Project</td><td>Tiuni Plasu HEP (72 MW)</td></tr>
<tr><td>b.</td><td>Latitude and Longitude of the project site</td><td>30.9481, 77.8503 30.9531, 77.8578</td></tr>
<tr><td>c.</td><td>Land Requirement (in Ha) of the project or activity</td><td><table><tr><th>Nature of Land involved</th><th>Area in Ha</th></tr><tr><td>Non-Forest Land (A)</td><td>7.089</td></tr><tr><td>Forest Land (B)</td><td>47.547</td></tr><tr><td>Total Land (A+B)</td><td>54.636</td></tr></table></td></tr>
<tr><td>d.</td><td>Date of Public Consultation</td><td>Public consultation for the project was held on</td></tr>
</table>

S. No.	Particulars	Details
e.	Rehabilitation and Resettlement (R&R) involvement	YES
f.	Project Cost (in lacs)	90580
g.	EMP Cost (in lacs)	3773
h.	Employment Details	

Details of Products & By-products

Name of the product /By-product	Product / By-product	Quantity	Unit	Mode of Transport / Transmission	Remarks (eg. CAS number)
Hydro Electric Generation	Product	72	Mega Watt (MW)	Transmission Lines	Transmission Line for evacuation of power

राज्य स्तर पर्यावरण समाघात निर्धारण प्राधिकरण, उत्तराखण्ड, "गौरादेवी पर्यावरण भवन, तृतीय तल, 46–बी, आई. टी. पार्क,सहस्त्रधारा रोड, देहरादून"
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, नई दिल्ली द्वारा गठित)
दूरभाष: 0135–2976159
ईमेल: seiaa.seac.uk@gmail.com

सत्यमेव जयते
STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY UTTARAKHAND

State Level Environment Impact Assessment Authority, "Gauradevi Paryavaran Bhawan, Third Floor, 46-B I.T. Park, Sahastradhara Road, Dehradun"
(Constituted by Ministry of Environment, Forests and Climate Change Government of India.)
Phone No-0135–2976159
Email- seiaa.seac.uk@gmail.com

E.C.No-554 01(19)/2023 Dated- 29-9-2025

To,

M/s Uttarakhand Jal Vidyut Nigam Limited,
Ujjwal Bhawan, Maharani Bagh, GMS Road, Dehradun.

Sub: Environmental Clearance under EIA notification dated 14.09.2006 for Tiuni Plasu Hydro Electric Project (72 MW) at District Dehradun, Uttarakhand . Total area 54.636 Ha.

Sir,

Kindly take reference to your online proposal No SIA/UK/RIV/552855/2025 on 24/09/2025 submitted to SEIAA Uttarakhand regarding aforementioned subject. The SEIAA observed that proponents seek Environmental Clearance for Hydro Electric Project (72 MW) in accordance with the provisions of EIA Notification, 2006 as enlisted in Schedule 1(c). **The SEIAA considered the proposal after EIA/EMP & Public Hearing.** The SEIAA observed that the initial ToR letter was issued to the Uttarakhand Project Development and Construction Corporation Ltd. (UPDCC) vide letter No- F.No.J-12011/22/2017-IA-I (R) Dated- 06.09.2017 by the MoEF&CC after that the project was allotted to the M/s Uttarakhand Jal Vidyut Nigam Limited (UJVNL) by the Uttarakhand Government. Then the ToR was transferred to M/s UJVNL by MoEF&CC vide letter No- F.No.J-12011/22/2017-IA-I (R) Dated- 14.07.2022 and the public hearing was conducted on dated-23.12.2019. MoEF&CC vide its notification no- SO 1886 (E) dated-20.04.2022, has made it clear that **hydroelectric projects with threshold limit < 100 MW hydroelectric power generation will fall under category "B".**The project proponent has now submitted final EIA report consisting of chapters including description of environment, anticipated environmental impact and mitigation measures, environmental monitoring programme, project benefits, Disclosure of Consultants Engaged EMP etc. The details about the project site and proposal for EC as per the documents submitted by the project proponent is as under:-

The SEAC during its meeting held on 27th September, 2025 had undertaken appraisal of the above project. It has been found that the proposal is classified under Category B1 of EIA Notification 2006. The proponent has submitted PFR, EMP and other relevant documents as desired. After due examination of the relevant documents/certificates submitted by the project proponent and additional clarification furnished in response to its observations earlier, SEAC has recommended the grant of Environmental Clearance for the above project, as

SEIAA during its meeting dated 28th September, 2025 considered the above proposal based on the recommendation of SEAC and agreed with the condition mentioned above by SEAC.

After due examination and deliberation, the **SEIAA Uttarakhand hereby accords Environmental Clearance** for the above project under category B-1 of EIA notification 2006 (as amended from time to time) subject to the strict compliance with the General, Specific and other conditions mentioned below:-

S.No.	Parameters	Description
1	Name of the Project	Tiuni Plasu HEP, District Dehradun, Uttarakhand
2	Production Capacity	72MW
3	Total Plot Area	54.636ha
4	Proposed Site Location	Village-Raigi, Tehsil Tiuni, District Dehradun, Uttarakhand
5	Coordinates of Project site	Barrage: 30° 57'02" N, 77°51'20" E Powerhouse: 30°55' N, 77° 50'23" E
6	Water Requirement (KLD)	300 KLD
7	Source of Water	Tons River
8	Waste Water Management Waste water generation Mode of Disposal	51.6KLD. which shall be treated through STP and effluent used in watering of green belt development.
9	Solid waste Generation & Disposal	MSW-459Ton/annum during construction and 135Ton/annum during operation
10	Hazardous Waste Generation & Disposal	Nil
11	E-Waste	Nil

12	Green Area Development	Around the periphery of the reservoir 3ha area shall be brought under plantation besides 1500 saplings shall be planted as avenue plantation and in colony area. Apart from this Under the Catchment Area Treatment Plan, it is proposed to carry out afforestation/plantation in about 500 ha besides pasture development in 60 ha area.
13	Total Manpower	About 800 workers would be engaged temporarily during peak construction period.During operation about 50 people will get employment for O&M,
14	Electricity/Power requirement	Construction power requirement will be about 5 MW
15	Alternate Power Source	In case of grid failure or load shedding diesel generator sets (250 KVA) shall be deployed
16	Utilities	Project colony and approach roads
17	Land form, Land use and land ownership	Total land requirement for project is 54.636ha which is comprised of 7.089ha agriculture land and 47.547ha forest land.
18	Project cost	Rs. 905.80 Crores (July 2021 price level).
19	Corporate Environment Responsibility (CER)	Rs 470.00 lakh (on the basis of issues raised during public hearing).

Project Overview

Tiuni Plassu Hydro-Electric Project, conceived as R-O-R scheme across river Tons in Dehradun District of Uttarakhand, envisages utilisation of gross head of 67 m for annual power generation of 298.51 MU in a 90 % dependable year with 95% machine availability. The proposed barrage shall be 89.50m long and shall divert river discharge (Maximum;145cumec) into one power intake structure, connected to 4.155 km long 7m diameter modified horse shoe shaped Head Race Tunnel having at its lower end a restricted Orifice type surge shaft of 30 m diameter; 2 penstock of 5m diameter and 110m length leading water to a Surface Power House (2X36 MW) discharging to river through 50m long rectangular TRC. The catchment area is 3320 sq. km and the submergence area is 14.569 ha. Total land requirement is 54.636 ha of which private, forest land shall be 7.089 ha and 47.547ha respectively. There shall be 43 project affected families of which five shall be displaced. The total cost of Project at July 2021 price level shall be 905.80 Cr. The levelized sale price is Rs. 6.34 per Kwh.

Project Location.

The Project Site is located on SH-1 (Dehradun – Koti – Atal – Tiuni) in Dehradun district of Uttarakhand State and is about 180 km from the nearest railhead Dehradun. The nearest airfield is at Jolly Grant about 206 km from Barrage site. Barrage site on river Tons is 200m d/s of its confluence with river Pabbar and Surface Power House (2X36 MW,) on the left bank of river Tons near Naval village upstream of confluence of Suker Khad with the Tons.

Scoping Clearance

The MoEF&CC, New Delhi, vide letter no. J-12011/22/2017-IA-I(R) dated 06-09-2017, issued the "Terms of Reference" (TOR) to Uttarakhand Project Development and Construction Corporation Ltd., Yamuna Colony, Dehradun (UPDCC) for preparation of EIA/EMP report for project with installed capacity 72MW. The Government of Uttarakhand vide letter No. 377/11(02)-2020-04(08)/2018, dated 8th May,2020, transferred the project to Uttarakhand Jal Vidyut Nigam Limited (UJVN Ltd.), Dehradun. The MoEF&CC, New Delhi vide its F. No. J-12011/22/2017-IA-I(R) dated 14th July,2022, assented to the transfer of ToR, dated 6.9.2017, to UJVN Ltd.

Salient Features of Project

LOCATION	
Village / Tehsil/District/ State	Raigi/Tiuni/ Dehradun /Uttarakhand
River	Tons
Coordinates of Barrage	30^0 57'02" N, $77^0$51'20" E
Coordinates of Powerhouse	$30^0$55' N, 77^0 50'23" E
Nearest rail head	Dehradun
Nearest airport	Jolly Grant
HYDROLOGY	
Catchments area at Intake Site	3320 Sq. km
Snow Catchment	962 Sq. km
90%,75% and 50% Dependable Yield	2378 MCM;2649 MCM and 3489 MCM
90%,75% and 50% dependable flow	32.92 cumec; 47.57 cumec and 88.18cumec
SPF	9830 cumec
GLOF	558 cumec
Design Flood	10388 cumec
DIVERSON STRUCTURE	
Type	Barrage
FRL /MWL	EL. 930.50 masl

MDDL	EL. 927.00 masl
Gross Storage Capacity at FRL/MDDL	1.224 MCM/0.664 MCM
Live Storage between FRL and MDDL	0.58 MCM
Total Length of barrage	89.50 m
Under Sluice Bay	2 no., 15m X 20.30
Crest level of under sluice	EL. 910.50 masl
Barrage Bays	3 no., 15m X 18.80m
Spillway Sill Level	EL. 912.00 masl
Width of Divide Wall	4m
Width of Pier	3.5m
POWER INTAKE	
No. of Intakes	1 no
No. of bays	6 nos
Gate sill level	EL. 919.50 masl
Design discharge	145 cumec
HEAD RACE TUNNEL	
Diameter	7.00 m
Profile	Modified Horse Shoe Shapped
Length	4155 m
Design discharge	145 cumec
SURGE SHAFT	
Type	Restricted Orifice
Diameter	30.00 m
Height above riser	30.3 m
Surge Shaft Gate	12 Nos, 5m(W) X 4.00 m(H)
Maximum/minimum surge level	EL. 941.01 masl / El.913.67masl
PENSTOCK	
Number,size and length	2 no., 5m internal diameter, 110m long each
Design discharge /Velocity	72.50 cumec each / 3.69 m/sec
POWERHOUSE	
Type	Surface
Installed capacity	72 MW (2 x 36MW)
Size of Powerhouse	59.03 m (L) x 23 m (W) x 49.05 m (H)
Gross /Net head	68.3 m /58.6 m
Turbine	2, Vertical axis Francis (36 MW each)
TAIL RACE CHANNEL	
Shape	Rectangular
Length	40m
Maximum/minimum tail level	EL. 864.15 masl/ El. 862.20masl
ANNUAL ENERGY GENERATION (WITH 95% MACHINE AVAILABILITY)	
50% dependable year (1985-86)	362.08 MU
75% dependable year (2005-06)	301.82 MU
90% dependable year (2004-05)	298.51 MU
ESTIMATED COST	
ESTIMATED COST	905.80 crore (July 2021 price level)
Cost of Installation per kw	Rs. 1,25,805
Construction Period	4 years

Land requirement

Requirement of private and forest land shall be 7.089 ha and 47.547 ha respectively.

Status of Private Land Acquisition

Private land is yet to be acquired. The preliminary notification for acquisition of land u/s 11 of the Act has been issued by DM, Dehradun.

Status of Forest Land Diversion

The proposal for utilization of forest land for Tiuni Plasu HEP, for the first time, was considered in 6th FAC meeting of MoEF&CC held on 24-06-2025. After deliberation, the FAC raised EDS which were responded on 09.07.2025. The proposal scheduled for consideration in next meeting on 26-09-2025.

Environmental Sensitivity and other Relevant Features

The project area lies in Western Himalayas in physiographic province of Garhwal Himalayas ih District Dehradun of State of Uttarakhand. The study area lies in the inner lesser Himalayas, which encompasses steep, rugged terrain. The rocks exposed in the project area comprises of red and grey slate, quartzite, phyllites and basic rock with lenticular bands of limestone. As per seismic zoning map of India (IS 1893:2002), the project area falls within Zone IV (high risk zone, intensity viii).

No dynamic land slide/slips have been observed at barrage and intake complex, powerhouse site and along the alignment of water conductor system. No major occurrence of economic deposit (major mineral) has been found in the area.

No National Park, Sanctuary, Defence Establishments, Archaeological Monuments, Notified Eco-sensitive areas or protected area under Wild Life (Protection) Act exists within the project area or within 10 km distance from it.

Brief Description on Hydrology and Water Availability:

The water availability series for Tiuni Plasu HEP, as recommended by the CWC vide letter no. 2/UTR/16/CEA/09-PAC/7375-77 dated 19/21st Oct. 2011, was adopted for project planning. Water flow series for 32 years (1977-78 to 2008-2009) as approved by CWC was utilized and further updated to year 2019-20. On the basis of It is seen that the year 2004-05,1987-88 and 1992-93 would constitute 90% ,75% and 50% dependable year. Even after extending the flow data to year 2019-20, the 90% dependable year (year 2004-05) still remains same as recommended by CWC in earlier studies considering river flow data up to year 2008-09.

The design flood for Tiuni Plasu HEP has been adopted as 10388 cumec, which is comprised of SPF value of 9830 cumec as recommended by the CWC and the anticipated GLOF (558cumec) as recommended by NIH, Roorkee, vide GLOF Study Report for Tons basin,2018.

The maximum diversion flood for 1 in 25-year frequency has been calculated as 543.15 m3/sec. The maximum observed instantaneous discharge at Tiuni in non-monsoon months from 1977 to 2007 is 558.19 m3/sec. Therefore, according to IS:14815-2000, Design flood for diversion works is considered as 560 m3/sec.

Brief of Base Line Environment:

To establish the base line environmental status of the physico-chemical, biological and socio-economic parameters in the project area and within the project influence area the baseline study and primary data collection has been earlier carried out during post-monsoon,2017, pre-monsoon 2018 and monsoon ,2018. After transfer of project by Government of Uttarakhand vide letter No. 377/11(02)-2020-04(08)/2018, dated 8th May,2020, to Uttarakhand Jal Vidyut Nigam Limited, the latter viewing that the earlier baseline monitoring/sampling data has become more than 3-year-old from the date of public hearing (23.12.2019), has re-conducted the baseline study for three season covering post-monsoon 2021; pre-monsoon 2022 and monsoon2022 and incorporated it in EIA report

Air:

Ambient air quality monitoring has been done at 06 locations. The pollutants concentration in the air, during both baseline monitoring period, werewithin the NAAQS prescribed by CPCB. The maximum concentration of PM10, PM2.5, NOx and SO2 was 58.6 $\mu g/m^3$, 36.4 $\mu g/m^3$ 16.8 $\mu g/m^3$ and below 5$\mu g/m^3$ respectively. There are no industries in the area and the density of vehicular traffic is not alarming. Based on 24-hourly average values of air pollutants at each station, the AQI Category for monitoring stations during both baseline period was found to vary from good to satisfactory.

Noise:

Noise level monitoring in Ambient air has been done at 06 locations for three seasons. The maximum L-equivalent noise levels recorded at barrage site and power house site on bank of Tons River and were 74.2 dB(A) and 72.6dB(A) during day and night time respectively. These were high due to fast current of the river. However, at other locations are within the limits prescribed by CPCB.

Water:

Surface and ground water samples were taken from six locations each.

Surface Water

The pH values of all analysed surface water samples, during both baseline monitoring period, ranged between 7.12 to 7.90 and were within the acceptable limit (6.5-8.5). The TDS levels ranged from 85 to 156 mg/l and were less than the acceptable limit of 500 mg/l. Total hardness levels ranged from 54 to 84 mg/l and were within acceptable limit of 200 mg/l. The dissolved oxygen values ranged between 7.1-9.6 mg/l and were within the acceptable limit of 6mg/l. The chlorides level in surface water samples ranged from 11 to 27 mg/l and were within the acceptable limit of 250 mg/l. The sulphates level ranged from 4.0 to 13.0 mg/l and were within acceptable limit of 200 mg/l. The fluorides level ranged between 0.05 to 0.38 mg/l was lower than the acceptable limit of 1.0 mg/l. The nitrate level ranged between 0.90 to 7.1mg/l and were within the acceptable limit of 45 mg/l. The iron level ranged between 0.10 to 0.36 mg/l and were within the acceptable limit of 1 mg/l. The concentration of toxic elements and phenolic compounds is also below the detectable limits.

The bacteriological parameter (i) BOD values ranged between <1.0mg/l to 1.7mg/l and were below 2mg/l, (ii) Total Coliform organism were between 6 MPN/100ml to 38 MPN/100ml and below 50 MPN/100ml, CPCB criteria for Class A water for designated best use of Drinking Water Source without conventional treatment but after disinfection. The Water Quality Index for sampling sites in both baseline sampling periods was found as Good to Excellent.

Ground Water

The analysis of results for ground water indicate that the pH ranged between 7.25 to 8.0, which are well within the specified acceptable limit (6.5 to 8.5). Total hardness recorded ranged from 80 to 186 mg/l, which is within the acceptable limit 200 mg/l at all locations. The Total Dissolved Solids (TDS) concentration recorded ranged between 131-285mg/l and was within the acceptable limit (500

mg/l).Chlorides at all the locations were within the acceptable limit (250 mg/l) as it ranged between 17.9-49.3 mg/l. Sulphates at all the locations were within the acceptable limit (200 mg/l) as it ranged between 5.4-46.6mg/l. Nitrates at all the locations were within the acceptable limit (45 mg/l) as it ranged between 1.4-12.9 mg/l. Iron and Fluoride concentrations at all the locations were within their acceptable limit. Bacteriological studies reveal that no coliform bacterial are present in the samples. The toxic metal contents were observed to be below detectable limits. All physical and general parameters were observed within the desirable limit as per IS 10500:2012 (Second Revision). Thus, it is recommended that ground water be filtered and disinfected prior to be given to villages for meeting their drinking water requirements.

Soil:

Soil samples were taken from 6 locations. The texture of the soil is sandy loam. Soil is slightly alkaline with pH varying from 7.39 to 7.85 and has high organic carbon (0.88 % - 1.86%). Soils are low to medium in available nitrogen content. (270 to 332.6 kg/ha); medium in available phosphorus (15.9 kg/ha to 32.5kg/ha) and medium in potassium content (117 kg/ha to 148 kg/ha). Based on Nutrient Index Value for N, P and K, the soils of study area fall into medium fertility status. Soils have good organic carbon and are capable of supporting agriculture. The soils are neither saline nor sodic as pH value of soils in all analysed samples is less than 8.5; the value of EC is less than 4 dS/m and ESP less than 15%. Soils have excellent SAR values, being less than 1.

Flora and Fauna of the Project Area

During Primary survey, herb flora was recorded as the dominant flora with 49 species (26 families) followed by shrub with 29 species (22 families), tree with 22 specie (14 families) and 10 grasses (2 families). Ten economically important plant and 32 important medicinal/ethnobotanical importance plant species were recorded. The faunal study reveals that 12 mammalian species were recorded of which four (Jackal, Indian Porcupine, Jungle Cat and Tendua) belongs to Schedule-I species as per the wildlife Act 1972. 23 bird species of birds were recorded/reported of which none belongs to Schedule-1. 4 species of herpetofauna were recorded /reported of which one (Oriental Rat snake) belongs to Schedule-I. During the survey a total of 12 species (4 families) of butterfly were encountered from the study area. 8 species of fishes belonging to 3 families were recorded/reported from in the project area. Total 4 fish species were collected during fishing; *Schizothorax* sp., *Glyptothorax* sp., *Garra gotyla*. However, *Schizothoraxa* sp. was predominant in the total catch.

Brief description on Anticipated Environment Impacts and Mitigation measures:

Land Degradation and Mitigation Measures:

Land degradation may take place due to excavation and disposal of surplus muck besides quarrying operation at rock quarries. Total quantity of muck to be generated due to the project with 42% swell shall be 8.89 lakh cum of which 5.67 lakh cum (64%) shall be consumed on project work leaving 3.22 lakh cum to be disposed at six muck disposal sites. The muck shall be laid in such a manner that rock mass is properly stacked behind the wall with minimum of voids. Muck disposal sites shall be developed from below the ground level by providing hard engineering measures such as retaining structures, crate walls and gabions. Garland drains shall be laid all along outer periphery of the muck piles for carrying rain water. On this count a provision of Rs.780 lakh has been earmarked under Muck Management Plan, which has been approved by the Forest Department. For mitigating the degradation of land around the quarry and on biota around it, the works like construction of drains, retaining structure, silt settling tank and plantation have been proposed under Restoration Plan for Quarry Sites (Rs.24lakh)

Loss of Forest Landand Mitigation Measures:

The implementation of project shall cause habitat loss due to diversion of 47.547ha forestland. The diversion of forestland for non-forestry purpose destabilises the existing eco-system balance and cause the loss of benefits from ecological services from such land in addition to loss of timber, fuelwood and NTFP products for mitigation of which compensatory afforestation shall be carried out by the Forest Department. On this count a provision of Rs.864 lakh, which *inter alia* includes NPV of Forest Land to be diverted, has been earmarked under Compensatory Afforestation Plan.

Fragmentation of Habitat and Mitigation Measures:

The proposed Pond/Reservoir shall cause fragmentation of natural areas on either bank of river. The surface works like barrage and appurtenant works, intake structure, haul and project roads, exposed penstock line and surface power house also cause physical barrier and fragmentation. Habitat fragmentation bisects the landscape and leaves smaller, more isolated land for wildlife, causing local and population level changes to native flora and fauna. Fragmentation of habitat and consequent increase in temporary stress levels of wildlife during construction phase for mitigation of which Wildlife and Bio-diversity Management Plan (Rs 175 lakh) has been approved by the PCCF(Wildlife) Dehradunvide letter No. 2099/12-1. Dated 24.2.2025.

Impact on Spawning Movement of Fishes and Mitigation Measures:

The construction of barrage shall adversely impact the fishes especially the migratory fishes (*Schizothorax sp* and *Tor sp.*) as their movement for spawning on upstream of barrage shall be impacted. To facilitate movement of fishes, a provision of a fish ladder (3mx2m) has been proposed in the divide wall of barrage. In addition to this a hatchery at a suitable place shall be established and manned through the State Fisheries Department for which Project Proponents would provide funds

(Rs 210 lakh) under Fisheries Management Plan approved by the Director, Fisheries, Uttarakhand, Dehradun vide No. 1022/Tiuni HEP/2022-23, dated 2.12.2022.

Reduction in Flow d/s of barrage and Mitigation Measures:

The flows downstream of the barrage shall be reduced due to diverted discharge through water conductor system to surface power house for power generation. To address the environmental flow requirement (EFR) downstream of barrage. The minimum ecological flow during all seasons shall be finally adopted after acceptance of the recommendation of EAC by the Ministry.

Impact on Air Environment and Mitigation Measures:

Temporary changes in air quality during construction phase are expected due to emission of hydrocarbons from vehicles and gases from blasting operations. The air quality modelling reveals thatwithin barrage complex excavation area,the predicted24-hourly maximum concentration of pollutants PM_{10}, $PM_{2.5}$, NOx and $SO_2$was found to be 8.77 $\mu g/m^3$, 1.0 $\mu g/m^3$,9.12 $\mu g/m^3$ and 2.33 $\mu g/m^3$ respectively, while the resultant concentrations shall be 62.47 $\mu g/m^3$, 33.00 $\mu g/m^3$, 25.32 $\mu g/m^3$ and 7.33 $\mu g/m^3$ respectively, which are within the NAQQS limits.

Due to increased transportation during construction phase at 25 m, predicted concentration for PM10 is 8.6 $\mu g/m^3$, which reduces to 5.4 $\mu g/m^3$, 2.4 $\mu g/m^3$ and 1.0 $\mu g/m^3$ at 50m, 150m and 500m respectively. Thus the impact on the pollutant level (PM10) due to increased traffic due to transportation of material shall be minimal. The increased GLC in respect of NOx were insignificant being 0.12 $\mu g/m^3$ up to 25m and 0.11 $\mu g/m^3$ up to 50m and 0.10 $\mu g/m^3$ up to 1km,

For mitigation of which various steps shall be undertaken which include periodical air quality monitoring (Rs 10.50 lakh) and copious sprinkling at construction site under Air Pollution Control Plan (Rs 21.90 lakh) and on roads for dust suppression shall be done under Safeguards during road construction (Rs 20.00 lakh).

Impact on Noise Environment and Mitigation Measures:

Temporary increase in noise levels is expected during construction phase only. The estimated noise level atat barrage complex shall be 79 dB(A),whereas at three receptors i.e. Begal, Raigi and Tiuni Market shall be 46 dB(A), 43 dB(A) and 48 dB(A) respectively and the resultant levels (estimated +background level) at these receptors shall be 48 dB(A), 46 dB(A) and 58 dB(A) respectively which are less than the standard values 55 dB(A) for day time for Begal and Raigi and 65 dB(A) for Tiuni Market during day time but at night time these marginally exceeds the standard limit by 3 dB(A), 1 dB(A) and 3dB(A) respectively and are not much perceptible. An increase of about 8 −10 dB(A) is required before the sound subjectively appears to be significantly louder.Sound emitting construction equipment shall not be used or operated during night time in residential areas and silence zones. For mitigation of which various steps shall be undertaken which include periodical noise level monitoring (Rs 3.50 lakh)

and the workers deployed at such locations where the noise levels are high shall be provided with earplugs under Noise Pollution Control Plan (Rs 0.60 lakh).

Impact due to Labor Immigrationand Mitigation Measures

Due to labour influx (800) in the area, there shall be an increase in biotic pressure in nearby forest area due to felling of trees for fuel wood for redressal of which LPG for cooking shall be provided under Energy Conservation Plan (Rs 33 lakh).

The health of the people and the environment shall be significantly impacted, if sewage and solid waste will be generated from the colonies is not properly disposed. It is very essential that from the planning stage, sewerage management and solid waste disposal facilities should be conceptualized to maintain the health of the people and the environment. It is estimated that total solid waste generation per day by labour population residing in labour colony would be approximately 225 kg dry weight. This would be to 6750 kg dry weight, and 324000 kg dry weight per month and per annum respectively. The influx of labour-force during construction warrants proper arrangement for solid waste management and sanitation and hygiene facilities for which Rs 70 lakh have been earmarked.

During construction, the risk is involved to the labour in various activities like excavation on hill slope, excavation, quarrying and blasting operation, works related to Electrical and Mechanical components, various activities in workshop. Workers are exposed to various risks and occupational diseases and health hazards which sometimes cause grave injuries and prolong illness. For ensuring occupational health and measures for safety of labour during construction provision has been made under Labour Management Plan (Rs 45 lakh).

Construction of the proposed project will increase fuel and dust emission which in turn may cause respiratory problems like asthma. Localized stagnation in borrow pit areas is expected during construction in some of the areas, which may propagate malaria and bacteria related disease The new environment shall increase the incidence of waterborne disease and migration of people(labour) help spreading the diseases. Thus, it is necessary to provide both preventive and curative measures, controlling both incidences, spread of these diseases. Onsite medical facility shall be provided in the labour colony/camp along with first aid facilities at all the working sites for which a provision of Rs 100 lakh has been earmarked under Public Health Delivery Plan.

Impact due to Land Acquisitionand Mitigation Measures:

Due to acquisition of 7.089 ha private land from three villages 43 families shall be affected of which 5 families shall be displaced, who shall be resettled and rehabilitated as per RFCTLARRA

2013conjointly read with Rules ,2016, enforced by Government of Uttarakhand. The total financial requirement for the implementation of Resettlement and Economic Rehabilitation Plan including cost of land acquisition would be about Rs. 898 lakhs. Besides these provisions of Rs 470 lakh has been made by the project proponent under Local Area Development Plan for the infrastructure development in the project area as per the needs of the local population.

Risk Management and Disaster Management and Mitigation Measures:

The problem likely to be encountered during construction/operation inter alia include (i) accidents due to explosives/blasting, (ii) failure of stripped slope, (iii) accidents due to HEMM, (iv) sabotage in case of magazine, Hazards due to blasting can be avoided by handling of explosives, charging and blasting by competent persons and provision of magazine at a safe place with proper fencing and necessary watch and ward. Most of accidents during operation of HEMM can be significantly averted by periodical maintenance and operation. In case of barrage break the flood peak discharge as it propagates through valley shall inundate downstream stretch of five km within 19.5 minutes. Therefore, disaster management plan is based on such measures, which are purely preventive in nature.

Project Benefit:

Project benefits include benefits like (i) additional annual generation of 298.51 MU in a 90 % dependable year; (ii) 12 % free power of total generation will be given to state, which will help in regular power supply in the area; (iii) Annual 1 % of free power towards local area development fund. (iv) Access to improved infrastructure facilities and (v) Employment opportunities to 800 people during peak construction phase and about 25 people will be employed during O&M of project.

Public Hearing Details:

Public Hearing, presided by Additional District Collector, Dehradun, was conducted on 23rd December, 2019, at barrage site. Sixty-five stake holders attended the meeting of which six discussed their views in person and three recorded their views in writing. The main issues raised were about adequate compensation, employment for PAF and establishing of a Central School in Tiuni. Compliance of these suggestion has been incorporated in the report.

Status of Other Statutory Clearances.

Approval of Central Water Commission and Central Electricity Authority has been obtained

Litigation & Court Cases

At present no litigation & court case is pending in any court of law.

Environment Management Plans

To ameliorate the negative effects of the project construction and overall improvement of the environment following management plans are formulated for implementation concurrent to the project construction. The cost of the management plans is shown in following Table.

S.No.	EMP	Cost (Rs. Lakh)	Capital Cost (Rs lakh)	Annual Recurring (Rs lakh)
1.	Catchment Area Treatment Plan	2446.00	2446.00	00.00
2.	Compensatory Afforestation Scheme	864.00	824.00	10.00
3.	Wildlife and Bio-diversity Management plan	175.00	143.00	8.00
4.	Resettlement & Rehabilitation Plan	898.00	898.00	0.00
5.	Green Belt Development Plan	22.00	14.00	2.00
6.	Reservoir Rim Treatment Plan	24.00	24.00	0.00
7.	Landscape and Restoration Plan	6.00	6.00	0.00
8.	Fisheries Management Plan	210.00	91.00	29.75
9	Muck Management Plan	780.00	772.00	2.00
10.	Restoration Plan for Quarry Sites	24.00	8.00	4.00
11.	Disaster Management Plan	15.00	15.00	0.00
12.	Water, Air and Noise Management Plan	38.00	16.00	5.50
13.	Public Health Delivery Plan	100.00	0.00	25.00
14.	Labour Management Plan	45.00	9.00	9.00
15.	Sanitation & Solid Waste Management Plan	70.00	30.00	10.00
16.	Local Area Development Plan	470.00	466.00	1.00
17.	Environmental Safeguard During Construction	20.00	0.00	5.00
18.	Energy Conservation Measures	33.00	5.00	7.00
19.	Environmental Monitoring Plan	44.00	0.00	11.00
Grand Total		**6284**	**5767.00**	**129.25**

Replies to ADS Raised in 4th SEAC Meeting held on 1.3.2023

S.N.	ADS Point	Reply
1-	The Project Proponent informed the committee that, Stage-I Forest Clearance under FC Act 1980, has not been granted yet	The proposal for diversion of 47.547 ha forest land for Tiuni Plasu HEP (Agenda No. 13) was considered in 6th FAC meeting of MoEFCC held on 24-06-2025. There is no adverse comment by the FAC **(along with project report)**. The information

		desired by the FAC has been submitted **(along with project report)**. The proposal is again recall for consideration under agenda item No. 30 before upcoming FAC meeting scheduled on 26-09-2025 **(along with project report)**.
2-	The Project Proponent informed the committee that, CAT plan is yet to be approved	The CAT plan has been approved in the meeting Chaired by HoFF, Uttarakhand in meeting held on 14-05-2025. The approved copy of CAT plan is attached **(along with project report)**.
3-	The study of floral and faunal diversity submitted in the EIA report seems to be inadequate. The Project Proponent is advised to further substantiate it.	The updated EIA report with substantiated study of floral and faunal diversity is attached **(along with project report)**.
4-	Approved Rehabilitation & Resettlement plan shall also be submitted as per RFCT LARRA, 2013	The RIGHT TO FAIR COMPENSATION AND TRANSPARENCY IN LAND ACQUISITION, REHABILITATION AND RESETTLEMENT ACT (RFCT LARRA), 2013 issued by the Govt. of Uttarakhand is being implemented for this project **(along with project report).** The specific R&R policy as per R&R Act 2013 is also under progress by District Magistrate, Dehradun and District Magistrate Uttarkashi. Section-4, Section-5 & Section-7 has been completed by DM Dehradun as per Act 2013. Section-11 is under final stage. Section-4 & Section-5 has been completed by DM Uttarkashi as per Act 2013. Section-7 is under final stage.

Details of Consultant Engaged

EQMS Global Pvt. Ltd. (formerly known as EQMS India Pvt. Ltd.), 305, 3rd floor, Rishabh Corporate Tower, Community Centre, Karkardooma, Delhi-11009, has conducted the Environment Impact study. The organization is accredited with NABET/ Quality Control of India to conduct the Environment Impact Assessment Studies for river valley projects among others (NABET/ EIA/2225/RA0303, dt.18.9.2023) valid up to 23.11.2025. The three-season data has been collected by the EIA Consultant by engaging J.P. Test & Research Centre, Sahibabad Industrial Area, Ghaziabad, U.P.

The Committee after examining the original proposal and after going through the presentation done by the consultant has made the following observations-

In the 4th meeting of SEAC dated- 01.03.2023 the above proposal was considered & SEAC raised following queries -

- The Project Proponent informed the committee that the stage-I Forest Clearance under FC Act, 1980 has not been granted yet.
- The Project Proponent informed the committee that CAT plan is yet to be approved.
- The study of floral and faunal diversity submitted in the EIA report seems to be inadequate. The Project Proponent is advised to further substantiate it.
- Approved Rehabilitation & Resettlement plan shall also be submitted as per RFCT LARRA, 2013.

With regards to the above mentioned observation raised before, the SEAC examine the proposal and made the following observations-

- The Project Proponent informed that the presentation regarding forest clearance has been made before the Forest Advisory Committee on dated- 26.09.2025.
- Project Proponent has submitted the approved CAT Plan vide letter- 740/3-19 dated- 19.05.2025 from HoFF, Uttarakhand,
- Project Proponent has submitted revised EIA report along with detailed study on flora and fauna diversity.
- Project Proponent informed that regarding land acquisition notice of secion-11 under Rehabilitation & Resettlement Act, 2013 has been published in the local newspapers(Amar Ujala & Dainik Jagran)on dated- 10.01.2025,copy enclosed.
- Project Proponent has already submitted approved muck management plan from forest department.
- Project Proponent also submitted hydrological aspects of the projects approved by CWC, New Delhi vide letter no- 2/UTR/16/CEA/09-PAC/7375-77 dated- 19/21 October, 2011.

- Project Proponent also submitted comprehensive fisheries management plan approved by The Director of Fisheries, Uttarakhand
- Project Proponent also submitted wildlife & bio-diversity management plan approved by Chief Wildlife Warden, Uttarakhand.
- The Project Proponent shall obtain prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) if any, required for the project.
- It shall be ensured that there is no leakage of oil and grease in the river from the vehicles use for the transportation.
- Vehicular emission shall be kept under control and regularly monitored. The vehicles carrying minerals shall not be over loaded.
- Periodical medical examination of the workers engaged in the project shall be carried out and records are to be maintained.
- Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
- Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
- Consent to Establish shall be obtained from Uttarakhand Pollution Control Board under relevant provisions of Central Air Act and Central Water Act before starting up of any mining activity at the site.
- Regular health checkup of workers by recognized medical practitioners shall be ensured by the Project proponent and shall submit report to SEIAA along with six monthly compliance report.
- The project proponent will submit reports pertaining to ambient air quality, report pertaining to ground water quality and noise. These reports should be monitored and generated by a NABL approved laboratory having scope of it.
- This Environmental Clearance (E.C.) is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent Authority as may be applicable to this project.
- The Project Proponent shall follow all relevant directions/orders issued by Hon'ble High Court/NGT/ Supreme Court.
- The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated E.C conditions including results of monitored data to this Authority and Integrated regional office of MoEF&CC, Govt of India at Dehradun.
- The EC issued will be coterminous with the Forest Clearance issued by MoEF&CC, GOI as may be applicable to this project.
- The ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of Environment Protection.
- Concealing factual data or submission of false/fabricated information/data and failure to comply with of any conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

The SEIAA finally observed that following environmental safeguards can be imposed by SEIAA as conditions to the project proponent while granting Environmental Clearance to the proposal –

The Authority along with following additional conditions :-

1- The Authority observed that mining activity will also be carried out by PP for which separate EC will be required
2- The validity of EC is initially 10 years which can be extended subject to the compliance and the further appraisal.
3- The PP shall provide STP facility for there residential colony and offices.
4- Sewerage facility shall be developed for the near by villages falling within 5 Km radius of the project site.
5- During construction phase the turbidity of the river will increase which will reduce the primary productivity of the river and this in turn will affect the reproduction of troute and mahasheer, Hence the PP shall adopt mitigating measures in consultation with the fisheries department of Uttarakhand.

Standard EC Conditions for River Valley and Hydroelectric projects

I. Statutory compliance:

i. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.

ii. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.

iii. The project proponent shall prepare a Site-Specific Conservation Plan && Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report, (in case of the presence of Schedule-I species in the study area).

iv. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/Committee.

v. NOC shall be obtained from National Commission of Seismic Design Parameters (NCSDS) of CWC.

vi. Necessary approval of CEA shall be obtained for those projects having the project cost more than Rs. 3,000 crores.

II. Air quality monitoring and preservation

i. Regular monitoring of various environmental parameters viz., Water Quality, Ambient Air Quality and Noise levels as per the CPCB guidelines at designated locations shall be carried out on monthly basis and a detailed database of the same shall be prepared and recorded. This shall be used as a baseline data for post construction EIA/ Monitoring purposes.

ii. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed standards.

iii. Necessary control measures such as water sprinkling arrangements, etc. bet taken up to arrest fugitive dust at all the construction sites.

III. Water quality monitoring and preservation

i. Before impounding of the water, Cofferdams for both at the upstream and downstream are to be decommissioned as per EIA/EMP report so that once the project is commissioned; cofferdam should not create any adverse

ii. impact on water environment including the rock mass and muck used for the Cofferdam. As the reservoir will be acting as balancing reservoir and there would be fluctuation of water level during peaking period, efforts be made to reduce impact on aquatic life including impacts during spawning period both at the upstream and downstream of the project.

iii. Water depth sensors shall be installed at suitable locations to monitor e-flow. Hourly data to be collected and converted to discharge data. The Gauge and Discharge data in the form of Excel Sheet be submitted to the Regional Office, MoEF& CC and to the CWC on weekly basis.

IV. Noise monitoring and prevention

i. All the equipment likely to generate high noise shall be appropriately enclosed or inbuilt noise enclosures be provided so as to meet the ambient noise standards as notified under the Noise Pollution (Regulation and Control) Rules, 2000, as amended in 2010 under the Environment Protection Act (EPA), 1986.

ii. The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

V. Catchment Area Treatment Plan

i. Catchment Area Treatment (CAT) Plan as proposed in the EIA/EMP report shall be implemented in consultation with the State Forest Department and shall be implemented in synchronization with the construction of the project.

VI. Waste management

i. Muck disposal be carried out only in the approved and earmarked sites. The dumping sites shall be located sufficiently away from the HFL of the river. Efforts be made to reuse the muck for construction and other filling purposes and balanced be disposed of at the designated disposal sites. Once the muck disposal sites are inactive, proper treatment measures like both engineering and biological measures be carried out so that sites are stabilized quickly.

ii. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead be used for various purposes as envisaged in the EIA/EMP reports. Efforts be made to avoid one time use of plastics.

VII. Green Belt and Wildlife Management

i. Based on the recommendation of Cumulative Impact Assessment and Carrying capacity study of river basin or as per the ToR conditions or minimum 15% of the average flow of four

consecutive leanest months, whichever value is higher, shall be released as environmental flow.

ii. Detailed information on species composition particular to fish species from previous study/literature be inventoried and proper management plan shall be prepared for in-situ conservation in the streams, tributaries of river and the main river itself for which adequate budget provision be made and followed strictly.

iii. Wildlife Conservation Plan approved by the Chief Wildlife Warden shall be implemented in consultation with the local State Forest Department.

iv. To enrich the habitat of the project site, plantation shall be raised as envisaged in the EIA/EMP report. Plantation to be developed along the periphery of the reservoir in multi-layers with local indigenous species in consultation with the local State Forest Department.

v. Compensatory afforestation programme shall be implemented as per the plan approved.

vi. Fish ladder/pass as envisaged in the EIA/EMP report shall be provided for migration of fishes. Regular monitoring of this facility be carried out to ensure its effectiveness.

VIII. Public hearing and Human health issues

i. Resettlement & Rehabilitation plan be implemented in consultation with the State Govt. as approved by the State Govt.

ii. Budget provisions made for the community and social development plan. including community welfare schemes shall be implemented in toto.

iii. Preventive measures viz. fuming and spraying of mosquito control shall be done in and around the labour colonies, affected villages, stagnated pools, etc. Provisions be made to not to create any stagnated pools to avoid creation of breeding grounds of the vector borne diseases.

iv. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

v. Labour force to be engaged for construction works shall be examined thoroughly and adequately treated before issuing them work permit. Medical facilities shall be provided at the construction sites.

vi. Early Warning Telemetric system shall be installed in the upper catchment area of the project for advance intimation of flood forecast.

vii. Emergency preparedness plan be made for any eventuality of the dam failure and shall be implemented as per the Disaster Management Plan.

IX. Miscellaneous

i. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their long time livelihood generation.

ii. The Company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest/wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental/forest/wildlife norms/conditions and/or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.

v. Post EIA and SIA be prepared for the project through a third party and evaluation report be submitted to the Ministry after five years of commissioning of the project.

vi. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.

vii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

viii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

ix. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

x. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

xi. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.

xii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.

xiii. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

xiv. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).

xv. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xvi. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

xvii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

xviii. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data /information/monitoring reports.

xix. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

xx. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Your's Faithfully

(Dr. S.P. Subudhi)
Member Secretary,
SEIAA, Uttarakhand

No - 554 01(19)/2023 dated- as above

Copy to-

1. APCCF, Regional office (Central) MoEFCC Govt of India, 25 Subhash Road, Dehradun for information and necessary action.
2. Principal Chief Secretary, Forests & Environment, Government of Uttarakhand, Dehradun for information.
3. Director Industries, Geology & Mining Unit Govt of Uttarakhand Dehradun for information and necessary action.
4. District Magistrate, **Dehradun** for information and necessary action.
5. Member Secretary, UKPCB, IT Park Dehradun for information and necessary action.
6. DFO, **Dehradun/Chakrata.**
7. Guard File for uploading in Parivesh Website.

(Dr. S.P. Subudhi)
Member Secretary,
SEIAA, Uttarakhand

Signature Not Verified

Digitally Signed by : Dr S P Subudhi
Member Secretary, SEIAA

Date: 30/09/2025