Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(River Valley and Hydroelectric Projects)
***

सत्यमेव जयते

Minutes of AGENDA OF 23RD MEETING OF THE EXPERT APPRAISAL COM MITTEE ON meeting River Valley and Hydroelectric Projects held from 29/01/2025 to 29/01/2025 **Date:** 06/02/2025

MoM ID: EC/MOM/EAC/883437/1/2025

Agenda ID: EC/AGENDA/EAC/883437/1/2025

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

29/01/2025	10:30 AM	05:30 PM

1. Opening remarks

The 23rd meeting of the EAC for River Valley & Hydro-electric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 29th January, 2024 through Virtual Mode, under the Chairmanship of Prof. G. J. Chakrapani.

2. Confirmation of the minutes of previous meeting

The Minutes of the Meeting held on 22nd EAC meeting on 10th January, 2025 were confirmed.

3. Details of proposals considered by the committee

Day 1 -29/01/2025

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Uri-I Stage-II Hydroelectric Project (240 MW) by **NHPC LIMITED** located at **BARAMULLA,JAMMU AND KA SHMIR**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/JK/RIV/463699/2024	J-12011/08/2021-IA.I(R)	30/07/2024	River Valley/Irrigation projects (1(c))

3.1.2. Project Salient Features

23.1.1: The proposal is for grant of Environmental Clearance (EC) to the project for Uri-I Stage-II Hydroelectric project of 240 MW as Run of River scheme in an area of 102 ha in Sub District Uri, Boniyar, Kreeri, Baramullaand Rafiabad, District of Baramulla (Jammu and Kashmir) by M/s NHPC Limited.

23.1.2: The Project Proponent and the accredited Consultant M/s. R S Envirolink Technologies Pvt. Ltd., made detailed presentation on the salient features of the project and informed that:

i. The proposed Uri-I Stage-II HEP is planned as per provision kept in the DPR of Uri-I Power Station. NHPC Ltd. has signed Memorandum of Understanding (MoU) with Government of Jammu Kashmir for execution of Uri-I Stage-II HE Project (240 MW) on Build, Own, Operate & Transfer (BOOT) basis for the period of 40 years

ii. The project proposal was considered by the Expert Appraisal Committee (River Valley and Hydropower Projects) in its 10^{th} meeting held on 15.04.2021 and recommended for grant of Terms of Reference (ToRs) for the project. The ToR has been issued by Ministry vide letter No. J- 12011/08/2021-IA.I (R); dated 10.06.2021.

iii. Uri-I Stage-II HEP (240 MW) is an extension of Uri-I Stage-I (480 MW), located on river Jhelum in Baramulla district of UT of Jammu and Kashmir. The Environmental Clearance for Uri-I HEP (480 MW) was accorded by Department of Science and Technology (DST), Govt. of India, in favour of Central Electricity Authority (CEA) on 27.06.1980. The Forest Clearance for diversion of 54.70 ha forest land was accorded by Ministry of Environment & Forest on 21st May 1986. Uri-I Stage-I was commissioned in 1997 by NHPC Ltd. - 21.5 m high barrage, 10.63 km long HRT, an underground powerhouse 480 MW installed capacity, & 02 km long Tail Race Tunnel (TRT).

iv. The existing structures of Uri-I Power Station like barrage, the surface water conveyance system consisting of Head regulator upto HRT intake of Uri-I Power Station shall be utilized for Uri-I Stage-II HEP. The construction of underground structures like 10.472 km long HRT, surge shaft, pressure shaft, an underground powerhouse complex and 2.28 km long TRT are proposed for Uri-I Stage-II Project. Uri-I Stage-II HE Project shall utilize diverted (additional) waters available after electricity generation from Kishanganga Power Station located near Bandipore in Kashmir Valley. Jhelum river flows through Wular lake and drains additional water coming from Kishanganga HEP and therefore additional water is available for Uri I Stage II. Kishanganga Power Station was commissioned by NHPC in the month of May-2018. Kishanganga Power Station is a run of the river scheme which involves transfer of water of Kishanganga River in Gurez valley to Bonar nallah, which is tributary of Jhelum River in Kashmir valley.

v. The geographical co-ordinate of the project are Barrage Site: $74^0$11’00”E; $34^0$08’00”N; Powerhouse : 74^0 03’00” E; $34^0$05’00” N.

vi. The Uri I Stage II Hydro Electric Project envisages construction of Head Race Tunnel, Underground Powerhouse and TRT.

vii. **Land requirement:** The total land requirement for Uri-I Stage-II HEP is estimated as 102.0 ha, out of which, 85.00 ha is non-forest land, and 17.0 ha is forest land (for underground project structures). The proposal for grant of 'in-principle' approval for the diversion of 17.00 hectares of forest land for the underground work of the Uri-I Stage II HEP has been recommended during the Advisory Committee (AC) meeting held on 26.12.2024. MoEF&CC has issued letter dated 14/01/2025 according Stage I/In principal approval for diversion 17 ha of forest land.

Therefore, no revenue land (private/ government) is required for the proposed project, no acquisition of private or community assets is required and hence, displacement of the population/ persons is not involved.

viii. **Demographic details in 10 km radius of project area:**

The proposed project falls in the Uri & Boniyar tehsil of Baramulla district of Union Territory of Jammu & Kashmir. In the study area, 91 inhabited villages fall within a 10 km radius of proposed project. The population of the villages in the study area is 139213 with 54.06% males and 45.93% females. The sex ratio was found at 849 females per 1000 males. The total Scheduled Tribes (ST) population is 14.78% of the total population. Literate population constitute about 48 % of the total

population of the study area.

Apart from agriculture, horticulture and cattle rearing, livelihood of most of the people of the study area depends on government and private jobs. About 35% of the working population are engaged in agriculture and allied services and 62.64% of the working population are engaged in the services category viz. Trade, commerce, business, Transport, Government and private jobs.

The Educational facility in the area is good up to secondary school level. Senior secondary schools and colleges are located within 20.0 km distance from villages. The most important road passes through the area are National Highway 1A (Baramulla to Uri). Transportation facilities are good in the area, all the village roads are well connected to highway through metaled roads.

Basic medical facilities are good in the surveyed villages Primary health centres cater the basic medical facilities in the area. In addition to these NHPC Hospital at Gingal also provides basic medical facilities to the villagers. There is a one Pvt. Hospital at Buniyar. The District Hospital and Medical College at district headquarter Baramulla is the only government hospital serving as referral center for complicated cases in the district.

Spring water and piped public water supply are the main sources of drinking water in the area. The majority of the surveyed villages have irrigated land. A network of canals and springs are the main source of irrigation.

ix. **Water requirement:** 453 Cumecs (design discharge)

x. **Project Cost:** The estimated project cost is Rs 2167.61 crore. Total capital cost earmarked towards Environment Management Plan/environmental pollution control measures is Rs. 3010.70 lakh and the Recurring cost (operation and maintenance) will be about Rs. 2819.91 lakh about i.e. Rs 402.84 lakh per annum.

xi. **Project Benefit:** Total Employment will be 500 persons as direct & persons indirect after expansion. Industry proposes to allocate Rs. 1038.80 Lakh towards CER (as per Ministry's OM dated 30th Sep 2020).

xii. **Environmental Sensitive area:** Kazinag National Park, Lachipora Wildlife Sanctuary and Limber Wildlife Sanctuary are the nearest protected areas from Uri-I Stage-II HE Project. All the project components are outside the notified ESZ of the protected areas. In this regard; Office of the Pr. Chief Conservator of Forests (Wildlife)/Chief Wildlife Warden, Govt. of J&K has issued a letter No. WLP/Tech/2024-25/134-36 dated 14.05.2024 conveying that the proposed project components fall outside the boundaries of Kazinag National Park, Limber and Lachipora Wildlife Sanctuaries, also outside the notified limits of the Eco-sensitive Zone around these Wildlife Areas. Uri-I Stage-II HE Project is run of the river project and is proposed on Jhelum River.

xiii. MoU signed with the State Government on 24-12-2020 MoU no. IN-JK00767002578097S.

xiv. **Resettlement and Rehabilitation:** At present 85.00 ha of non-forest land required for the proposed project is in possession of NHPC Ltd. No revenue land (private/ government) is required for the proposed project, no acquisition of private or community assets is required and hence, displacement of the population/ persons is not involved. Therefore, requirement of preparation of Resettlement & Rehabilitation Plan is not envisaged in the present case.

xv. **Scheduled – I species:** As per Wildlife Protection Amendment Act, 2022, Common Leopard (*Panthera pardus*), Himalayan Musk Deer (*Moschus leucogaster*), Himalayan Goral (*Naemorhedus goral*), Jungle Cat (*Felis chaus*), Leopard Cat (*Prionailurus bengalensis*), Grey mongoose (*Herpestes edwardsii*), Small Indian mongoose (*Herpestes auropunctatus*), Golden Jackal (*Canis aureus*), Red Fox (*Vulpes vulpes*), Bengal Fox (*Vulpes bengalensis*), *Cuon alpinus* (Wild Dog), Asiatic Black Bear (*Ursus thibetanus*), Himalayan Weasel (*Mustela sibirica*), Common Otter (*Lutra lutra*), Red Giant Flying Squirrel (*Petaurista petaurista*) and Indian Crested Porcupine (*Hystrix indica*) are the mammalian species and Crested-serpent eagle (*Spilornis cheela*) is listed as Schedule I species.

xvi. **Alternative Studies:** Diversion structure of URI-I Power station i.e. Barrage, Head regulator, desilting basin, power channel, Surplus escape, Boniyar Intake structure, Boniyar nala culvert structure and Power intake structures which is already constructed and are utilized for Uri-I Stage II H.E. Project, hence no Alternative study for diversion structure is required for URI-I Stage-II H.E. Project.

xvii. **Baseline Environmental Scenario:**

Period	**From September 2021 To May 2022**

AAQ parameters at 06 locations (min. & Max.)

Unit in µg/m^3

Core	Min	Max	Standards
PM 2.5	21.77	24.22	60
PM 10	55.92	60.92	100
SO2	6.92	7.88	80
NO2	9.72	10.82	80
Buffer	**Min**	**Max**	
PM 2.5	20.60	23.67	60
PM 10	53.94	59.42	100
SO2	7.67	8.70	80
NO2	9.23	10.43	80

Incremental GLC Level

Criteria Pollutant [PM10, PM2.5, SO2, NOx, Other parameters specific to the sector (Please specify)]	Unit [µg/m^3]	Baseline Concentration[A]	Predicted incremental value considering worst case stability class [B]	Total GLC [A]+[B]
PM10	µg/m^3	23.0	20	43.0
PM2.5	µg/m^3	58.4	10	68.4
SOx	µg/m^3	7.4	4	11.4
NOx	µg/m^3	10.3	5	15.3

River water sample

Core Zone

S. No	Parameters	Min	Max	Standards
1	pH	6.59	8.06	8.5

s (05 samples)

2	Total Dissolved Solids, mg/L	89.7	156	500
3	Dissolved Oxygen (mg/l)	7.72	10.2	3
4	Chloride (as Cl), mg/L	7.8	14.3	0
5	Total Hardness (as CaCO3), mg/L	60.78	88.53	
6	Biological Oxygen Demand (mg/l)	2	2	250
7	Chemical Oxygen Demand (mg/l)	6	6	500
8	Total Coliform (MPN/100 ml)	2	2	300

Buffer Zone

S. No	Parameters	Min	Max	Standards
1	pH	7.1	7.79	8.5
2	Total Dissolved Solids, mg/L	124	163	500
3	Dissolved Oxygen (mg/l)	8.5	9.4	3
4	Chloride (as Cl), mg/L	8.4	12.4	0
5	Total Hardness (as CaCO3), mg/L	91.32	96.33	6
6	Biological Oxygen Demand (mg/l)	2	2	250
7	Chemical Oxygen Demand (mg/l)	6	6	500
8	Total Coliform (MPN/100 ml)	2	2	300

Pond water samples

-

Ground water samples quality at 1 location

S. No	Parameters	Min	Max	Standards
1	pH	6.59	8.06	8.5
2	Total Dissolved Solids, mg/L	89.7	156	500
3	Dissolved Oxygen (mg/l)	7.72	10.2	3
4	Chloride (as Cl), mg/L	7.8	14.3	0
5	Total Hardness (as CaCO3), mg/L	60.78	88.53	
6	Biological Oxygen Demand (mg/l)	2	2	250
7	Chemical Oxygen Demand (mg/l)	6	6	500
8	Total Coliform (MPN/100 ml)	2	2	300

Noise levels Le

	Noise Level	Zone	Leq Day dB(A)		Leq Night dB(A)		Prescribed Limits	
			From	To	From	To	Day	Night

q (Day & Night) at 06 locations		Core	Commercial	45.2	65	35.3	50.1	65	55	
		Buffer	Commercial	51.4	63.1	40.1	48.7	65	55	

Soil Quality at 6 Locations

Core Zone

S. No.	Parameters	Min	Max	Prescribed Limits
1	Calcium (mg/kg)	239	290	500
2	Sodium Absorption Ratio	3.4	4.1	10
3	Phosphorus (kg/ha)	28	35	50
4	Carbon (%)	1.1	1.21	1
5	Salinity (ppt)	0	0	0.01
6	Magnesium (mg/kg)	50	56	500
7	Nitrogen (kg/ha)	180	200	500
8	Potassium (kg/ha)	210	240	500

Buffer Zone

1	Calcium (mg/kg)	172	216	500
2	Sodium Absorption Ratio	2.9	4.3	10

		3	Phosphorus (kg/ha)	26	44	50		
		4	Carbon (%)	0.69	1.11	1		
		5	Salinity (ppt)	0	0	0.01		
		6	Magnesium (mg/kg)	38	120	500		
		7	Nitrogen (kg/ha)	106	260	500		
		8	Potassium (kg/ha)	240	410	500		
Flora & Fauna	Schedule-I species observed in the study area: As per Wildlife Protection Amendment Act, 2022, Common Leopard (Panthera pardus), Himalayan Musk Deer (Moschus leucogaster), Himalayan Goral (Naemorhedus goral), Jungle Cat (Felis chaus), Leopard Cat (Prionailurus bengalensis), Grey mongoose (Herpestes edwardsii), Small Indian mongoose (Herpestes auropunctatus), Golden Jackal (Canis aureus), Red Fox (Vulpes vulpes), Bengal Fox (Vulpes bengalensis), Cuon alpinus (Wild Dog), Asiatic Black Bear (Ursus thibetanus), Himalayan Weasel (Mustela sibirica), Common Otter (Lutra lutra), Red Giant Flying Squirrel (Petaurista petaurista) and Indian Crested Porcupine (Hystrix indica) are the mammalian species and Crested-serpent eagle (Spilornis cheela) is listed as Schedule I species.							

i. Details of Solid waste/ Hazardous waste generation/ Muck and its management:
   a. For disposal of Municipal Solid Waste generated during construction and operation phase of project Solid Waste Treatment Plant (including organic waste composter at NHPC Uri-Power Station Colony) has been proposed at project site.
   b. NHPC Ltd. signed MoU with MSTC Limited regarding collection and disposal of non-degradablewaste including e-waste during construction and operational phase of project.
   c. For disposal of Bio-medical Waste facilities at NHPC Hospital at Ginagal and District Hospital Baramulla will be utilized.
   d. For Disposal of waste oil vendors authorized by State Pollution Control Committee shall be engaged.
   e. The pre-identified 04 sites for disposal of muck are under possession of NHPC are located near(<500m) from source. All four site are more than 30m away from HFL of Jhelum river.

ii. Public Hearing for the proposed project has been conducted by the State Pollution Control Committee on 21.12.2023. Publications of notice for public hearing were given in state level newspaper “Rising Kashmir” and “Chattan" daily” dated 22.11.2023The meeting was chaired by Additional District Magistrate, District Baramulla.The main issues raised and replies by the user agency during the public hearing are:

Issues/Comments/Observations	Reply by the User Agency
Provisions for development of basic infrastructural facilities like facilities like solar streetlight, safe drinking water, bus stops, Improve	Facility of safe drinking water shall be taken up under the provisions made under Local Area Development Plan. The implementation of

ment of graveyards, drainage in villages, development of public places adjacent to project area and provisions of washroom, provision of Installation of Fire tender at Boniyar and beautification works at Boniyar market.	the works shall be taken up with the consultation District Administration. NHPC shall be providing financial assistance to District Administration for purchase of fire tender.
Priority of CSR funds to the local area adjacent toproject area	The CSR activities involve the development of local area in different sectors viz. Education, Sports, Cultural Activities, Rural Development and Environment, Women Empowerment etc. Theprovisions under Local Area Development Plan will be made after consultation with the concerned Gram Panchayats and District Administration.
Project proponent should make provisions for development and strengthening/ upgradation ofexisting medical by augmenting its machinery and dedicated Power Supply to Public Health Center Boniyar by providing DG Set.	Upgradation of infrastructural facilities in available educational and medical institutes shall be taken up under the provisions made under Local Area Development Plan after consultation with the concerned Gram Panchayats and District Administration. In addition to activities proposed under local area development plan, provision has been kept under Environmental Management Plan for medical campsin the surrounding villages with the help of district health department.
Providing free power to local area of Boniyar andUri.	NHPC is abided to follow the provisions/ guidelines of issued by State Government/ Central Government related to free/ subsidized power to project area as well as to state.
The benefits like engagement of workforce, transportation, construction works and hiring of vehicles shall be prioritized for the localworkforce.	During the construction phase of the proposed project large number of skilled and unskilled workers shall be engaged in project activities, majority of them will be from the local population/surrounding villages. Employment opportunities shall be provided throughthe construction company as per eligibility and requirement of Project during the project construction phase. For development of required basic infrastructure facility during construction and maintenance, contracts will be awarded to local villagers through the construction company and priority has been given to locals during hiring of vehicles. An R&R Policy for providing indirect benefits to PAF/locals is also being implemented by NHPC across its projects and the same shall be applicable for Uri-I Stage-II HE Project.

Transmission Lines for transmitting the generated power shall be installed carried out in such a manner to minimize land acquisition for towers.	District Administration will take appropriate action to minimize the land acquisition for transmission lines towers.
Irrigation facilities shall be restored and revived after successful construction of the project for the affected areas.	A District level committee has been constituted on dated 19.02.2024 for action plan to undertake the irrigation facilities in the area. The implementation of the works shall be taken up with the consultation District Administration.
Strengthening of embankments of river Jhelum as per requirement	The reservoir of Uri-I Power Station is under operation since 1997 and no changes are envisaged due to construction of Uri-I Stage-II project. Both banks of the Jhelum River around the existing pondage/ reservoir have also been stabilized by rip rap boulder pitching and other protection measures and are well maintained. In addition to ongoing treatment measures taken by Uri-I Power Station, treatment measures for degraded areas with financial provision has been made Catchment Area Treatment Plan.
Upgradation and beautification of area and promotion of tourism activities in the project area.	A District level committee has been constituted on dated 19.02.2024 for action plan to undertake the irrigation facilities in the area. The implementation of the works shall be taken up with the consultation District Administration. Provision for the upgradation of religious places and promotion of tourism activities shall be taken up Local Area Development Plan after consultation withthe consultation of District Administration.

iii. The salient features of the project are as under: -

- **EAC Meeting Details:**

EAC meeting/s	23rd Meeting
Date of Meeting/s	29.01.2025
Date of earlier EAC meetings	10th Meeting (ToR), 15.04.2021 13th Meeting (EC), 13.08.2024

- **Project details:**

Name of the Proposal	Uri-I Stage-II Hydroelectric Project (240 MW)

Proposal No.	IA/JK/RIV/463699/2024
Location (Including Coordinates)	Uri and Boniyar tehsils of Baramulla district in Uni on Territory of Jammu & Kashmir Barrage is located at Latitude is $34^0$08’00” North & Longitude is $74^0$11’00” East. Powerhouse is located at Latitude is $34^0$05’00” North & Longitude is 74^0 03’00” East.
Company’s Name	NHPC Ltd.
CIN no. of Company/user agency	L40101HR1975GOI032564
Accredited Consultant and certificate no.	NABET/EIA/2225/RA 0274
Project location (Coordinates /River/ R eservoir)	Near Village: Boniyar, Jhelum River
Inter- state issue involved	Yes
Proposed on River/ Reservoir	Jhelum River
Type of Hydro-electric project	Run-of-river
Seismic zone	IV

- **Category details:**

Category of the project	A
Capacity / Cultural command area (CCA)	240 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

- **ToR/EC Details:**

ToR Proposal No.	IA/JK/RIV/204853/2021
EAC meeting date	15.04.2021
ToR Letter No.	J-12011/08/2021-IA.I (R)
ToR grant Date	10.06.2021
Cost of project	2167.61 Cr
Total area of Project	102.0 Ha
Height of Dam from River Bed (EL)	14.5m / 21.5 m (from riverbed level/ deepest foundatio

	n level)
Details of submergence area	-
District to provide irrigation facility (if app licable)	NA
Details of tunnels on upper level & lower l evel and length of canal (if applicable)	
No. of affected Village	None
No. of Affected Families	None
Project Benefits	**Power Generation**:
	Uri I Stage II HEP is likely to generate 929.13 MUs in a 90% dependable year **Environmental**: Soil Conservation Biodiversity Conservation Conservation of Riverine Ecology Green Energy (The project would replace the carbon e missions to the extent of power generation, which is eq uivalent to the estimated energy generation of 929.13 MU in 90% dependable year.) **Social:** Job Opportunities Business Development Infrastructure Development
R&R details	No private land will be acquired for the proposed proje ct; therefore, no family is affected due to the acquisitio n of land for the proposed project. Hence, requirement of preparation of Resettlement & Rehabilitation Plan is not envisaged in the present case.
Catchment area/ Command area	Catchment Area: 12,570 km^2
Types of Waste and quantity of generation during construction/Operation	Municipal Solid Waste- Bio degradable (112.00 Tons), Non degradable (112.00 Tons)
Material used for blasting and its compositi on as per DGMS standards.	Explosives are mainly required for open and undergroun d rock excavation. Explosive Magazine is already availa ble and the said land is in the possession of NHPC. The same Explosive Magazine site was utilized for construct ion existing Uri I & Uri II Power stations.
E-Flows for the Project	14.2 cumec release is recommended and adopted as e fl ow release. The barrage is equipped with a Fish Pass b

	etween bay No. 6 and bay No. 7 to release discharge of 2.5 cumec continuously. Balance e flow discharge of 1 1.7 cumec is provisioned to pass through the Silt exclu der gate on a continuous basis.
Is Projects earlier studied in Cumulative Im pact assessment & Carrying Capacity studi es(CIA&CC) for River in which project loc ated. If yes then c) E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basi n. d) If not the E-Flows maintain criteria for s ustaining river ecosystem.	No As per Scoping clearance issued by MoEF&CC release of **13.05 cumec** discharge is recommended for E-flow. However, as per NGT's order vide OA no- 425/ 2019 f or e-flow release, 15% of average lean season (four mo nths i.e., Oct – Jan) flow of Jhelum River at Uri Barrag e as per average 10 daily flow series (Database: 1976-7 7 to 2019-20) is **14.2 cumec**.
Details on provision of fish pass	Proposed Uri-I Stage-II HEP utilizes existing operation al barrage of Uri-I Stage-I Project. The barrage is equipped with a Fish Pass between bay No. 6 and bay No. 7. 2.5 cumec of water is being continuously maintain in t he fish ladder which also served as conduit for provisio n of maintaining partial E-flow.
Project benefit including employment deta ils (no of employee)	500 persons during peak phase of construction period a nd 120 persons during operational phase
Area of Compensatory Afforestation (CA) with tentative no of plantation.	As per forest proposal finalized by DFO Jhelum Valley Forest Division an area 350 kanal has been finalized fo r Compensatory Afforestation. As per proposal a total o f 19300 no. of trees are proposed to be planted under C A scheme.
Previous EC details	-
EC Compliance Report by R.O, MOEF&C C	-

- **Electricity generation capacity:**

Powerhouse Installed Capacity	240 MW
Generation of Electricity Annually	929.13 MWH
No. of Units	2 nos. (2 X 120 MW)

- **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt land)	4
Cross section of proposed muck are a, Height of muck with slope.	Attached as Appendix I

Distance of muck disposal area (location), from muck generation sources (project area)/River, HFL of proposed muck disposal area.	About 500 m more than 30 m from HFL.
Total Muck Disposal Area	16.90 ha
Estimate Muck to be generated	1158300 Cum
Transportation	All 04 pre identifies muck disposal sites are adjacent to proposed construction sites (< 500m). All the proposed sites are already under possession of NHPC Ltd.
Monitoring mechanism for Muck Disposal Transportation	All four designated sites for disposal of muck are adjacent to the source. The provisions of Monitoring have been kept under proposed Environmental Monitoring Plan.

- **Land Area Breakup:**

Private land	85.0
Forest Land	17.0 (Underground)
Submergence area/Reservoir area	None
Land required for project components	102.0

- **Presence of Environmentally Sensitive areas in the study area**

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate/ letter/Remarks**
Reserve Forest/Protected Forest Land	No	Kazinag National Park, Lachipora Wildlife Sanctuary and Limber Wildlife Sanctuary are the nearest protected areas from Uri-I Stage-II HE Project. All the project components are outside the notified ESZ of the protected areas.
National Park	No	
Wildlife Sanctuary	No	
Archaeological sites monuments/historical temples etc	No	
Additional information (if any)	-	

- **Availability of Schedule-I species in study area:** Yes, As per Wildlife Protection Amendment Act, 2022, Common Leopard (*Panthera pardus*), Himalayan Musk Deer (*Moschus leucogaster*), Himalayan Goral (*Naemorhedus goral*), Jungle Cat (*Felis chaus*), Leopard Cat

(*Prionailurus bengalensis*), Grey mongoose (*Herpestes edwardsii*), Small Indian mongoose (*Herpestes auropunctatus*), Golden Jackal (*Canis aureus*), Red Fox (*Vulpes vulpes*), Bengal Fox (*Vulpes bengalensis*), *Cuon alpinus* (Wild Dog), Asiatic Black Bear (*Ursus thibetanus*), Himalayan Weasel (*Mustela sibirica*), Common Otter (*Lutra lutra*), Red Giant Flying Squirrel (*Petaurista petaurista*) and Indian Crested Porcupine (*Hystrix indica*) are the mammalian species and Crested-serpent eagle (*Spilornis cheela*) is listed as Schedule I species

- **Public Hearing (PH) Details**

Advertisement for PH with date	State level newspaper “Rising Kashmir” and “C hattan" daily” dated 22.11.2023
Date of PH	21.12.2023
Venue	Recreation Park (Children Park) Boniyar, Distt. Baramulla (adjacent to Uri NH)
Chaired by	Additional District Magistrate, District Baramul la
Main issues raised during PH	• Provision of Employment of local Youth • Provision of Medical Facilities • Financial assistance for strengthening of basic infrastructure in the area
No. of people attended	340

- **Brief of base line Environment:**

<table>
<tr><th>Particulars</th><th>Details</th></tr>
<tr><td>Period of baseline data collection/Sampling per iod.
(Air, noise, water, land)
flora and fauna of the proj ect area,
aquatic ecology, etc.</td><td>
<table>
<tr><th>Parameters</th><th>Monsoon</th><th>Winter</th><th>Summer/ Pr e-Monsoon</th></tr>
<tr><td>Soil</td><td>September 20 21</td><td>January 2022</td><td>May 2022</td></tr>
<tr><td>Air Environment</td><td>September 20 21</td><td>January 2022</td><td>May 2022</td></tr>
<tr><td>Noise & Traffic</td><td>September 20 21</td><td>January 2022</td><td>May 2022</td></tr>
<tr><td>Water Quality</td><td>September 20 21</td><td>January 2022</td><td>May 2022</td></tr>
<tr><td>Vegetation</td><td>September 20 21</td><td>January 2022</td><td>May 2022</td></tr>
<tr><td>Fauna surveys</td><td>September 20 21</td><td>January 2022</td><td>May 2022</td></tr>
<tr><td>Socio-economic s urvey of Project a ffected villages</td><td colspan="3">May 2022</td></tr>
</table>
</td></tr>
<tr><td>Brief description on hy drology and water assess ment as per the approved Pre-DPR:</td><td>The water availability series from 1994-95 to 2019-20 (26 years) has b een approved by CWC Hydrology (N) Directorate vide their file no. T-11025/1//2021-HYD(N) Dte, dated 15-03-2021. The average annual yield for the series Jun-94 to May-20 is computed as 8080 Mcum (i.e.</td></tr>
</table>

	633.7 mm).
Additional detail (If any)	

- **Court case details: Nil**
- **Status of other statutory clearances**

Particulars	**Letter no. and date**
Status of Stage- I FC	The proposal for grant of 'in-principle' approva l for the diversion of 17.00 hectares of forest la nd for the underground work of the Uri-I Stage II HEP has been recommended during the Adv isory Committee (AC) meeting held on 26.12. 2024. MoEF&CC has issued letter dated 14/01/2025 accorded Stage I/In principal approval for dive rsion 17 ha of forest land.
Approval of Central Water Commission	CWC Hydrology (N) Directorate vide their file no. T-11025/1//2021-HYD(N) Dte, dated 15-0 3-2021.
Approval of Central Electricity Authority	CEA Letter no. File No.CEA-HY-12-20/3/202 1-HPA Division dated 20.03.2021.
Additional detail (If any)	
Is FRA (2006) done for FC-I	Yes, Attached as Appendix II

- **Details of the EMP**

S. No	**Component of EMP**	**Capital Cost (Rs. In lakh)**	**Recurring Cost (Rs**			
			Year 1	**Year 2**	**Year 3**	**Year 4**
1	Catchment Area Treatment Plan	1297.00	0.00	0.00	0.00	0.00
2	Compensatory Afforestation Plan	71.19	0.00	0.00	0.00	0.00
3	Biodiversity Conservation & Wildlife Management Pla n	186.00	0.00	0.00	0.00	0.00
4	Fisheries Conservation and Management Plan	17.00	8.00	8.00	8.00	8.00
5	Muck Dumping and Management Plan	30.00	428.14	637.22	530.19	533.11
6	Landscaping, Restoration of Quarry, and Construction Sites	25.00	0.00	25.00	30.00	20.00
7	Reservoir Treatment Plan*	0.00	0.00	0.00	0.00	0.00

S. No	Component of EMP	Capital Cost (Rs. In lakh)	Recurring Cost (Rs			
			Year 1	Year 2	Year 3	Year 4
8	Green Belt Development Plan	0.00	4.13	4.12	11.01	14.48
9	Sanitation and Solid Waste Management Plan	111.00	31.64	25.64	21.64	16.64
10	Public Health Delivery System	50.00	29.00	29.00	29.00	29.00
11	Energy Conservation Measures	26.00	31.50	31.50	31.50	31.50
12	Labour Management Plan	35.00	4.00	7.00	7.00	7.00
13	Disaster Management Plan (Emergency Action Plan) **	0.00	0.00	0.00	0.00	0.00
14	Control of Air, Noise and Water Pollution	0.00	10.00	10.00	10.00	10.00
15	Environmental Monitoring Programme	0.00	11.65	11.65	11.65	11.65
16	Rehabilitation and Resettlement Plan***	0.00	0.00	0.00	0.00	0.00
17	Local Area Development Plan	1038.80	0.00	0.00	0.00	0.00
	Total	2886.99	**558.06**	**789.13**	**689.99**	**681.38**
18	NPV under B-land#	116.66	0.00	0.00	0.00	0.00
	Total	3003.65	**558.06**	**789.13**	**689.99**	**681.38**

* Reservoir Rim Management Plan is already implemented by Uri-I Power Station and Plantation is proposed under Greenbelt Development Plan.
** Emergency Action Plan is already implemented by Uri-I Power Station.
*** Rehabilitation and Resettlement Plan Not required as no private land is acquired for the project.
# The cost of NPV shall come under the B-LAND in the DPR.

23.1.3 The proposal was earlier considered by the EAC in its 13th meeting held on 13.08.2024 wherein the proposal was deferred for want of additional information. PP vide letter dated 07.01.2025 submitted the following information sought by the EAC on Parivesh Portal:

ADS Point 1: The Project Proponent (PP) shall submit the data on the environmental flow (e-flow) monitored for the existing project.

Reply: Due to file size limitations, 3 months (January 2023 – March 2023) environmental flow (e-flow) data monitored for the existing project has been provided. The detailed month-wise data (Jan2023 to

Nov 2024) has been submitted to the MoEFCC in hard copy.

ADS Point 2: The PP shall submit an approved wildlife conservation plan as project location is in close proximity to Wildlife Protected Area.

Reply: The Biodiversity Conservation & Wildlife Management Plan for Schedule I species has been approved by the office of Principal Chief Conservator of Forests (Wildlife)/ Chief Wildlife Warden vide letter no. WLP/Tech/2024/704-705 dated 14.10.2024. A copy of approval along with the Biodiversity Conservation & Wildlife Management Plan has been submitted.

ADS Point 3: Given that 17 hectares of forest land are involved, the PP shall provide a detailed classification of the project area, including information on forest density, species, diversity and other relevant ecological characteristics.

Reply: The detailed classification of the project area, including information on forest density, species, biodiversity, and other relevant ecological characteristics has been submitted, proposal for grant of 'in-principle' approval for the diversion of 17.00 hectares of forest land for the underground work of the Uri-I Stage II HEP has been recommended during the Advisory Committee (AC) meeting held on 26.12.2024.

ADS Point 4: The PP shall submit a videography of the entire public hearing proceedings to the Ministry.

Reply: A videography of the entire public hearing proceedings shall be submitted to the Ministry in pen drive as due to data size limitation, it cannot be uploaded on PARIVESH portal. Public Hearing video has been presented during next EAC meeting for appraisal of Uri I Stage II HEP.

ADS Point 5: The PP shall submit drone videography of the area where the proposed project is located.

Reply: Drone videography of the area where the proposed project is located shall be submitted to the Ministry in pen drive as due to data size limitation it cannot be submitted online on PARIVESH portal. Drone video has been presented during next EAC meeting for appraisal of Uri I Stage II HEP.

3.1.3. Deliberations by the committee in previous meetings

Date of EAC 1 :13/08/2024

Deliberations of EAC 1 :

13.1.3 The EAC during deliberations noted the following:

- The EAC deliberated on the information submitted and as presented in the meeting and observed that the proposal is for grant of Environmental Clearance to the project for Uri-I Stage-II Hydroelectric project of 240 MW as Run of River scheme in an area of 102 ha in Sub District Uri, Boniyar, Kreeri, Baramullaand Rafiabad, District of Baramulla (Jammu and Kashmir) by M/s NHPC Limited.
- The Hydro-electric project is listed as item no. 1(c) of the Schedule to the Environment Impact Assessment (EIA) Notification, 2006, as amended under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).
- The Terms of References (ToRs) has been issued by Ministry letter No. J- 12011/08/2021-IA.I (R); dated 10.06.2021. The EAC noted that total land area required for the project is 102 Ha out of which Non-forest Land 85.0 ha and 17.0 ha is a Forest Land for which Stage-1 FC is still under process in the Ministry. The estimated project cost is Rs 2167.61 crore. Total capital cost earmarked towards Environment Management Plan/environmental pollution control measures is Rs. 3010.70 lakh and the Recurring cost (operation and maintenance) will be about Rs. 2819.91 lakh about i.e. Rs 402.84 lakh per annum.
- The EAC noted that Uri-I Stage-II (240 MW) is an extension of the existing Uri-I Stage-I (480 MW) project, located on the Jhelum River in Baramulla district, Union Territory of Jammu and Kashmir. The Environmental Clearance for Uri-I Hydroelectric Project (480 MW) was granted by the Department of Science and Technology (DST), Government of India, to the Central Electricity Authority (CEA) on June 27, 1980. Additionally, the Forest Clearance for the diversion of 54.70 hectares of forest land was granted by the Ministry of Environment & Forests on May 21, 1986.
- Stage I of the project, with an underground powerhouse and an installed capacity of 480 MW, was commissioned by NHPC Ltd. in 1997. The existing structures from Uri-I Stage-I, including the barrage, head regulator up to the HRT intake, spillway, and desilting basin, will be utilized for Stage-II of the hydroelectric project (HEP). For Uri-I Stage-II HEP, new construction is proposed for the headrace tunnel (HRT), surge shaft, pressure shaft, powerhouse, and penstock.
- The committee further observed that the Uri-I Stage-II Hydroelectric Project (HEP) is planned to capitalize on the availability of diverted water from the Kishanganga River, which originates from the Kishanganga Power Station (330 MW) located near Bandipore in the Kashmir Valley. The Kishanganga Power Station, commissioned by NHPC in 2018, involves the transfer of water from the Kishanganga River to the Madhumati River, a tributary of the Jhelum River that flows into Wular Lake. The Jhelum River, which passes through Wular Lake, now receives additional water from the Kishanganga HEP. As a result, this increased water flow makes additional water available for utilization in the Uri-I Stage-II project.
- The Committee discussed the issues raised during the Public Hearing (PH) and reviewed the action plan submitted by the Project Proponent to address these concerns. After careful deliberation, the Committee found the action plan satisfactory. The Committee then advised the Project Proponent to submit a copy of the Public Hearing report to the Ministry.

13.1.4 The EAC after detailed deliberations deferred the proposal for want of following additional information:

i. The Project Proponent (PP) shall submit data on the environmental flow (e-flow) monitored for the existing project.
ii. The PP shall submit an approved wildlife conservation plan as project location is in close proximity Wildlife Protected Area.
iii. Given that 17 hectares of forest land are involved, the PP shall provide a detailed classification of the project area, including information on forest density, species diversity, and other relevant ecological characteristics.
iv. The PP shall submit a videography of the entire public hearing proceedings to the Ministry.
v. The PP shall submit drone videography of the area where the proposed project is located.

3.1.4. Deliberations by the EAC in current meetings

The EAC during deliberations noted the following:

- The Expert Appraisal Committee (EAC) deliberated on the information submitted by the Project Proponent and the details presented during the meeting. The Committee observed that the proposal pertains to the grant of Environmental Clearance for the Uri-I Stage-II Hydroelectric Project (240 MW), designed as a Run-of-River scheme covering an area of 102 hectares in Sub-District Uri, Boniyar, Kreeri, Baramulla, and Rafiabad, District Baramulla, Jammu & Kashmir, proposed by M/s NHPC Limited.
- The project falls under Item 1(c) of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, and is categorized as a Category 'A' project, which requires appraisal at the Central level by the Expert Appraisal Committee (EAC).
- The EAC, constituted under the provisions of the EIA Notification, 2006, and comprising expert members/domain experts from various relevant fields, examined the proposal submitted by the Project Proponent. This examination included a review of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports, which were prepared and submitted by a QCI/NABET-accredited consultant on behalf of the Project Proponent.
- The EAC further noted that the project was previously considered during its 13th meeting held on 13.08.2024, wherein the proposal was deferred due to the requirement for additional information. The Project Proponent subsequently submitted the requisite information via letter dated 07.01.2025, and upon examination, the Committee found the details to be satisfactory.
  - The EAC in its meeting held on 13.08.2024 inter alia noted the following:
    - The EAC noted that the Project Proponent (PP) has submitted an undertaking stating that the data and information provided in the application and its enclosures are true and accurate to the best of their knowledge and belief, and that no information has been suppressed in the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports. The PP has also acknowledged that if any part of the submitted data or information is found to be false or misleading at any stage, the project will be rejected, and any Environmental Clearance (EC) granted will be revoked at the risk and cost of the Project Proponent.
    - The Terms of Reference (ToR) for the project were issued by the Ministry vide letter No. J-12011/08/2021-IA.I (R) dated 10.06.2021. The EAC noted that the total land area required for the project is 102 hectares, comprising 85 hectares of non-forest land and 17 hectares of forest land. The Stage-I Forest Clearance (FC) for the forest land is still under process in the Ministry.
    - The estimated project cost is ₹2,167.61 crore. The total capital cost earmarked for the Environmental Management Plan (EMP) and environmental pollution control measures is ₹3,010.70 lakh, while the recurring cost for operation and maintenance is ₹2,819.91 lakh, amounting to approximately ₹402.84 lakh per annum.
    - The EAC noted that the Uri-I Stage-II Hydroelectric Project (240 MW) is an extension of the existing Uri-I Stage-I Hydroelectric Project (480 MW), located on the Jhelum River in Baramulla district, Union Territory of Jammu and Kashmir. The Environmental Clearance (EC) for the Uri-I Hydroelectric Project (480 MW) was granted by the Department of Science and Technology (DST), Government of India, to the Central Electricity Authority (CEA) on June 27, 1980. Additionally, the Forest Clearance (FC) for the diversion of 54.70 hectares of forest land was granted by the Ministry of Environment & Forests on May 21, 1986.
    - Stage-I of the project, with an underground powerhouse and an installed capacity of 480 MW, was commissioned by NHPC Ltd. in 1997. The existing structures from Uri-I Stage-I, including the barrage, head regulator up to the headrace tunnel (HRT) intake, spillway, and desilting basin, will be utilized for Stage-II of the hydroelectric project (HEP). For the Uri-I Stage-II HEP, new construction is proposed for the headrace tunnel (HRT), surge shaft, pressure shaft, powerhouse, and penstock.
    - The committee further observed that the Uri-I Stage-II Hydroelectric Project (HEP) is planned to capitalize on the availability of diverted water from the Kishanganga River, which originates from the Kishanganga Power Station (330 MW) located near Bandipore in the Kashmir Valley. The Kishanganga Power Station, commissioned by NHPC in 2018,

involves the transfer of water from the Kishanganga River to the Madhumati River, a tributary of the Jhelum River that flows into Wular Lake. The Jhelum River, which passes through Wular Lake, now receives additional water from the Kishanganga HEP. As a result, this increased water flow makes additional water available for utilization in the Uri-I Stage-II project.

- Given the significance of public participation in environmental decision-making, the EAC also discussed the concerns raised during the Public Hearing (PH) and reviewed the action plan submitted by the Project Proponent to address these issues. After detailed deliberation, the Committee found the action plan satisfactory, recognizing that the proposed mitigation measures adequately respond to stakeholders' concerns. Accordingly, the EAC advised the Project Proponent to submit a copy of the Public Hearing report to the Ministry, ensuring transparency and compliance with regulatory requirements.
- The total land requirement for the Uri-I Stage-II Hydroelectric Project (HEP) is 102.0 hectares (ha), comprising 85.0 ha of non-forest land and 17.0 ha of forest land (allocated for underground project structures). At present, NHPC possesses the required 85.0 ha of non-forest land, which is proposed to be utilized for various above-ground components of the project. Additionally, the proposal for the diversion of 17.0 ha of forest land for underground project structures was recommended during the Advisory Committee (AC) meeting held on 26.12.2024. Subsequently, the Ministry issued a letter dated 14.01.2025, according Stage-I (in-principle) approval for the diversion of forest land. However, the Forest Clearance (FC) letter has not yet been submitted on the Parivesh portal, necessitating further compliance measures from the Project Proponent. The EAC recommended to submit the Stage-I FC on EC PARIVESH portal.
- To ensure transparency in the public consultation process, the PP presented a videography of the Public Hearing (PH) conducted by the State Pollution Control Committee on 21.12.2023. The notice for the Public Hearing was published in state-level newspapers—"Rising Kashmir" and "Chattan Daily"—on 22.11.2023. The meeting was chaired by the Additional District Magistrate of Baramulla District, ensuring due diligence in addressing public concerns and regulatory compliance.
- The EAC also noted that the Biodiversity Conservation & Wildlife Management Plan for Schedule-I species has been approved by the office of the Principal Chief Conservator of Forests (Wildlife)/ Chief Wildlife Warden vide letter No. WLP/Tech/2024/704-705 dated 14.10.2024. A total of Rs. 186 lakh has been allocated under this plan for various conservation activities, including biodiversity conservation, wildlife management, conservation and management of Schedule-I species, and monitoring and evaluation.
- However, the EAC took cognizance of the revision in fund allocation for environmental management measures. The Project Proponent (PP) had initially earmarked Rs. 144 lakh for the Biodiversity Conservation & Wildlife Management Plan, which has now been increased to Rs. 186 lakh. Conversely, the funds allocated for the Catchment Area Treatment (CAT) Plan have been reduced from Rs. 1346.05 lakh to Rs. 1297.00 lakh, raising serious concerns. The EAC strongly advised the Project Proponent to restore the funds for the CAT Plan to the originally proposed amount of Rs. 1346.05 lakh, ensuring that essential catchment conservation activities are not compromised.

The EAC after examining the information submitted and detailed deliberations recommended the proposal for grant of prior Environmental Clearance by the Ministry to Uri-I Stage-II Hydroelectric project of 240 MW as Run of River scheme in an area of 102 ha in Sub District Uri, Boniyar, Kreeri, Baramullaand Rafiabad, District of Baramulla (Jammu and Kashmir) by M/s NHPC Limited, under the provisions of EIA Notification, 2006 and as amended with subject to compliance of applicable Standard EC conditions with the following specific environmental safeguard conditions:

3.1.5. Recommendation of EAC

Recommended

3.1.6. Details of Environment Conditions

3.1.6.1. Specific

Miscellaneous:	
1.	After 5 years of the commissioning of the project, a study shall be undertaken regarding impact of the project on the environment. The study shall be undertaken by an independent agency.
2.	Bio-Gas plant shall be installed in the Project affected area for Utilizing Cattle waste (Cow Dung) into renewable source of fuel.
3.	PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis.
4.	PP shall procure construction material only from those Organizations having all valid legal/statutory clearances/permissions or necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and as amended thereof.
5.	An institutional mechanism to be developed to ensure the preference of jobs to PAFs and also a policy for preferential treatment for award of sundry works to the PAFs and their dependents.
Socio-economic	
1.	Land acquired for the project shall be suitably compensated in accordance with the prevailing guidelines of the state government and provisions under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
2.	Solar panel be provided to the families living in rural areas within 10 km radius of project with annual maintenance.
3.	School up to 12^{th} Standard with smart classes shall be established and managed to provide free quality education for children from project affected villages/Tribal villages.
4.	50 bed multi-speciality hospital shall be established to cater the need of tribal population/locals. The tribal population within 10 km radius of the project shall be given free of cost medical facility.
5.	The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit once in year. The compliance report of IRO shall be regularly submitted to MoEF&CC.
6.	Skill development Centre shall be established within 10 km radius of the project and regular training programmes for development and promotion of traditional art/products of tribal/local population.
Disaster Management:	
1.	Disposal of the excavated muck and its filling on the low-lying area with proper measures for the stabilization and greenery to minimize the impacts of the generated construction muck shall be

	taken up pari passu with construction work.
2.	Stabilization of muck disposal sites using biological and engineering measures shall be taken up immediately to ensure that muck does not roll down the slopes and does not pollute the natural streams and water bodies in surrounding area. The plantation on muck disposal site with local species for restoration of ecology and environment of the project site area shall be done as per instructions of the Forest Department.
3.	Necessary control measures such as water sprinkling arrangements, and construction of paved roads leading to muck disposal sites etc. shall be taken up on priority to arrest fugitive dust at all the construction sites.
4.	Solid waste generated, especially plastic waste, etc. should not be disposed of as landfill material. It should be treated with scientific approach and recycled. Use of single-use plastics may be discouraged.
Environmental management and Biodiversity conservation:	
1.	The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP reports. The budgetary provisions for implementation of EMP, shall be fully utilized and not to be diverted to any other purpose. In case of revision of the project cost or due to price level change, the cost of EMP shall also be updated proportionately.
2.	The contract clause limiting the No. of vehicles used during excavation and transportation shall followed scrupulously and the same shall informed to the ministry.
3.	Ambient Air Quality Monitoring Stations for real time data to be installed at project site before commencement of the construction, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC.
4.	No vehicle purchase shall be allowed from funds earmarked for implementation of Wildlife Conservation plan. Measures for minimizing the human–animal conflict specially for black bear and leopard be suitably incorporated in the wildlife conservation plan in consultation with State Forest Department.
5.	Plantation of saplings shall be carried out as a part of the tree plantation campaign "Ek Ped Ma Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

3.1.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Statutory compliance	
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.
2.	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
3.	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).

4.	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.
5.	NOC shall be obtained from National Commission of Seismic Design Parameters (NCSDS) of CWC.
6.	Necessary approval of CEA shall be obtained for those projects having the project cost more than Rs. 1,000 crores.
Air quality monitoring and preservation	
1.	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.
2.	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.
3.	Necessary control measures such as water sprinkling arrangements, etc. bet taken up to arrest fugitive dust at all the construction sites.
4.	Conjunctive use of surface water to be planned in the project to check water logging as well as to increase crops productivity. The field drains shall be connected with natural drainage system (if applicable).
5.	Remodelling of existing natural drains (link drains) and connecting them with irrigated land through constructed field drains, collector drains, etc. are to be ensured on priority basis (if applicable).
6.	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 impact on water environment including the rock mass and muck used for the Cofferdam.
7.	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.
8.	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.
9.	Mixed irrigation shall be practised and necessary awareness be given to all the farmers and trained in the use of such systems. Proper crops selection shall be carried out for making irrigation facility more effective (if applicable).
10.	On Farm Development (OFD) works like landscaping, land levelling, drainage facilities, field irrigation channels and farm roads, etc. should be taken up in phased manner prior to the start of irrigation in the entire command area. The Command Area Development Plan should be strictly implemented as proposed in the EIA/EMP report (if applicable).
Noise monitoring and prevention	
1.	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.
2.	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.

Catchment Area Treatment Plan	
1.	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.
Waste management	
1.	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.
2.	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.
Green Belt and Wildlife Management	
1.	Based on the recommendation of Cummulative 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.
2.	Detailed information on species composition particular to fish species from previous study/literature be inventoried and proper management plan shall be prepared for insitu conservation in the streams, tributaries of river and the main river itself for which adequate budget provision be made and followed strictly.
3.	Wildlife Conservation Plan approved by the Chief Wildlife Warden shall be implemented in consultation with the local State Forest Department.
4.	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.
5.	Compensatory afforestation programme shall be implemented as per the plan approved.
6.	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 it effectiveness.
Public hearing and Human health issues	
1.	Resettlement & Rehabilitation plan be implemented in consultation with the State Govt. as approved by the State Govt.
2.	Budget provisions made for the community and social development plan including community welfare schemes shall be implemented in toto.
3.	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.
4.	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.
5.	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.

Risk Mitigation and Disaster Management	
1.	Early Warning Telemetric system shall be installed in the upper catchment area of the project for advance intimation of flood forecast.
2.	Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
3.	Emergency preparedness plan be made for any eventuality of the dam failure and shall be implemented as per the Disaster Management Plan.
4.	Stabilization of muck disposal sites using biological and engineering measures shall be taken up to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area. The engineering measures for the muck disposal arrangements be evolved after carrying out required slope stability analysis.
5.	Catchment area treatment plan shall be prepared and sufficient fund shall be provided for afforestation, rim plantation, pasture development, nursery development.
Corporate Environment Responsibility	
1.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30th September, 2020, as applicable, regarding Corporate Environment Responsibility.
2.	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
3.	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.
4.	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.
5.	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.
6.	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.
7.	Multi Disciplinary Committee (MDC) be constituted with experts from Ecology. Forestry, Wildlife, Sociology. Soil Conservation, Fisheries, NGO, etc. to oversee implementation of various environmental safeguards proposed in EIA/EMP report during construction of the project. The monitoring report the Committee shall be uploaded in the website of the Company.
8.	Formation of Water User Association/Co-operative be made involment of the whole community be ensured for discipline use of available water for irrigation purposes
Miscellaneous	
1.	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.
2.	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.
3.	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.
4.	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.
5.	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.
6.	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.
7.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
8.	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.
9.	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).
10.	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.
11.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
12.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
13.	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.
14.	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.
15.	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.

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Damanganga (Ekdare)-Godavari instrastate link project by **Minor Irrigation Division** located at **NASHIK,MAHARASHTRA**			
Proposal For		Amendment in ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/464131/2025	J-12011/03/2019-IA-1 (R)	07/01/2025	River Valley/Irrigation projects (1(c))

3.2.2. Project Salient Features

The proposal is for grant of amendment in Terms of Reference to the project for Damanganga (Ekdare) - Godavari intrastate link project (CCA: 12998ha) in an area of 213.46 ha at Village Ekdare, Tehsil Peint, District Nashik (Maharashtra) by M/s National Water Development Agency.

3.2.3. Deliberations by the committee in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

The Project proponent vide letter dated 24.01.2025 informed that since, the parameters of the proposed project are going to be revised, they requested to withdraw Proposal Number - IA/MH/RIV/464131/2025; F.No. J-12011/03/2019-IA.I(R) from the Parivesh portal.
The proposal was ***returned*** on the above lines.

3.2.5. Recommendation of EAC

Returned in present form

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

Kamod Pumped Storage Hydro Electric Project by **Megha Engineering & infrastructures Limited** located at **NANDURBAR,MAHARASHTRA**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/518871/2025	J-12011/02/2025-IA.I (R)	17/01/2025	River Valley/Irrigation projects (1(c))

3.3.2. Project Salient Features

The proposal is for grant of Terms of References (ToR) to the project for Kamod Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 458.23 Ha at Village Chaupale, Kamod, Kotkhamb and Nagziri, Sub District Sakri and Nawapur, District Nandurbar, Maharashtra by M/s Megha Engineering & infrastructures Limited.

3.3.3. Deliberations by the committee in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

The Project proponent vide letter dated 25.01.2025 informed that due to technical reason, there were some modifications in the proposed project and requested to withdraw the same from the parivesh portal.
The proposal was ***returned*** on the above lines.

3.3.5. Recommendation of EAC

Returned in present form

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Ghosla Pumped Storage Hydro Electric Project by **Megha Engineering & infrastructures Limited** located at **AURANGABAD,MAHARASHTRA**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/516657/2025	J-12011/03/2025-IA.I (R)	10/01/2025	River Valley/Irrigation projects (1(c))

3.4.2. Project Salient Features

The proposal is for grant of Terms of References (ToR) to the project for Ghosla Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 350 Ha at Village Wadi, Tidka, Shewale etc, Sub District Pachora, Sillod and Soegaon, District Jalgaon and Aurangabad by M/s Megha Engineering & infrastructures Limited.

23.4.2 The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. Ghosla Closed Loop Pumped Storage Hydro Electric Project is proposed with an installed capacity of 2000 MW/12000 MWH. The upper reservoir of the project is located in the Ghatnandra, Sillod Takuka, Aurangabad (now Chhatrapati Sambhajinagar) district in Maharashtra. The lower reservoir of the project falls in Ghosla village, Soegaon Taluk, Aurangabad.
ii. The geographical co-ordinate of the upper reservoir is at 20.474°latitude and 75.421° longitude and the lower reservoir is at geographical co-ordinate 20.491°latitude and 75.419°longitude.
iii. The project has two newly constructed reservoirs i.e., upper and lower reservoirs (closed-loop system) utilizing the maximum and minimum gross head of about 334 m and 280 m respectively. Total Water requirement for initial filling including evaporation loss is 17.49 MCM. The PSP scheme

envisages a drawl of water from the existing Bahula Dam, Jalgaon District for initial filling into the proposed lower reservoir through a 25 km pipeline arrangement.

iv. **Land requirement:** The total land required for the construction of various components and related works for Ghosla PSP is estimated to be around 344.9 ha, out of which 315.4 ha is non-forest land and 29.5 ha is forest land. Diversion of forest land for non-forest purpose will be involved for construction of Ghosla project components. Therefore, Forest Clearance is required to be obtained under Forest Conservation Act. There is no Protected Area in the vicinity of the proposed project. Gautala WLS is about 17.0 Km from site, is the nearest protected area.

v. **Demographic details in 10 km radius of project area:**

- There are three villages, namely Nandgaon, Ghosala, and Dharla, located near the proposed project reservoir area, which falls under the Soegaon and Sillod tehsils of Aurangabad district.
- Among these, Nandgaon has approximately 48% tribal population, Ghosala has around 15% tribal population, while Dharla does not have any tribal population.
- The primary occupation of the residents in these villages is agriculture, with a significant portion of the working population engaged as cultivators and agricultural laborers. Agriculture serves as the backbone of the economy in all the villages within the project area.
- The cultural practices in these villages reflect the broader traditions of the Marathwada region. Marathi is the predominant language spoken by the residents.
- Traditional festivals, folk dances, and rituals are integral to the community's cultural life. The presence of Scheduled Tribes further enriches the cultural diversity of the area, contributing unique customs and traditions to the social fabric.
- These villages exemplify rural life in Maharashtra, showcasing communities deeply connected to agriculture and rich in cultural heritage.

vi. **Water requirement:** Ghosla Close Loop Pumped Storage Hydro Electric Project will require 17.49 MCM for initial reservoir filling and thereafter 3.59 MCM per year will be required on annual basis from Bahula reservoir for restoring the storage capacity lost due to evaporation.

vii. **Project Cost**: The estimated project cost is Rs 9899.95 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).

viii. **Project Benefit:** Total Employment will be 1250 nos during construction & 250 nos during O&M. persons as direct & persons indirect after expansion.

ix. **Environmental Sensitive area:** There is no Protected Area in the vicinity of the proposed project. Gautala Autramghat WLS is 17.5 km far from the proposed project area. River/ water body, Bahula river is flowing at the aerial distance of 11.0 km in south to north direction.

x. MoU signed with Government of Maharashtra dated 26-09-2024.

xi. **Alternative Studies:** The Nine (9) PSP alternatives have been studied for selecting the final layout of the project.

The following aspects have been considered for the formulation of alternative layouts.

- Maximum utilization of available heads at the project site.

S.no.	Parameters	PSP-7	PSP-8
1	Head (m)	370 ()	300
2	Energy storage capacity (MWh)	14400 ()	12000
3	Distance between two reservoirs (km)	1.8	1.1 ()
4	L/H ratio	4.86	3.67 ()

5	Proximity of water bodies	The nearest Gavhlya Dam is approx. 8 km from LR7 and Bahula Dam is approx 21.5 km	The nearest Gavhlya Dam is approx. 9 km from LR8 and Bahula Dam is approx. 22 km
6	Installed capacity (MW)	2400 ()	2000
7	Cycle efficiency	76%	77 %()
8	Suitability and land availability private/ public/ forest/ protected wildlife.		()
9	Site Access	The reservoirs are accessible by village road, SH, and NH. Approx 5 km stretch of village roads are not motorable for both the reservoirs.	The reservoirs are accessible by village road, SH, and NH. Approx 1 km stretch of village roads is not motorable for the lower reservoir.()
10	High-level Cost per MW (INR Crore)	1.14()	1.29
11	Social issues (Google Earth and site visit)	Few houses are there in the upper and lower reservoir	No houses are there in the upper and lower reservoirs ()
12	Land requirement (Ha)	419.5	344()
13	Transmission lines (Km) up to 400 KV Bhusawal sub-station	70 ()	71

Taking into consideration the comparative study presented in the above table, it is evident that PSP-8 requires lesser forest land acquisition and has a lesser number of houses, and better accessibility. Therefore, this has been considered for the preparation of the pre-feasibility report owing to its advantages over other alternatives.

i. Status of Litigation Pending against the proposal, if any. **No**
ii. The salient features of the project are as under:

EAC Meeting Details:

EAC meeting/s	23rd Meeting
Date of Meeting/s	29.01.2025
Date of earlier EAC meetings	Nil

Name of the Proposal	Ghosla Close Loop Pumped Storage Hydro Electric Project
Location (Including coordinates)	Lower Reservoir : 75.419º E; 20.491º N Upper Reservoir : 75.421º E; 20.474º N
Inter- state issue involved	No
Seismic zone	Zone-II

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	2000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

Powerhouse Installed Capacity	2000 MW
Generation of Electricity Annually	4161 MU
No. of Units	8 nos. (6X300 MW+2X100 MW)
Additional information (if any)	Nil

Cost of project	9899.95 Cr.
Total area of Project	350.0 ha
Height of Dam from River Bed (EL)	Lower Dam – 31.0 m Upper Dam –32.0 m
Length of Tunnel/Channel	1131.0 m
Details of Submergence area	224.0 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Closed Loop P umped Storage Project (PSP)
Is Projects earlier studies in Cumulative Impact assessm ent & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then a) E-flow with TOR /Recommendation by b) EAC as per CIA&CC study of River Basin.	No

If not the E-Flows maintain criteria for sustaining river ecosystem.	
No. of proposed disposal area/ (type of land- Forest/Pvt. land)	65 ha (58 ha in Non-Forest Land; 7 ha i n Forest Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report
Private Land	317.75 ha
Government land/Forest Land	32.25 ha
Submergence area/Reservoir area	224.0 ha
Land required for project components	126.0 ha
Additional information (if any)	Nil

Particulars	Yes/No	Letter no. and date	Details of Certificate / letter/ Remarks
Forest land/ Protected Area/Environmental Sensitivity Zone			
Certified EC compliance report (if applicable)		Not Applicable	
Reserve Forest/Protected Forest Land	--		There is no Protected Area in the vicinity of the proposed project. Gautala Autramghat WLS is approx. 17.5 km far from the proposed project area.
Status of Stage- I FC		Yet to Apply	
National Park	--- --		
Additional detail (If any)		Nil	
Wildlife Sanctuary	--- --		
Is FRA (2006) done for FC-I		Yet to Apply	

Particulars	Details
Details of consultant	M/s. R S Envirolink Technologies Pvt. Ltd. (RSET) (NABET Accredited Consultant Organization) Certificate No : NABET/EIA/2225/RA0274 Validity : August 15, 2025 Contact Person : Mr. Ravinder Bhatia Name of Sector : River Valley and Hydroelectric Projects Category : A MoEF Schedule : I(C) Address : 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana - 122009 E-mail : ravi@rstechnologies.co.in Land Line : (0124) 4295383 Cellular : (+91) 9810136853
Project Benefits	• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy

	or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. • Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: o Least expensive source of electricity, not requiring fossil fuel for generation o An emission-free renewable source o Balancing grid for demand driven variations o Balancing generation driven variations o Voltage support and grid stability Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.
Status of other statutory clearances	Forest Clearance - Online application seeking forest diversion for around 32.25 Ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies
Additional detail (If any)	Nil

3.4.3. Deliberations by the committee in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and

Public hearing for Ghosla Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 350 Ha at Village Wadi, Tidka, Shewale etc, Sub District Pachora, Sillod and Soegaon, District Jalgaon and Aurangabad by M/s Megha Engineering & infrastructures Limited.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The EAC observed that the total land requirement for the Ghosla Pumped Storage Project (PSP) is estimated at 344.9 hectares (ha), comprising 315.4 ha of non-forest land and 29.5 ha of forest land. However, the application for Stage-I Forest Clearance (FC) has not yet been submitted, necessitating further action from the Project Proponent. The proposed project site does not fall within any Protected Area, and the nearest protected zone, Gautala Autramghat Wildlife Sanctuary (WLS), is located 17.5 km away.

The EAC further noted that the total water requirement for the project is 17.49 Million Cubic Meters (MCM) for initial reservoir filling, with an annual replenishment requirement of 3.59 MCM from the Bahula Reservoir. However, given that the project is located in the drought-prone districts of Jalgaon and Aurangabad, the EAC raised concerns about water availability and its potential impact on the region's ecosystem. To ensure sustainability, the EAC recommended conducting a comprehensive Water Utilization Mapping within a 10 km radius of the project site. This study should include:

- Assessment of all surface water sources (rivers, lakes, reservoirs, and canals)
- Evaluation of groundwater availability (aquifer condition, recharge potential, and extraction levels)
- Mapping of existing water users (agriculture, industries, and domestic consumption)
- Analysis of seasonal variations in water availability
- Assessment of potential risk for depletion of water availability due to project installation

The EAC emphasized that this study is critical to maintaining the long-term water security and ecological balance of the region.

Additionally, the Project Proponent has submitted a Memorandum of Understanding (MoU) dated 31.07.2024, signed between the Department of Water Resources, Government of Maharashtra and M/s Megha Engineering & infrastructures Limited, granting in-principle approval for the establishment of the Ghosla Pumped Storage Project with a capacity of 2000 MW.

23.4.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Specific ToR issued by the Ministry for Close Loop Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed construction of the project for Ghosla Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 350 Ha at Village Wadi, Tidka, Shewale etc, Sub District Pachora, Sillod and Soegaon, District Jalgaon and Aurangabad by M/s Megha Engineering & infrastructures Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

3.4.5. Recommendation of EAC

Recommended

3.4.6. Details of Terms of Reference

3.4.6.1. Specific

Miscellaneous.	
1.	Both capital and recurring expenditure under EMP shall be submitted.
2.	Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

Disaster Management	
1.	Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.
2.	The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks.
3.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.
4.	Drone video of project site shall be recorded and to be submittted.
5.	Undertaking need to be submitted on affidavit stating that no activities has been started on the project site.
6.	Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.
7.	Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.
8.	As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable.
Muck Management	
1.	Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided.
2.	Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.
3.	Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area.
4.	Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc.
Socio-economic Study	
1.	Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.

2.	All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.
3.	PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.
4.	Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.
Environmental Management and Biodiversity Conservation:	
1.	PP shall submit the Water Utilization Mapping within a 10 km radius of the project for sustainability of ecosystem of the region.
2.	Action plan for survival or diversion of the rivulets/stream, if any, leading to join Reservoir shall be submitted.
3.	Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.
4.	Explore the possibilities for reducing the Forest land requirement. The application for obtaining Stage I FC for 29.5 ha of forest land involved in the project shall be submitted within stipulated time.
5.	Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.
6.	Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.
7.	PP shall submit the detailed plan for filling the reservoir from the Bahula reservoir along with necessary approval form water resource department.
8.	Transportation Plan for transporting construction materials shall be submitted.
9.	Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.
10.	The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.
11.	Calculation and values of GHGs (CO2, CH4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.
12.	The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.

13.	Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted.The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.
14.	Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted in terms of construction and operation phase.
15.	Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
16.	Cumulative Impact of projects in the basin on carrying capacity and sustainability of Reservoir/ River /nala of catchment area due to tapping of water for filling reservoir shall be studied.
17.	Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
18.	A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
19.	Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
20.	Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
21.	Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

3.4.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Scope of EIA Study	
1.	The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study.
Details of the Project and Site	
1.	General introduction about the proposed project.
2.	Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures.

	Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of Dam/Barrage into the main river.
3.	A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location.
4.	Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map.
5.	Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity.
6.	Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components.
7.	Drainage pattern and map of the river catchment up to the proposed project site.
8.	Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India.
9.	Soil characteristics and map of the project area.
10.	Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
11.	Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
12.	Land details including forests, private and other land.
13.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
14.	Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study
Description of Environment and Baseline Data	
1.	To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:
2.	(i) Catchment area up to the dam/barrage site.
3.	(ii) Submergence Area.
4.	(iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.
5.	(iv) Downstream upto 10 km from the tip of the reservoir.

Details of the Methology	
1.	The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed.
Methodology for Collection of Biodiversity Data	
1.	The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).
2.	The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number.
3.	The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.
4.	The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN).
Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as follow s:	

1.	null
2.	null
3.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
4.	Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams.
5.	Landslide zone or area prone to landslide existing in the study area should be examined.
6.	Presence of important economic mineral deposit, if any.
7.	Justification for location & execution of the project in relation to structural components (dam /barrage height).
8.	Impact of project on geological environment.
9.	null
10.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.
11.	Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO2) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations.
12.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
13.	null
14.	Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area.
15.	null
16.	(i) Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared.
17.	null
18.	History of the ground water table fluctuation in the study area.
19.	Water quality for both surface water and ground water for (i) Physical parameters (pH, temperature, electrical conductivity, TSS); (ii) Chemical parameters (Alkalinity, Hardness, BOD, COD, NO2, PO4, CI, SO4, Na, K, Ca, Mg, Silica, Oil & Grease, phenolic compounds, residual sodium carbonate); (iii) Bacteriological parameter (MPN, Total coliform) and (iv) Heavy Metals (Pb, As, Hg, Cd, Cr-6, total Cr, Cu, Zn, Fe) (6 locations).

20.	Delineation of sub and micro-watersheds, their locations and extent based on the All India Soil and Land Use Survey of India (AISLUS), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through silt yield index (SYI) method of AISLUS
21.	Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring.
22.	Run off, discharge, water availability for the project, sedimentation rate, etc.
23.	Basin characteristics
24.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.
25.	For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1.
26.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
27.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
28.	Information on the 10-daily flow basis for the 90 per cent dependable year the flow intercepted at the dam, the flow diverted to the power house and the spill comprising the environmental flow and additional flow towards downstream of the dam for the project may be given.
29.	The minimum environmental flow shall be 20% of the flow of four consecutive lean months of 90% dependable year, 30% of the average monsoon flow. The flow for remaining months shall be in between 20-30%, depending on the site specific requirements. A site specific study shall be carried out by an expert organization.
30.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
31.	Hydrological studies/data as approved by CWC shall be utilized in the preparation of EIA/EMP report. Actual hydrological annual yield may also be given in the report. Sedimentation data available with CWC may be used to find out the loss in storage over the years.
32.	A minimum of 1 km distance from the tip of the reservoir to the tail race tunnel should be maintained between upstream and downstream projects.
33.	Besides primary studies, review of secondary data/literature published for project area on flora & fauna including RET species shall be reported in EIA/EMP report.
34.	null
35.	Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan.
36.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
3	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A

7.	species wise list may be provided.
38.	Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index (IVI) , Shannon Weiner index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems.
39.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
40.	Economically important species like medicinal plants, timber, fuel wood etc.
41.	Details of endemic species found in the project area.
42.	Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along-with economic significance. Species diversity curve for RET species should be given.
43.	Cropping pattern and Horticultural Practices in the study area.
44.	null
45.	Fauna study and inventorisation should be carried out for all groups of animals in the study area. Their present status alongwith Schedule of the species.
46.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
47.	Information (authenticated) on Avi-fauna and wildlife in the study area.
48.	Status of avifauna their resident/ migratory/ passage migrants etc.
49.	Documentation of butterflies, if any, found in the area.
50.	Details of endemic species found in the project area.
51.	RET species-voucher specimens should be collected along-with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972.
52.	Existence of barriers and corridors, if any, for wild animals.
53.	Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity.
54.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.

55.	For categorization of sub-catchment into various erosion classes and for the consequent CAT plan, the entire catchment (Indian Portion) is to be considered and not only the directly the draining catchment.
56.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
57.	Fish and fisheries, their migration and breeding grounds.
58.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
59.	Conservation status of aquatic fauna.
60.	Sampling for aquatic ecology and fisheries and fisheries must be conducted during three seasons Pre-monsoon (summer), monsoon and winter. Sizes (length & weight) of important fish species need to be collected and breeding and feeding grounds should also be identified along the project site or in vicinity.
61.	Collection of baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surroundings population.
62.	Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent.
63.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
64.	The socio-economic survey/ profile within 10 km of the study area for demographic profile; Economic Structure; Developmental Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc.
65.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
66.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
67.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
68.	List of all the Project Affected Families with their name, age, educational qualification, family size, sex, religion, caste, sources of income, land & house holdings, other properties, occupation, source of income, house/land to be acquired for the project and house/land left with the family, any other property, possession of cattle, type of house etc.
69.	Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project.
Impact Prediction and Mitigation Measures	
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
2.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.

3.	Effect on soil, material, vegetation and human health.
4.	Impact of emissions from DG set used for power during the construction, if any, on air environment.
5.	Pollution due to fuel combustion in equipments and vehicles
6.	Fugitive emissions from various sources
7.	Changes in surface and ground water quality
8.	Steps to develop pisci-culture and recreational facilities
9.	Changes in hydraulic regime and downstream flow.
10.	Water pollution due to disposal of sewage
11.	Water pollution from labour colonies/ camps and washing equipment.
12.	Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting for commissioning of HRT, TRT and some other structures.
13.	Changes in land use / land cover and drainage pattern
14.	Immigration of labour population
15.	Quarrying operation and muck disposal
16.	Changes in land quality including effects of waste disposal
17.	River bank and their stability
18.	Impact due to submergence.
19.	Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
20.	Pressure on existing natural resources
21.	Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors
22.	Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
23.	Impact on fish migration and habitat degradation due to decreased flow of water

24.	Impact on breeding and nesting grounds of animals and fish.
25.	Impact on local community including demographic profile.
26.	Impact on socio-economic status
27.	Impact on economic status.
28.	Impact on human health due to water / vector borne disease
29.	Impact on increase traffic
30.	Impact on Holy Places and Tourism
31.	Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.
32.	Positive and negative impacts likely to be accrued due to the project are listed.
Environmental Management Plan	
1.	null
2.	Biodiversity and Wildlife Conservation and Management Plan for the conservation and preservation of rare, endangered or endemic floral/faunal species or some National Park/Sanctuary/ Biosphere Reserve or other protected area is going to get affected directly or indirectly by construction of the project, then suitable conservation measures should be prepared in consultation with the State Forest Department and with the physical and financial details. Suitable conservation techniques (in-situ/ ex-situ) will be proposed under the plan and the areas where such conservation is proposed will be marked on a project layout map.
3.	Compensatory Afforestation shall be prepared by the State Forest Department in lieu of the forest land proposed to be diverted for construction of the project as per the Forest (Conservation) Act, 1980. Choice of plants for afforestation should include native and RET species, if any. This will be a part of the forest clearance proposal.
4.	Fisheries Conservation and Management Plan - a specific fisheries management measures should be prepared for river and reservoir. If the construction of fish ladder/ fish-way etc. is not feasible then measures for reservoir fisheries will be proposed. The plan will detail out the number of hatcheries, nurseries, rearing ponds etc. proposed under the plan with proper drawings. If any migratory fish species is getting affected then the migratory routes, time/season of upstream and downstream migration, spawning grounds etc will be discussed in details.
5.	Green Belt Development Plan along the periphery of the reservoir, approach roads around the colonies and other project components, local plant species must be suggested with physical and financial details. A layout map showing the proposed sites for developing the green belt should be prepared.
6.	Environmental Monitoring Programme to monitor the mitigatory measures implemented at the project site is required will be prepared. Provision for Environment Management Cell should be made. The plan will spell out the aspects required to be monitored, monitoring indicators/parameters with respect to each aspect and the agency responsible for the monitoring of that particular aspect throughout the project implementation.

7.	Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of free draining/ directly draining catchment based upon Remote Sensing and Geographical Information System (GIS) methodology and Sediment Yield Index (SYI) method of AISLUS, Deptt. of Agriculture, Govt. of India coupled with ground survey. Areas or watersheds falling under 'very severe' and 'severe' erosion categories should be provided and required to be treated. Both biological as well as engineering measures should be proposed in consultation with State Forest Department for areas requiring treatment. Year-wise schedule of work and monetary allocation should be provided. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included.
8.	Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. Results of the site specific earthquake design parameters should be approved by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi.
9.	Dam Break Analysis and Disaster Management Plan The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario. To identify inundation areas, population and structures likely to be affected due to catastrophic floods in the event of dam failure. DMP will be prepared with the help of Dam Break Analysis. Maximum water level that would be attained at various points on the downstream in case of dam break will be marked on a detailed contour map of the downstream area, to show the extent of inundation. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities.
10.	Reservoir Rim Treatment Plan for stabilization of land slide / land slip zones, if any, around the reservoir periphery is to be prepared based on detailed survey of geology of the reservoir rim area. Suitable engineering and biological measures for treatment of identified slip zones to be suggested with physical and financial schedule. Layout map showing the landslide/landslip zones shall be prepared and appended in the chapter.
11.	Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately. Deatailed muck transportation plan delinating the path ways, number of trucks, quantity of muck to be transportated along with monitoring mechanism using latest technology, shall be prepared.
12.	Restoration Plan for Quarry Sites and landscaping of colony areas, working areas, roads etc. Details of the coarse/fine aggregate/clay etc. required for construction of the project and the rock/clay quarries/river shoal sites identified for the project should be discussed along-with the Engineering and Biological measures proposed for their restoration with physical and financial details. Layout map showing quarry sites vis-à-vis other project components, should be prepared.
13.	Resettlement and Rehabilitation Plan needed to be prepared on the basis of findings of the socio- economic survey coupled with the outcome of public consultation held. The R&R package shall be prepared after consultation with the representatives of the project affected families and the State Government. Detailed budgetary estimates are to be provided. Resettlements site should be identified. The plan will also incorporate community development strategies.
14.	Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace.
15.	Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Pancahayats. Appropriate schemes shall be prepared under EMP for the Local Area Development Plan with sufficient financial provisions.
16.	Labour Management Plan for their Health and Safety.
1	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.

7.	
18.	Energy Conservation Measures for the work force during construction with physical and financial details. Alternatives will be proposed for the labour force so that the exploitation of the natural resource (wood) for the domestic and commercial use is curbed.
19.	Environmental safeguards during construction activities including Road Construction.
20.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
21.	Water, Air and Noise Management Plans to be implemented during construction and post-construction periods.

3.5. Agenda Item No 5:

3.5.1. Details of the proposal

Saidongar 1 - Karjat Pumped Storage Project by **TORRENT PSH 3 PRIVATE LIMITED** located at **RAIGAD,MAHARASHTRA**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/517008/2025	J-12011/04/2025-IA.I (R)	16/01/2025	River Valley/Irrigation projects (1(c))

3.5.2. Project Salient Features

The proposal is for grant of Terms of Reference (TOR) to the project for Saidongar 1 - Karjat Open Loop Pumped Storage Project (3000 MW) in an area of 377 Ha at Village Potal, Saidongar, Ambot, Dhak, Bhaliwadi, Sub District Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 3 Private Limited.

23.5.2: The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

Alternative 1:	Upper Reservoir -1 (UR-1) +Lower Reservoir (LR-1)
Alternative 2:	Upper Reservoir -2 (UR-2) + Lower Reservoir (LR-1)
Alternative 3:	Upper Reservoir -3 (UR-3) + Lower Reservoir (LR-1)
Alternative 4:	Upper Reservoir -1 (UR-1) + Lower Reservoir (LR-1)

b) Alternative 3 is rejected due to highest L/H ratio, highest overall land requirement and partial submergence of a village leading to displacement.

c) Alternative 2 is rejected due to highest forest land requirement among all the four alternatives.

d) In Alternative 1 and 4 total land requirement and forest land requirement is comparable and no displacement is envisaged, however, alternative 4 is considered better due to pit type powerhouse, reducing construction period and hence lower construction phase impacts.

e) Therefore, Alternative 4 is selected.

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	3000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

Powerhouse Installed Capacity	3000 MW
Generation of Electricity Annually	6241.50 MU
No. of Units	11 nos. (9X300 MW+2X150 MW)
Additional information (if any)	Nil

Cost of project	13017.302 Cr.
Total area of Project	377.0 ha
Height of Dam from Riverbed (EL)	Lower Dam – 59.0 m Upper Dam –27.0 m
Length of Tunnel/Channel	9959.0 m
Details of Submergence area	228.1477 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Off-Stream Open Lo op Pumped Storage Project (PSP)
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA& CC) for River in which project located. If yes, th en a) E-flow with TOR /Recommendation by b) EAC as per CIA&CC study of River Basi	No

n. If not the E-Flows maintain criteria for sustainin g river ecosystem.	

No. of proposed disposal area/ (type of land- Fore st/Pvt. land)	41.8847 ha Non-Forest Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring Mechanism for Muck Disposal	Will be Provided in EIA/EMP report
Private Land	144.0 ha
Government land/Forest Land	233.0 ha
Submergence area/Reservoir area	228.1477 ha
Land required for project components	148.8523 ha
Additional information (if any)	Nil

Forest Land/ Protected Area/ Environ mental Sensitivity Zone	**Yes/No**	**Details of Certificate / letter/ Re marks**
Reserve Forest/Protected Forest Land	--	There is no Protected Area in the v icinity of the proposed project. Bhi mashankar WLS is approx. 15 km far from the proposed project area.
National Park	---	
Wildlife Sanctuary	---	

Particulars	**Letter no. and date**
Certified EC compliance report (if applicab le)	Not Applicable
Status of Stage- I FC	Online application seeking forest diversion for around 233.0 Ha has been submitted vide proposal no. FP/M H/HYD/IRRIG/515850/2024. Status: Pending at MS for acceptance in PSC-I
Additional detail (If any)	Nil
Is FRA (2006) done for FC-I	Yet to Apply

Particulars	**Details**
Details of consultant	M/s. R S Envirolink Technologies Pvt. Ltd. (RSE T) (*NABET* Accredited *Consultant Organization*) Certificate No : NABET/EIA/2225/RA0274

	Validity : August 15, 2025 Contact Person : Mr. Ravinder Bhatia Name of Sector : River Valley and Hydroelectric Projects Category : A MoEF Schedule : I(C) Address : 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana - 122009 E-mail : ravi@rstechnologies.co.in Land Line : (0124) 4295383 Cellular : (+91) 9810136853
Project Benefits	• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. • Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: o Least expensive source of electricity, not requiring fossil fuel for generation o An emission-free renewable source o Balancing grid for demand driven variations o Balancing generation driven variations o Voltage support and grid stability Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.
Status of other statutory clearances	Forest Clearance - Online application seeking forest diversion for around 233.0 Ha has been submitted vide proposal no. **FP/MH/HYD/IR**

	RIG/515850/2024. Alongside, other statutory clearances (as applicable) from State as well a s Central government will be obtained post co mpletion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP St udies
Additional detail (If any)	Nil

3.5.3. Deliberations by the committee in previous meetings

N/A

3.5.4. Deliberations by the EAC in current meetings

The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Saidongar 1 - Karjat Open Loop Pumped Storage Project (3000 MW) in an area of 377 Ha at Village Potal, Saidongar, Ambot, Dhak, Bhaliwadi, Sub District Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 3 Private Limited.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The EAC observed that earlier Project was appraised for grant of TOR in EAC meeting dated 11/08/2023 and after recommendation TOR was accorded by the MoEF&CC on 23/09/2023 for conducting EIA/EMP and Public hearing. PP submitted that there is no change in location and installed capacity of project, however, there are changes in the water source and land requirement. Further, due to formation of SPV and revised MoU with state government, project name and company name has also changed. Therefore, instead of TOR amendment, PP has applied for a fresh TOR.

The EAC observed that the total land requirement for the construction of various components and associated works of the project is estimated at 377.0 hectares (ha), comprising 144.0 ha of non-forest land and 233.0 ha of forest land. It was noted that an application for Stage-I Forest Clearance (FC) seeking the diversion of 233.0 ha of forest land has been submitted via proposal no. FP/MH/HYD/IRRIG/515850/2024.

Furthermore, the EAC noted that no Protected Area lies in the immediate vicinity of the proposed project. The Bhimashankar Wildlife Sanctuary (WLS) is located 15 km away. Additionally, the lower reservoir of the project is situated on the Pej River, a tributary of the Ulhas River, which flows in a south-to-north direction. This hydrological consideration is crucial for assessing the project's environmental impact on water bodies.

The EAC further observed that the one-time water filling requirement for Saidongar-1 PSP has been estimated at 23 MCM, which, as per the Water Resources Department (WRD) approval, will be sourced from the catchment area of the lower dam without impacting downstream users. The annual replenishment requirement has been estimated at 3 MCM, which will also be sourced from the same catchment. The Project Proponent (PP) clarified that 23 MCM of water would be captured from the catchment over three years (i.e., 7 to 8 MCM per year from the 34.177 MCM net yield available at the lower dam). Additionally, the annual recoupment of 3 MCM would be captured each year, while the remaining natural flow (~31 MCM) will continue downstream without any impact from the project. Also, Design Note on Water availability study for the proposed project has been carried out by the water resources department, Govt. of Maharashtra vide certificate no. WFR/Ulhas River Sub Basin/992 dated

13.01.2025
Additionally, the Project Proponent has submitted a Memorandum of Understanding (MoU), dated 06.06.2023 and 22.08.2024 which has been signed between the Department of Water Resources, Government of Maharashtra and M/s Torrent Psh 3 Private Limited. The MoU grants in-principle approval for the establishment of the Pumped Storage Project with a capacity of 3000 MW in Dhak village, Kajrat, Raigarh, Maharashtra.
The EAC emphasized that the PP should make provisions in the project design to release self-catchment water downstream of the stream during the monsoon season. The PP was directed to submit hydrological data, certified by the Central Water Commission (CWC) or the State Water Resources Department, regarding the amount of water received by the small stream where the lower reservoir is proposed. Additionally, the PP was instructed to submit a monitoring mechanism for releasing the self-catchment water from the small stream, along with an action plan for the conservation and protection of other streams and rivulets within a 10 km radius of the project.
23.5.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Specific ToR issued by the Ministry for Open Loop Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed construction of the project for Saidongar 1 - Karjat Open Loop Pumped Storage Project (3000 MW) in an area of 377 Ha at Village Potal, Saidongar, Ambot, Dhak, Bhaliwadi, Sub District Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 3 Private Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

3.5.5. Recommendation of EAC

Recommended

3.5.6. Details of Terms of Reference

3.5.6.1. Specific

Miscellaneous.	
1.	TOR accorded by the MoEF&CC on 23/09/2023 to the stands null and void.
2.	Both capital and recurring expenditure under EMP shall be submitted.
3.	Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
4.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.
5.	Drone video of project site shall be recorded and to be submittted.
6.	Undertaking need to be submitted on affidavit stating that no activities has been started on the project site.
7.	Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.
8.	Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No.

	IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.
9.	As per Ministry's OM dated 1st August, 2013, the application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable.
Disaster Management	
1.	Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.
2.	The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks.
Muck Management	
1.	Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided.
2.	Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.
3.	Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area.
4.	Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc.
Socio-economic Study	
1.	Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
2.	All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.
3.	PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.
4.	Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.

Environmental Management and Biodiversity Conservation:	
1.	The PP shall submit 10 years water availability data certified by the CWC/State Water Resource Department for quantity of water that is received annually in the small stream on which Lower reservoir is proposed.
2.	The PP will submit a monitoring mechanism for releasing the self -catchment water of small stream draining in to lower reservoir of the project along with action plan for conservation and protection of other streams/rivulets draining in to upper and lower reservoirs.
3.	The Project Proponent (PP) shall submit a detailed action plan for the survival or diversion of any rivulets or streams that may be impacted by the project, particularly those that flow into or join the Pej River, a tributary of River Ulhas. The action plan should include measures to ensure that these water bodies are adequately protected or diverted in a manner that does not negatively affect the overall hydrology of the area. The PP should also provide an assessment of potential environmental impacts on these streams and propose mitigation measures to minimize any adverse effects.
4.	Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.
5.	Explore the possibilities for reducing the Forest land requirement.
6.	Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.
7.	Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.
8.	PP shall submit the detailed plan for filling the reservoir from the catchment along with necessary approval form water resource department.
9.	Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within proposed the Wildlife Sanctuary shall be included in the EIA report.
10.	Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.
11.	The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.
12.	Calculation and values of GHGs (CO2, CH4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.
13.	The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.
14.	Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted. The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.
1	Quantitative values of Impact modelling of environmental parameters shall be submitted for during

5.	construction and operation. Also, mitigation measures shall be submitted in terms of construction and operation phase.
16.	Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
17.	Cumulative Impact of projects in the basin on carrying capacity and sustainability of Reservoir/ River /nala of catchment area due to tapping of water for filling reservoir shall be studied.
18.	Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
19.	A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
20.	Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
21.	Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
22.	Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

3.5.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Scope of EIA Study	
1.	The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study.
Details of the Project and Site	
1.	General introduction about the proposed project.
2.	Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of Dam/Barrage into the main river.
3.	A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location.

4.	Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map.
5.	Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity.
6.	Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components.
7.	Drainage pattern and map of the river catchment up to the proposed project site.
8.	Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India.
9.	Soil characteristics and map of the project area.
10.	Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
11.	Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
12.	Land details including forests, private and other land.
13.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
14.	Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study
Description of Environment and Baseline Data	
1.	To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:
2.	(i) Catchment area up to the dam/barrage site.
3.	(ii) Submergence Area.
4.	(iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.
5.	(iv) Downstream upto 10 km from the tip of the reservoir.
Details of the Methology	
1.	The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map.

	Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed.
Methodology for Collection of Biodiversity Data	
1.	The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).
2.	The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number.
3.	The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.
4.	The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN).
Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as follow s:	
1.	null
2.	null

3.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
4.	Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams.
5.	Landslide zone or area prone to landslide existing in the study area should be examined.
6.	Presence of important economic mineral deposit, if any.
7.	Justification for location & execution of the project in relation to structural components (dam /barrage height).
8.	Impact of project on geological environment.
9.	null
10.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.
11.	Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO2) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations.
12.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
13.	null
14.	Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area.
15.	null
16.	(i) Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared.
17.	null
18.	History of the ground water table fluctuation in the study area.
19.	Water quality for both surface water and ground water for (i) Physical parameters (pH, temperature, electrical conductivity, TSS); (ii) Chemical parameters (Alkalinity, Hardness, BOD, COD, NO2, PO4, CI, SO4, Na, K, Ca, Mg, Silica, Oil & Grease, phenolic compounds, residual sodium carbonate); (iii) Bacteriological parameter (MPN, Total coliform) and (iv) Heavy Metals (Pb, As, Hg, Cd, Cr-6, total Cr, Cu, Zn, Fe) (6 locations).
20.	Delineation of sub and micro-watersheds, their locations and extent based on the All India Soil and Land Use Survey of India (AISLUS), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through silt yield index (SYI) method of AISLUS

21.	Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring.
22.	Run off, discharge, water availability for the project, sedimentation rate, etc.
23.	Basin characteristics
24.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.
25.	For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1.
26.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
27.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
28.	Information on the 10-daily flow basis for the 90 per cent dependable year the flow intercepted at the dam, the flow diverted to the power house and the spill comprising the environmental flow and additional flow towards downstream of the dam for the project may be given.
29.	The minimum environmental flow shall be 20% of the flow of four consecutive lean months of 90% dependable year, 30% of the average monsoon flow. The flow for remaining months shall be in between 20-30%, depending on the site specific requirements. A site specific study shall be carried out by an expert organization.
30.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
31.	Hydrological studies/data as approved by CWC shall be utilized in the preparation of EIA/EMP report. Actual hydrological annual yield may also be given in the report. Sedimentation data available with CWC may be used to find out the loss in storage over the years.
32.	A minimum of 1 km distance from the tip of the reservoir to the tail race tunnel should be maintained between upstream and downstream projects.
33.	Besides primary studies, review of secondary data/literature published for project area on flora & fauna including RET species shall be reported in EIA/EMP report.
34.	null
35.	Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan.
36.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
37.	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A species wise list may be provided.
38.	Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index (IVI) , Shannon Weiner index etc. of the species to be provided. Methodology used

	for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems.
39.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
40.	Economically important species like medicinal plants, timber, fuel wood etc.
41.	Details of endemic species found in the project area.
42.	Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along-with economic significance. Species diversity curve for RET species should be given.
43.	Cropping pattern and Horticultural Practices in the study area.
44.	null
45.	Fauna study and inventorisation should be carried out for all groups of animals in the study area. Their present status alongwith Schedule of the species.
46.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
47.	Information (authenticated) on Avi-fauna and wildlife in the study area.
48.	Status of avifauna their resident/ migratory/ passage migrants etc.
49.	Documentation of butterflies, if any, found in the area.
50.	Details of endemic species found in the project area.
51.	RET species-voucher specimens should be collected along-with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972.
52.	Existence of barriers and corridors, if any, for wild animals.
53.	Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity.
54.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.
55.	For categorization of sub-catchment into various erosion classes and for the consequent CAT plan, the entire catchment (Indian Portion) is to be considered and not only the directly the draining catchment.

56.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
57.	Fish and fisheries, their migration and breeding grounds.
58.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
59.	Conservation status of aquatic fauna.
60.	Sampling for aquatic ecology and fisheries and fisheries must be conducted during three seasons Pre-monsoon (summer), monsoon and winter. Sizes (length & weight) of important fish species need to be collected and breeding and feeding grounds should also be identified along the project site or in vicinity.
61.	Collection of baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surroundings population.
62.	Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent.
63.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
64.	The socio-economic survey/ profile within 10 km of the study area for demographic profile; Economic Structure; Developmental Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc.
65.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
66.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
67.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
68.	List of all the Project Affected Families with their name, age, educational qualification, family size, sex, religion, caste, sources of income, land & house holdings, other properties, occupation, source of income, house/land to be acquired for the project and house/land left with the family, any other property, possession of cattle, type of house etc.
69.	Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project.
Impact Prediction and Mitigation Measures	
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
2.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.
3.	Effect on soil, material, vegetation and human health.

4.	Impact of emissions from DG set used for power during the construction, if any, on air environment.
5.	Pollution due to fuel combustion in equipments and vehicles
6.	Fugitive emissions from various sources
7.	Changes in surface and ground water quality
8.	Steps to develop pisci-culture and recreational facilities
9.	Changes in hydraulic regime and downstream flow.
10.	Water pollution due to disposal of sewage
11.	Water pollution from labour colonies/ camps and washing equipment.
12.	Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting for commissioning of HRT, TRT and some other structures.
13.	Changes in land use / land cover and drainage pattern
14.	Immigration of labour population
15.	Quarrying operation and muck disposal
16.	Changes in land quality including effects of waste disposal
17.	River bank and their stability
18.	Impact due to submergence.
19.	Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
20.	Pressure on existing natural resources
21.	Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors
22.	Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
23.	Impact on fish migration and habitat degradation due to decreased flow of water
2	Impact on breeding and nesting grounds of animals and fish.

4.	
25.	Impact on local community including demographic profile.
26.	Impact on socio-economic status
27.	Impact on economic status.
28.	Impact on human health due to water / vector borne disease
29.	Impact on increase traffic
30.	Impact on Holy Places and Tourism
31.	Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.
32.	Positive and negative impacts likely to be accrued due to the project are listed.
Environmental Management Plan	
1.	null
2.	Biodiversity and Wildlife Conservation and Management Plan for the conservation and preservation of rare, endangered or endemic floral/faunal species or some National Park/Sanctuary/ Biosphere Reserve or other protected area is going to get affected directly or indirectly by construction of the project, then suitable conservation measures should be prepared in consultation with the State Forest Department and with the physical and financial details. Suitable conservation techniques (in-situ/ ex-situ) will be proposed under the plan and the areas where such conservation is proposed will be marked on a project layout map.
3.	Compensatory Afforestation shall be prepared by the State Forest Department in lieu of the forest land proposed to be diverted for construction of the project as per the Forest (Conservation) Act, 1980. Choice of plants for afforestation should include native and RET species, if any. This will be a part of the forest clearance proposal.
4.	Fisheries Conservation and Management Plan - a specific fisheries management measures should be prepared for river and reservoir. If the construction of fish ladder/ fish-way etc. is not feasible then measures for reservoir fisheries will be proposed. The plan will detail out the number of hatcheries, nurseries, rearing ponds etc. proposed under the plan with proper drawings. If any migratory fish species is getting affected then the migratory routes, time/season of upstream and downstream migration, spawning grounds etc will be discussed in details.
5.	Green Belt Development Plan along the periphery of the reservoir, approach roads around the colonies and other project components, local plant species must be suggested with physical and financial details. A layout map showing the proposed sites for developing the green belt should be prepared.
6.	Environmental Monitoring Programme to monitor the mitigatory measures implemented at the project site is required will be prepared. Provision for Environment Management Cell should be made. The plan will spell out the aspects required to be monitored, monitoring indicators/parameters with respect to each aspect and the agency responsible for the monitoring of that particular aspect throughout the project implementation.

7.	Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of free draining/ directly draining catchment based upon Remote Sensing and Geographical Information System (GIS) methodology and Sediment Yield Index (SYI) method of AISLUS, Deptt. of Agriculture, Govt. of India coupled with ground survey. Areas or watersheds falling under 'very severe' and 'severe' erosion categories should be provided and required to be treated. Both biological as well as engineering measures should be proposed in consultation with State Forest Department for areas requiring treatment. Year-wise schedule of work and monetary allocation should be provided. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included.
8.	Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. Results of the site specific earthquake design parameters should be approved by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi.
9.	Dam Break Analysis and Disaster Management Plan The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario. To identify inundation areas, population and structures likely to be affected due to catastrophic floods in the event of dam failure. DMP will be prepared with the help of Dam Break Analysis. Maximum water level that would be attained at various points on the downstream in case of dam break will be marked on a detailed contour map of the downstream area, to show the extent of inundation. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities.
10.	Reservoir Rim Treatment Plan for stabilization of land slide / land slip zones, if any, around the reservoir periphery is to be prepared based on detailed survey of geology of the reservoir rim area. Suitable engineering and biological measures for treatment of identified slip zones to be suggested with physical and financial schedule. Layout map showing the landslide/landslip zones shall be prepared and appended in the chapter.
11.	Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately. Deatailed muck transportation plan delinating the path ways, number of trucks, quantity of muck to be transportated along with monitoring mechanism using latest technology, shall be prepared.
12.	Restoration Plan for Quarry Sites and landscaping of colony areas, working areas, roads etc. Details of the coarse/fine aggregate/clay etc. required for construction of the project and the rock/clay quarries/river shoal sites identified for the project should be discussed along-with the Engineering and Biological measures proposed for their restoration with physical and financial details. Layout map showing quarry sites vis-à-vis other project components, should be prepared.
13.	Resettlement and Rehabilitation Plan needed to be prepared on the basis of findings of the socio- economic survey coupled with the outcome of public consultation held. The R&R package shall be prepared after consultation with the representatives of the project affected families and the State Government. Detailed budgetary estimates are to be provided. Resettlements site should be identified. The plan will also incorporate community development strategies.
14.	Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace.
15.	Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Pancahayats. Appropriate schemes shall be prepared under EMP for the Local Area Development Plan with sufficient financial provisions.
16.	Labour Management Plan for their Health and Safety.
1	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.

7.	
18.	Energy Conservation Measures for the work force during construction with physical and financial details. Alternatives will be proposed for the labour force so that the exploitation of the natural resource (wood) for the domestic and commercial use is curbed.
19.	Environmental safeguards during construction activities including Road Construction.
20.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
21.	Water, Air and Noise Management Plans to be implemented during construction and post-construction periods.

3.6. Agenda Item No 6:

3.6.1. Details of the proposal

Saidongar 2 - Maval Pumped Storage Project by **TORRENT PSH4 PRIVATE LIMITED** located at **RAIGAD,MAHARASHTRA**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/516980/2025	J-12011/05/2025-IA.I (R)	16/01/2025	River Valley/Irrigation projects (1(c))

3.6.2. Project Salient Features

The proposal is for grant of Terms of Reference (TOR) to the project for Saidongar 2 - Maval Open Loop Pumped Storage Project (1200 MW) in an area of 141.44 Ha at Village Dhak, Kusur, Pali T. Kothal Khalathi and Saidongar, Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 4 Private Limited.

23.6.2: The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

- The proposed project reservoir area encompasses three villages: Kusur, Pali T. Kothal Khalathi, and Saidongar, located in the Maval and Karjat tehsils of Raigad district.
- The primary inhabitants of the project area are tribal communities, constituting approximately 70% of the population. However, in Saidongar, there is no tribal population.
- According to secondary literature, the main tribal groups in the area are Thakurs, Mahadev Kolis, and Katkaris, who together form the majority of the tribal population.
- Agriculture is the primary livelihood in the project area, serving as the main source of income for the residents. Agriculture here is largely subsistence-based, with a single rainfed crop of paddy cultivated in lowland areas and millets (such as finger millet and proso millet) grown on the gentle slopes during the Kharif (monsoon) season. Pulses are also intercropped with millets to diversify their agricultural yield.
- In addition to agriculture, the local population heavily depends on the surrounding forest for their livelihood. Forest resources provide firewood, fodder, and minor forest produce, which are essential for their daily sustenance and income.
- The residents of the project area speak various regional languages, with Marathi being the official

language and the most widely spoken.

The major aspects considered for formulation of layouts are as given below:

- Utilization of available head at project site to the maximum extent feasible.
- Development of economical and optimized layout.
- Ease of construction.
- Minimal area of land acquisition to accommodate various project components.
- Avoid / minimize submergence of forest land.
- Topography and geology

Considering above aspects three upper reservoir locations (UR-1, 2 & 3) and three lower reservoir (LR-1, 2 and 3) locations are identified. It is observed that at proposed upper reservoir locations the topography is very flat, hence for the alternative study all the upper dams are considered as embankment type of dam, whereas at lower reservoir area 'V' shaped valley exists where base width is not much therefore a concrete gravity type dam has been considered for LR. However, the type of dam will be finalised after detailed geological exploration at site. With these identified upper and lower reservoirs various alternative layouts has been prepared.

Four alternative layouts have been prepared for Saidongar 2 – Maval PSP, which are mentioned below:

Alternative 1:	Upper Reservoir -1 (UR-1) +Lower Reservoir (LR-1)
Alternative 2:	Upper Reservoir -3 (UR-3) + Lower Reservoir (UR-1)
Alternative 3:	Upper Reservoir -3 (UR-3) + Lower Reservoir (LR-3)
Alternative 4:	Upper Reservoir -2 (UR-2) + Lower Reservoir (LR-2)

- LR-1 is common with Saidongar 1, whereas LR-2 and LR-3 are u/s and d/s of LR-1 respectively for Saidongar 2 only.

- Except 'Alternative-4' in all other alternatives underground powerhouse is proposed. In Alternative-4 a deep pit powerhouse is planned.

- Considering the available head, in all the alternative the installed capacity of the project has been kept same for better comparison.

EAC meeting/s	23rd Meeting
Date of Meeting/s	29.01.2025
Date of earlier EAC meetings	Nil
Name of the Proposal	Saidongar 2 - Maval Open Loop Pumped Storage Project
Location (Including coordinates)	Lower Dam : 73º25'34" E; 18º54'37" N

	Upper Dam : 73°26'50" E; 18°53'60" N
Inter- state issue involved	No
Seismic zone	Zone-III

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	1200 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

Powerhouse Installed Capacity	1200 MW
Generation of Electricity Annually	2496.60 MU
No. of Units	5 nos. (3X300 MW+2X150 MW)
Additional information (if any)	Nil

Cost of project	6088.67 Cr.
Total area of Project	141.44 ha
Height of Dam from River Bed (EL)	Lower Dam – 59.0 m Upper Dam –29.0 m
Length of Tunnel/Channel	8,775.00 m
Details of Submergence area	54.89 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Off-Stream Open Loop Pumped Storage Project (PSP)
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CI A&CC) for River in which project located. If y es, then a) E-flow with TOR /Recommendation by b) EAC as per CIA&CC study of River Basi n. If not the E-Flows maintain criteria for sustaini	No

ng river ecosystem.	
No. of proposed disposal area/ (type of land- Forest/Pvt. land)	35 ha Non-Forest Land •
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

Land Area Breakup:

Private Land	105.84 ha
Government land/Forest Land	35.6 ha
Submergence area/Reservoir area	54.89 ha
Land required for project components	86.55 ha
Additional information (if any)	Nil

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate / letter/ Remarks**
Reserve Forest/Protected Forest Land	--	There is no Protected Area in the vicinity of the proposed project. Bhimashankar WLS is approx. 15 km far from the proposed project area.
National Park	---	
Wildlife Sanctuary	---	

Particulars	**Details**
Details of consultant	M/s. R S Envirolink Technologies Pvt. Ltd. (RSET) (NABET Accredited Consultant Organization) Certificate No : NABET/EIA/2225/RA0274 Validity : August 15, 2025 Contact Person : Mr. Ravinder Bhatia Name of Sector : River Valley and Hydroelectric Projects Category : A MoEF Schedule : I(C) Address : 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana - 122009 E-mail : ravi@rstechnologies.co.in Land Line : (0124) 4295383 Cellular : (+91) 9810136853
Project Benefits	o Least expensive source of electricity, not requiring fossil fuel for generation o An emission-free renewable source

	o Balancing grid for demand driven variations o Balancing generation driven variations o Voltage support and grid stability Apart from this, proposed PSP will also benefit the local c ommunity by creating employment opportunities and will result in upliftment of livelihood and socio-economic con ditions.
Status of other statutory clearance s	Forest Clearance - Online application seeking forest diversion for around 35.60 Ha after receipt of ToR Approval. Alongsid e, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of D etailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies
Additional details (If any)	Nil

3.6.3. Deliberations by the committee in previous meetings

N/A

3.6.4. Deliberations by the EAC in current meetings

The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Saidongar 2 - Maval Open Loop Pumped Storage Project (1200 MW) in an area of 141.44 Ha at Village Dhak, Kusur, Pali T. Kothal Khalathi and Saidongar, Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 4 Private Limited.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The EAC observed that earlier Project was appraised for grant of TOR in EAC meeting dated 11/08/2023 and after recommendation TOR was issued on 23/09/2023 for conducting EIA/EMP and Public hearing. PP submitted that there is no change in location and installed capacity of project, however, there are changes in the water source and land requirement. Further, due to formation of SPV and revised MoU with state government, project name and company name has also changed. Therefore, instead of TOR amendment, PP has applied for a fresh TOR.

The EAC observed that the total land requirement for the construction of various components and associated works of the project is estimated at 141.44 hectares (ha), comprising 105.84 ha of non-forest land and 35.6 ha of forest land. However, it was noted that an application for Stage-I Forest Clearance (FC) has not yet been submitted, which remains a critical regulatory requirement for project approval.

Furthermore, the EAC noted that no Protected Area lies in the immediate vicinity of the proposed project. The Bhimashankar Wildlife Sanctuary (WLS) is located 15 km away. Additionally, the lower reservoir for the project is located on the Pej River, a tributary of the Ulhas River, which flows in a south-to-north direction. This hydrological aspect is essential for assessing the project's potential environmental impact.

The EAC further observed that the one-time water filling requirement for Saidongar-2 PSP has been estimated at 13 MCM, which, as per the Water Resources Department (WRD) approval, will be sourced from the catchment area of the lower dam. Additionally, the annual replenishment requirement is

estimated at 2 MCM, which will also be sourced from the same catchment. A Water Availability Study was conducted by the Water Resources Department, Government of Maharashtra, and a certification (Certificate No. WFR/Ulhas River Sub Basin/993 dated 13.01.2025) has been provided.
Moreover, the Project Proponent has submitted two Memorandums of Understanding (MoUs) dated 06.06.2023 and 22.08.2024, signed between the Department of Water Resources, Government of Maharashtra, and M/s Torrent PSH 4 Private Limited. These MoUs grant in-principle approval for the establishment of a 3000 MW Pumped Storage Project in Kusur village, Maval, Pune, Maharashtra.
The EAC emphasized that the PP should make provisions in the project design to release self-catchment water downstream of the stream during the monsoon season. The PP was directed to submit hydrological data, certified by the Central Water Commission (CWC) or the State Water Resources Department, regarding the amount of water received by the small stream where the lower reservoir is proposed. Additionally, the PP was instructed to submit a monitoring mechanism for releasing the self-catchment water from the small stream, along with an action plan for the conservation and protection of other streams and rivulets within a 10 km radius of the project.
23.6.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Specific ToR issued by the Ministry for Open Loop Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed construction of the project for Saidongar 2 - Maval Open Loop Pumped Storage Project (1200 MW) in an area of 141.44 Ha at Village Dhak, Kusur, Pali T. Kothal Khalathi and Saidongar, Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 4 Private Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR

3.6.5. Recommendation of EAC

Recommended

3.6.6. Details of Terms of Reference

3.6.6.1. Specific

Miscellaneous:	
1.	TOR was accorded by the MoEF&CC on 23/09/2023 stands null and void.
2.	Both capital and recurring expenditure under EMP shall be submitted.
3.	Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
4.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.
5.	Drone video of project site shall be recorded and to be submitted.
6.	Undertaking need to be submitted on affidavit stating that no activities has been started on the project site.
7.	Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.

8.	Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.
9.	As per Ministry's OM dated 1st August, 2013, the application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable.
Disaster Management:	
1.	Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.
2.	The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks.
Muck Management	
1.	Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided.
2.	Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.
3.	Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area.
4.	Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc.
Socio-economic Study:	
1.	Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
2.	All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.
3.	PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.
4.	Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act,

	2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.
Environmental Management and Biodiversity Conservation:	
1.	The PP shall submit 10 years water availability data certified by the CWC/State Water Resource Department for quantity of water that is received annually in the small stream on which Lower reservoir is proposed.
2.	The PP will submit a monitoring mechanism for releasing the self -catchment water of small stream draining in to lower reservoir of the project along with action plan for conservation and protection of other streams/rivulets draining in to upper and lower reservoirs.
3.	The Project Proponent (PP) shall submit a detailed action plan for the survival or diversion of any rivulets or streams that may be impacted by the project, particularly those that flow into or join River Ulhas. The action plan should include measures to ensure that these water bodies are adequately protected or diverted in a manner that does not negatively affect the overall hydrology of the area. The PP should also provide an assessment of potential environmental impacts on these streams and propose mitigation measures to minimize any adverse effects.
4.	Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.
5.	Explore the possibilities for reducing the Forest land requirement. The application for obtaining Stage I FC for 35.6 ha of forest land involved in the project shall be submitted within stipulated time.
6.	Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.
7.	Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.
8.	PP shall submit the detailed plan for filling the reservoir from the catchment along with necessary approval form water resource department.
9.	Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within proposed the Wildlife Sanctuary shall be included in the EIA report.
10.	Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.
11.	The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.
12.	Calculation and values of GHGs (CO2, CH4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.
13.	The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.
1	Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any

4.	other concerned Government Organization shall be submitted. The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.
15.	Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted in terms of construction and operation phase.
16.	Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
17.	Cumulative Impact of projects in the basin on carrying capacity and sustainability of Reservoir/ River /nala of catchment area due to tapping of water for filling reservoir shall be studied.
18.	Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
19.	A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
20.	Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
21.	Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
22.	Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

3.6.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Scope of EIA Study	
1.	The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study.
Details of the Project and Site	
1.	General introduction about the proposed project.
2.	Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed

	unrestricted release from the site of Dam/Barrage into the main river.
3.	A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location.
4.	Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map.
5.	Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity.
6.	Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components.
7.	Drainage pattern and map of the river catchment up to the proposed project site.
8.	Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India.
9.	Soil characteristics and map of the project area.
10.	Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
11.	Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
12.	Land details including forests, private and other land.
13.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
14.	Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study
Description of Environment and Baseline Data	
1.	To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:
2.	(i) Catchment area up to the dam/barrage site.
3.	(ii) Submergence Area.
4.	(iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.
5.	(iv) Downstream upto 10 km from the tip of the reservoir.

Details of the Methology	
1.	The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed.
Methodology for Collection of Biodiversity Data	
1.	The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).
2.	The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number.
3.	The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.
4.	The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN).
Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as follow s:	

1.	null
2.	null
3.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
4.	Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams.
5.	Landslide zone or area prone to landslide existing in the study area should be examined.
6.	Presence of important economic mineral deposit, if any.
7.	Justification for location & execution of the project in relation to structural components (dam /barrage height).
8.	Impact of project on geological environment.
9.	null
10.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.
11.	Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO2) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations.
12.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
13.	null
14.	Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area.
15.	null
16.	(i) Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared.
17.	null
18.	History of the ground water table fluctuation in the study area.
19.	Water quality for both surface water and ground water for (i) Physical parameters (pH, temperature, electrical conductivity, TSS); (ii) Chemical parameters (Alkalinity, Hardness, BOD, COD, NO2, PO4, CI, SO4, Na, K, Ca, Mg, Silica, Oil & Grease, phenolic compounds, residual sodium carbonate); (iii) Bacteriological parameter (MPN, Total coliform) and (iv) Heavy Metals (Pb, As, Hg, Cd, Cr-6, total Cr, Cu, Zn, Fe) (6 locations).

20.	Delineation of sub and micro-watersheds, their locations and extent based on the All India Soil and Land Use Survey of India (AISLUS), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through silt yield index (SYI) method of AISLUS
21.	Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring.
22.	Run off, discharge, water availability for the project, sedimentation rate, etc.
23.	Basin characteristics
24.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.
25.	For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1.
26.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
27.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
28.	Information on the 10-daily flow basis for the 90 per cent dependable year the flow intercepted at the dam, the flow diverted to the power house and the spill comprising the environmental flow and additional flow towards downstream of the dam for the project may be given.
29.	The minimum environmental flow shall be 20% of the flow of four consecutive lean months of 90% dependable year, 30% of the average monsoon flow. The flow for remaining months shall be in between 20-30%, depending on the site specific requirements. A site specific study shall be carried out by an expert organization.
30.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
31.	Hydrological studies/data as approved by CWC shall be utilized in the preparation of EIA/EMP report. Actual hydrological annual yield may also be given in the report. Sedimentation data available with CWC may be used to find out the loss in storage over the years.
32.	A minimum of 1 km distance from the tip of the reservoir to the tail race tunnel should be maintained between upstream and downstream projects.
33.	Besides primary studies, review of secondary data/literature published for project area on flora & fauna including RET species shall be reported in EIA/EMP report.
34.	null
35.	Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan.
36.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
3	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A

7.	species wise list may be provided.
38.	Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index (IVI) , Shannon Weiner index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems.
39.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
40.	Economically important species like medicinal plants, timber, fuel wood etc.
41.	Details of endemic species found in the project area.
42.	Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along-with economic significance. Species diversity curve for RET species should be given.
43.	Cropping pattern and Horticultural Practices in the study area.
44.	null
45.	Fauna study and inventorisation should be carried out for all groups of animals in the study area. Their present status alongwith Schedule of the species.
46.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
47.	Information (authenticated) on Avi-fauna and wildlife in the study area.
48.	Status of avifauna their resident/ migratory/ passage migrants etc.
49.	Documentation of butterflies, if any, found in the area.
50.	Details of endemic species found in the project area.
51.	RET species-voucher specimens should be collected along-with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972.
52.	Existence of barriers and corridors, if any, for wild animals.
53.	Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity.
54.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.

55.	For categorization of sub-catchment into various erosion classes and for the consequent CAT plan, the entire catchment (Indian Portion) is to be considered and not only the directly the draining catchment.
56.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
57.	Fish and fisheries, their migration and breeding grounds.
58.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
59.	Conservation status of aquatic fauna.
60.	Sampling for aquatic ecology and fisheries and fisheries must be conducted during three seasons Pre-monsoon (summer), monsoon and winter. Sizes (length & weight) of important fish species need to be collected and breeding and feeding grounds should also be identified along the project site or in vicinity.
61.	Collection of baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surroundings population.
62.	Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent.
63.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
64.	The socio-economic survey/ profile within 10 km of the study area for demographic profile; Economic Structure; Developmental Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc.
65.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
66.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
67.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
68.	List of all the Project Affected Families with their name, age, educational qualification, family size, sex, religion, caste, sources of income, land & house holdings, other properties, occupation, source of income, house/land to be acquired for the project and house/land left with the family, any other property, possession of cattle, type of house etc.
69.	Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project.
Impact Prediction and Mitigation Measures	
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
2.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.

3.	Effect on soil, material, vegetation and human health.
4.	Impact of emissions from DG set used for power during the construction, if any, on air environment.
5.	Pollution due to fuel combustion in equipments and vehicles
6.	Fugitive emissions from various sources
7.	Changes in surface and ground water quality
8.	Steps to develop pisci-culture and recreational facilities
9.	Changes in hydraulic regime and downstream flow.
10.	Water pollution due to disposal of sewage
11.	Water pollution from labour colonies/ camps and washing equipment.
12.	Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting for commissioning of HRT, TRT and some other structures.
13.	Changes in land use / land cover and drainage pattern
14.	Immigration of labour population
15.	Quarrying operation and muck disposal
16.	Changes in land quality including effects of waste disposal
17.	River bank and their stability
18.	Impact due to submergence.
19.	Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
20.	Pressure on existing natural resources
21.	Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors
22.	Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
23.	Impact on fish migration and habitat degradation due to decreased flow of water

24.	Impact on breeding and nesting grounds of animals and fish.
25.	Impact on local community including demographic profile.
26.	Impact on socio-economic status
27.	Impact on economic status.
28.	Impact on human health due to water / vector borne disease
29.	Impact on increase traffic
30.	Impact on Holy Places and Tourism
31.	Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.
32.	Positive and negative impacts likely to be accrued due to the project are listed.
Environmental Management Plan	
1.	null
2.	Biodiversity and Wildlife Conservation and Management Plan for the conservation and preservation of rare, endangered or endemic floral/faunal species or some National Park/Sanctuary/ Biosphere Reserve or other protected area is going to get affected directly or indirectly by construction of the project, then suitable conservation measures should be prepared in consultation with the State Forest Department and with the physical and financial details. Suitable conservation techniques (in-situ/ ex-situ) will be proposed under the plan and the areas where such conservation is proposed will be marked on a project layout map.
3.	Compensatory Afforestation shall be prepared by the State Forest Department in lieu of the forest land proposed to be diverted for construction of the project as per the Forest (Conservation) Act, 1980. Choice of plants for afforestation should include native and RET species, if any. This will be a part of the forest clearance proposal.
4.	Fisheries Conservation and Management Plan - a specific fisheries management measures should be prepared for river and reservoir. If the construction of fish ladder/ fish-way etc. is not feasible then measures for reservoir fisheries will be proposed. The plan will detail out the number of hatcheries, nurseries, rearing ponds etc. proposed under the plan with proper drawings. If any migratory fish species is getting affected then the migratory routes, time/season of upstream and downstream migration, spawning grounds etc will be discussed in details.
5.	Green Belt Development Plan along the periphery of the reservoir, approach roads around the colonies and other project components, local plant species must be suggested with physical and financial details. A layout map showing the proposed sites for developing the green belt should be prepared.
6.	Environmental Monitoring Programme to monitor the mitigatory measures implemented at the project site is required will be prepared. Provision for Environment Management Cell should be made. The plan will spell out the aspects required to be monitored, monitoring indicators/parameters with respect to each aspect and the agency responsible for the monitoring of that particular aspect throughout the project implementation.

7.	Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of free draining/ directly draining catchment based upon Remote Sensing and Geographical Information System (GIS) methodology and Sediment Yield Index (SYI) method of AISLUS, Deptt. of Agriculture, Govt. of India coupled with ground survey. Areas or watersheds falling under 'very severe' and 'severe' erosion categories should be provided and required to be treated. Both biological as well as engineering measures should be proposed in consultation with State Forest Department for areas requiring treatment. Year-wise schedule of work and monetary allocation should be provided. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included.
8.	Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. Results of the site specific earthquake design parameters should be approved by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi.
9.	Dam Break Analysis and Disaster Management Plan The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario. To identify inundation areas, population and structures likely to be affected due to catastrophic floods in the event of dam failure. DMP will be prepared with the help of Dam Break Analysis. Maximum water level that would be attained at various points on the downstream in case of dam break will be marked on a detailed contour map of the downstream area, to show the extent of inundation. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities.
10.	Reservoir Rim Treatment Plan for stabilization of land slide / land slip zones, if any, around the reservoir periphery is to be prepared based on detailed survey of geology of the reservoir rim area. Suitable engineering and biological measures for treatment of identified slip zones to be suggested with physical and financial schedule. Layout map showing the landslide/landslip zones shall be prepared and appended in the chapter.
11.	Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately. Deatailed muck transportation plan delinating the path ways, number of trucks, quantity of muck to be transportated along with monitoring mechanism using latest technology, shall be prepared.
12.	Restoration Plan for Quarry Sites and landscaping of colony areas, working areas, roads etc. Details of the coarse/fine aggregate/clay etc. required for construction of the project and the rock/clay quarries/river shoal sites identified for the project should be discussed along-with the Engineering and Biological measures proposed for their restoration with physical and financial details. Layout map showing quarry sites vis-à-vis other project components, should be prepared.
13.	Resettlement and Rehabilitation Plan needed to be prepared on the basis of findings of the socio- economic survey coupled with the outcome of public consultation held. The R&R package shall be prepared after consultation with the representatives of the project affected families and the State Government. Detailed budgetary estimates are to be provided. Resettlements site should be identified. The plan will also incorporate community development strategies.
14.	Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace.
15.	Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Pancahayats. Appropriate schemes shall be prepared under EMP for the Local Area Development Plan with sufficient financial provisions.
16.	Labour Management Plan for their Health and Safety.
1	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.

7.	
18.	Energy Conservation Measures for the work force during construction with physical and financial details. Alternatives will be proposed for the labour force so that the exploitation of the natural resource (wood) for the domestic and commercial use is curbed.
19.	Environmental safeguards during construction activities including Road Construction.
20.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
21.	Water, Air and Noise Management Plans to be implemented during construction and post-construction periods.

4. Any Other Item(s)

N/A

5. List of Attendees

Sr. No.	Name	Designation	Email ID	Remarks
1	Prof G J Chakrapani	Chairman, EAC	cha**********@gmail.com	
2	Dr Mukesh Sharma	Member (EAC)	muk***@iitk.ac.in	
3	Dr Uday Kumar R Y	Member (EAC)	uda********@yahoo.com	
4	Dr J A Johnson	Member (EAC)	jaj@wii.gov.in	Absent
5	Dr J V Tyagi	Member (EAC)	jvt******@gmail.com	
6	Shri Kartik Sapre	Member (EAC)	kar********@gmail.com	Absent
7	Shri Ajay Kumar Lal	Member (EAC)	akl****@gmail.com	
8	Dr A K Sahoo	Member (EAC)	ami***@gmail.com	Absent
9	Shri Rajeev Varshney	Member	rva**********@gov.in	
10	Shri Balram Kumar	Member	emo***@nic.in	
11	Yogendra Pal Singh	Scientist E	yog********@nic.in	

MINUTES OF THE 23RD MEETING (VIRTUAL) OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 29TH JANUARY, 2024

The 23rd meeting of the EAC for River Valley & Hydro-electric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 29th January, 2024 through Virtual Mode, under the Chairmanship of Prof. G. J. Chakrapani. The list of Members present in the meeting is at **Annexure**.

Confirmation of the Minutes of the 22nd EAC meeting:

The Minutes of the Meeting held on 22nd EAC meeting on 10th January, 2025 were confirmed.

Agenda Item No. 23.1

Uri-I Stage-II Hydroelectric project of 240 MW as Run of River scheme in an area of 102 ha in Sub District Uri, Boniyar, Kreeri, Baramullaand Rafiabad, District of Baramulla (Jammu and Kashmir) by M/s NHPC Limited – Environmental Clearances - Reg.

[Proposal No. IA/JK/RIV/463699/2024; F. No. J-12011/08/2021-IA-I (R)]

23.1.1: The proposal is for grant of Environmental Clearance (EC) to the project for Uri-I Stage-II Hydroelectric project of 240 MW as Run of River scheme in an area of 102 ha in Sub District Uri, Boniyar, Kreeri, Baramullaand Rafiabad, District of Baramulla (Jammu and Kashmir) by M/s NHPC Limited.

23.1.2: The Project Proponent and the accredited Consultant M/s. R S Envirolink Technologies Pvt. Ltd., made detailed presentation on the salient features of the project and informed that:

i. The proposed Uri-I Stage-II HEP is planned as per provision kept in the DPR of Uri-I Power Station. NHPC Ltd. has signed Memorandum of Understanding (MoU) with Government of Jammu Kashmir for execution of Uri-I Stage-II HE Project (240 MW) on Build, Own, Operate & Transfer (BOOT) basis for the period of 40 years

ii. The project proposal was considered by the Expert Appraisal Committee (River Valley and Hydropower Projects) in its 10th meeting held on 15.04.2021 and recommended for grant of Terms of Reference (ToRs) for the project. The ToR has been issued by Ministry vide letter No. J- 12011/08/2021-IA.I (R); dated 10.06.2021.

iii. Uri-I Stage-II HEP (240 MW) is an extension of Uri-I Stage-I (480 MW), located on river Jhelum in Baramulla district of UT of Jammu and Kashmir. The Environmental Clearance for Uri-I HEP (480 MW) was accorded by Department of Science and Technology (DST),

Govt. of India, in favour of Central Electricity Authority (CEA) on 27.06.1980. The Forest Clearance for diversion of 54.70 ha forest land was accorded by Ministry of Environment & Forest on 21st May 1986. Uri-I Stage-I was commissioned in 1997 by NHPC Ltd. - 21.5 m high barrage, 10.63 km long HRT, an underground powerhouse 480 MW installed capacity, & 02 km long Tail Race Tunnel (TRT).

iv. The existing structures of Uri-I Power Station like barrage, the surface water conveyance system consisting of Head regulator upto HRT intake of Uri-I Power Station shall be utilized for Uri-I Stage-II HEP. The construction of underground structures like 10.472 km long HRT, surge shaft, pressure shaft, an underground powerhouse complex and 2.28 km long TRT are proposed for Uri-I Stage-II Project. Uri-I Stage-II HE Project shall utilize diverted (additional) waters available after electricity generation from Kishanganga Power Station located near Bandipore in Kashmir Valley. Jhelum river flows through Wular lake and drains additional water coming from Kishanganga HEP and therefore additional water is available for Uri I Stage II. Kishanganga Power Station was commissioned by NHPC in the month of May-2018. Kishanganga Power Station is a run of the river scheme which involves transfer of water of Kishanganga River in Gurez valley to Bonar nallah, which is tributary of Jhelum River in Kashmir valley.

v. The geographical co-ordinate of the project are Barrage Site: $74^0$11’00”E; $34^0$08’00”N; Powerhouse : 74^0 03’00” E; $34^0$05’00” N.

vi. The Uri I Stage II Hydro Electric Project envisages construction of Head Race Tunnel, Underground Powerhouse and TRT.

vii. **Land requirement:** The total land requirement for Uri-I Stage-II HEP is estimated as 102.0 ha, out of which, 85.00 ha is non-forest land, and 17.0 ha is forest land (for underground project structures). The proposal for grant of 'in-principle' approval for the diversion of 17.00 hectares of forest land for the underground work of the Uri-I Stage II HEP has been recommended during the Advisory Committee (AC) meeting held on 26.12.2024. MoEF&CC has issued letter dated 14/01/2025 according Stage I/In principal approval for diversion 17 ha of forest land.

Therefore, no revenue land (private/ government) is required for the proposed project, no acquisition of private or community assets is required and hence, displacement of the population/ persons is not involved.

viii. **Demographic details in 10 km radius of project area:**

The proposed project falls in the Uri & Boniyar tehsil of Baramulla district of Union Territory of Jammu & Kashmir. In the study area, 91 inhabited villages fall within a 10 km radius of proposed project. The population of the villages in the study area is 139213 with 54.06% males and 45.93% females. The sex ratio was found at 849 females per 1000 males. The total Scheduled Tribes (ST) population is 14.78% of the total population. Literate

population constitute about 48 % of the total population of the study area.

Apart from agriculture, horticulture and cattle rearing, livelihood of most of the people of the study area depends on government and private jobs. About 35% of the working population are engaged in agriculture and allied services and 62.64% of the working population are engaged in the services category viz. Trade, commerce, business, Transport, Government and private jobs.

The Educational facility in the area is good up to secondary school level. Senior secondary schools and colleges are located within 20.0 km distance from villages. The most important road passes through the area are National Highway 1A (Baramulla to Uri). Transportation facilities are good in the area, all the village roads are well connected to highway through metaled roads.

Basic medical facilities are good in the surveyed villages Primary health centres cater the basic medical facilities in the area. In addition to these NHPC Hospital at Gingal also provides basic medical facilities to the villagers. There is a one Pvt. Hospital at Buniyar. The District Hospital and Medical College at district headquarter Baramulla is the only government hospital serving as referral center for complicated cases in the district.

Spring water and piped public water supply are the main sources of drinking water in the area. The majority of the surveyed villages have irrigated land. A network of canals and springs are the main source of irrigation.

ix. **Water requirement:** 453 Cumecs (design discharge)

x. **Project Cost:** The estimated project cost is Rs 2167.61 crore. Total capital cost earmarked towards Environment Management Plan/environmental pollution control measures is Rs. 3010.70 lakh and the Recurring cost (operation and maintenance) will be about Rs. 2819.91 lakh about i.e. Rs 402.84 lakh per annum.

xi. **Project Benefit:** Total Employment will be 500 persons as direct & persons indirect after expansion. Industry proposes to allocate Rs. 1038.80 Lakh towards CER (as per Ministry's OM dated 30th Sep 2020).

xii. **Environmental Sensitive area:** Kazinag National Park, Lachipora Wildlife Sanctuary and Limber Wildlife Sanctuary are the nearest protected areas from Uri-I Stage-II HE Project. All the project components are outside the notified ESZ of the protected areas. In this regard; Office of the Pr. Chief Conservator of Forests (Wildlife)/Chief Wildlife Warden, Govt. of J&K has issued a letter No. WLP/Tech/2024-25/134-36 dated 14.05.2024 conveying that the proposed project components fall outside the boundaries of Kazinag National Park, Limber and Lachipora Wildlife Sanctuaries, also outside the notified limits of the Eco-sensitive Zone around these Wildlife Areas. Uri-I Stage-II HE Project is run of the river project and is proposed on Jhelum River.

xiii. MoU signed with the State Government on 24-12-2020 MoU no. IN-JK00767002578097S.

xiv. **Resettlement and Rehabilitation:** At present 85.00 ha of non-forest land required for the proposed project is in possession of NHPC Ltd. No revenue land (private/ government) is required for the proposed project, no acquisition of private or community assets is required and hence, displacement of the population/ persons is not involved. Therefore, requirement of preparation of Resettlement & Rehabilitation Plan is not envisaged in the present case.

xv. **Scheduled – I species:** As per Wildlife Protection Amendment Act, 2022, Common Leopard (*Panthera pardus*), Himalayan Musk Deer (*Moschus leucogaster*), Himalayan Goral (*Naemorhedus goral*), Jungle Cat (*Felis chaus*), Leopard Cat (*Prionailurus bengalensis*), Grey mongoose (*Herpestes edwardsii*), Small Indian mongoose (*Herpestes auropunctatus*), Golden Jackal (*Canis aureus*), Red Fox (*Vulpes vulpes*), Bengal Fox (*Vulpes bengalensis*), *Cuon alpinus* (Wild Dog), Asiatic Black Bear (*Ursus thibetanus*), Himalayan Weasel (*Mustela sibirica*), Common Otter (*Lutra lutra*), Red Giant Flying Squirrel (*Petaurista petaurista*) and Indian Crested Porcupine (*Hystrix indica*) are the mammalian species and Crested-serpent eagle (*Spilornis cheela*) is listed as Schedule I species.

xvi. **Alternative Studies:** Diversion structure of URI-I Power station i.e. Barrage, Head regulator, desilting basin, power channel, Surplus escape, Boniyar Intake structure, Boniyar nala culvert structure and Power intake structures which is already constructed and are utilized for Uri-I Stage II H.E. Project, hence no Alternative study for diversion structure is required for URI-I Stage-II H.E. Project.

xvii. **Baseline Environmental Scenario:**

<table>
<tr><td>Period</td><td colspan="4">From September 2021 To May 2022</td></tr>
<tr><td rowspan="11">AAQ parameters at 06 locations (min. &Max.)</td><td colspan="4">Unit in μg/m^3</td></tr>
<tr><td>Core</td><td>Min</td><td>Max</td><td>Standards</td></tr>
<tr><td>PM 2.5</td><td>21.77</td><td>24.22</td><td>60</td></tr>
<tr><td>PM 10</td><td>55.92</td><td>60.92</td><td>100</td></tr>
<tr><td>SO2</td><td>6.92</td><td>7.88</td><td>80</td></tr>
<tr><td>NO2</td><td>9.72</td><td>10.82</td><td>80</td></tr>
<tr><td>Buffer</td><td>Min</td><td>Max</td><td></td></tr>
<tr><td>PM 2.5</td><td>20.60</td><td>23.67</td><td>60</td></tr>
<tr><td>PM 10</td><td>53.94</td><td>59.42</td><td>100</td></tr>
<tr><td>SO2</td><td>7.67</td><td>8.70</td><td>80</td></tr>
<tr><td>NO2</td><td>9.23</td><td>10.43</td><td>80</td></tr>
<tr><td>Incremental</td><td colspan="4"></td></tr>
</table>

GLC Level

Criteria Pollutant [PM10, PM2.5, SO2, NOx, Other parameters specific to the sector (Please specify)]	Unit [µg/m^3]	Baseline Concentration[A]	Predicted incremental value considering worst case stability class [B]	Total GLC [A]+[B]
PM10	µg/m^3	23.0	20	43.0
PM2.5	µg/m^3	58.4	10	68.4
SOx	µg/m^3	7.4	4	11.4
NOx	µg/m^3	10.3	5	15.3

River water samples(05 samples)

Core Zone

S. No	Parameters	Min	Max	Standards
1	pH	6.59	8.06	8.5
2	Total Dissolved Solids, mg/L	89.7	156	500
3	Dissolved Oxygen (mg/l)	7.72	10.2	3
4	Chloride (as Cl), mg/L	7.8	14.3	0
5	Total Hardness (as CaCO3), mg/L	60.78	88.53	
6	Biological Oxygen Demand (mg/l)	2	2	250
7	Chemical Oxygen Demand (mg/l)	6	6	500
8	Total Coliform (MPN/100 ml)	2	2	300

Buffer Zone

S. No	Parameters	Min	Max	Standards
1	pH	7.1	7.79	8.5
2	Total Dissolved Solids, mg/L	124	163	500
3	Dissolved Oxygen (mg/l)	8.5	9.4	3
4	Chloride (as Cl), mg/L	8.4	12.4	0
5	Total Hardness (as CaCO3), mg/L	91.32	96.33	6
6	Biological Oxygen Demand (mg/l)	2	2	250
7	Chemical Oxygen Demand (mg/l)	6	6	500

8	Total Coliform (MPN/100 ml)	2	2	300

Pond water samples

-

Groundwater water samples quality at 1 location

S. No	Parameters	Min	Max	Standards
1	pH	6.59	8.06	8.5
2	Total Dissolved Solids, mg/L	89.7	156	500
3	Dissolved Oxygen (mg/l)	7.72	10.2	3
4	Chloride (as Cl), mg/L	7.8	14.3	0
5	Total Hardness (as CaCO3), mg/L	60.78	88.53	
6	Biological Oxygen Demand (mg/l)	2	2	250
7	Chemical Oxygen Demand (mg/l)	6	6	500
8	Total Coliform (MPN/100 ml)	2	2	300

Noise levels Leq (Day & Night) at 06 locations

Noise Level	Zone	Leq Day dB(A)		Leq Night dB(A)		Prescribed Limits	
		From	To	From	To	Day	Night
Core	Commercial	45.2	65	35.3	50.1	65	55
Buffer	Commercial	51.4	63.1	40.1	48.7	65	55

Soil Quality at 6 Locations

Core Zone

S. No.	Parameters	Min	Max	Prescribed Limits
1	Calcium (mg/kg)	239	290	500
2	Sodium Absorption Ratio	3.4	4.1	10
3	Phosphorus (kg/ha)	28	35	50
4	Carbon (%)	1.1	1.21	1
5	Salinity (ppt)	0	0	0.01
6	Magnesium (mg/kg)	50	56	500
7	Nitrogen (kg/ha)	180	200	500
8	Potassium (kg/ha)	210	240	500
Buffer Zone				
1	Calcium (mg/kg)	172	216	500
2	Sodium Absorption Ratio	2.9	4.3	10

	3	Phosphorus (kg/ha)	26	44	50
	4	Carbon (%)	0.69	1.11	1
	5	Salinity (ppt)	0	0	0.01
	6	Magnesium (mg/kg)	38	120	500
	7	Nitrogen (kg/ha)	106	260	500
	8	Potassium (kg/ha)	240	410	500

Flora & Fauna	Schedule-I species observed in the study area: As per Wildlife Protection Amendment Act, 2022, Common Leopard (Panthera pardus), Himalayan Musk Deer (Moschus leucogaster), Himalayan Goral (Naemorhedus goral), Jungle Cat (Felis chaus), Leopard Cat (Prionailurus bengalensis), Grey mongoose (Herpestes edwardsii), Small Indian mongoose (Herpestes auropunctatus), Golden Jackal (Canis aureus), Red Fox (Vulpes vulpes), Bengal Fox (Vulpes bengalensis), Cuon alpinus (Wild Dog), Asiatic Black Bear (Ursus thibetanus), Himalayan Weasel (Mustela sibirica), Common Otter (Lutra lutra), Red Giant Flying Squirrel (Petaurista petaurista) and Indian Crested Porcupine (Hystrix indica) are the mammalian species and Crested-serpent eagle (Spilornis cheela) is listed as Schedule I species.

xviii. Details of Solid waste/ Hazardous waste generation/ Muck and its management:

a. For disposal of Municipal Solid Waste generated during construction and operation phase of project Solid Waste Treatment Plant (including organic waste composter at NHPC Uri-Power Station Colony) has been proposed at project site.
b. NHPC Ltd. signed MoU with MSTC Limited regarding collection and disposal of non-degradablewaste including e-waste during construction and operational phase of project.
c. For disposal of Bio-medical Waste facilities at NHPC Hospital at Ginagal and District HospitalBaramulla will be utilized.
d. For Disposal of waste oil vendors authorized by State Pollution Control Committee shall beengaged.
e. The pre-identified 04 sites for disposal of muck are under possession of NHPC are located near(<500m) from source. All four site are more than 30m away from HFL of Jhelum river.

xix. Public Hearing for the proposed project has been conducted by the State Pollution Control Committee on 21.12.2023. Publications of notice for public hearing were given in state level newspaper “Rising Kashmir” and “Chattan" daily” dated 22.11.2023The meeting was chaired by Additional District Magistrate, District Baramulla.The main issues raised and replies by the user agency during the public hearing are:

Issues/Comments/Observations	Reply by the User Agency

Provisions for development of basic infrastructural facilities like facilities like solar streetlight, safe drinking water, bus stops, Improvement of graveyards, drainage in villages, development of public places adjacent to project area and provisions of washroom, provision of Installation of Fire tender at Boniyar and beautification works at Boniyar market.	Facility of safe drinking water shall be taken up under the provisions made under Local Area Development Plan. The implementation of the works shall be taken up with the consultation District Administration. NHPC shall be providing financial assistance to District Administration for purchase of fire tender.
Priority of CSR funds to the local area adjacent toproject area	The CSR activities involve the development of local area in different sectors viz. Education, Sports, Cultural Activities, Rural Development and Environment, Women Empowerment etc. The provisions under Local Area Development Plan will be made after consultation with the concerned Gram Panchayats and District Administration.
Project proponent should make provisions for development and strengthening/ upgradation of existing medical by augmenting its machinery and dedicated Power Supply to Public Health Center Boniyar by providing DG Set.	Upgradation of infrastructural facilities in available educational and medical institutes shall be taken up under the provisions made under Local Area Development Plan after consultation with the concerned Gram Panchayats and District Administration. In addition to activities proposed under local area development plan, provision has been kept under Environmental Management Plan for medical camps in the surrounding villages with the help of district health department.
Providing free power to local area of Boniyar andUri.	NHPC is abided to follow the provisions/ guidelines of issued by State Government/ Central Government related to free/ subsidized power to project area as well as to state.
The benefits like engagement of workforce, transportation, construction works and hiring of vehicles shall be prioritized for the localworkforce.	During the construction phase of the proposed project large number of skilled and unskilled workers shall be engaged in project activities, majority of them will be from the local population/surrounding villages.

	Employment opportunities shall be provided through the construction company as per eligibility and requirement of Project during the project construction phase. For development of required basic infrastructure facility during construction and maintenance, contracts will be awarded to local villagers through the construction company and priority has been given to locals during hiring of vehicles. An R&R Policy for providing indirect benefits to PAF/locals is also being implemented by NHPC across its projects and the same shall be applicable for Uri-I Stage-II HE Project.
Transmission Lines for transmitting the generatedpower shall be installed carried out in such a manner to minimize land acquisition for towers.	District Administration will take appropriate actionto minimize the land acquisition for transmission lines towers.
Irrigation facilities shall be restored and revived after successful construction of the project forthe affected areas.	A District level committee has been constituted on dated 19.02.2024 for action plan to undertake the irrigation facilities in the area. The implementation of the works shall be taken up with the consultation District Administration.
Strengthening of embankments of river Jhelum asper requirement	The reservoir of Uri-I Power Station is under operation since 1997 and no changes are envisaged due to construction of Uri-I Stage-II project. Both banks of the Jhelum River around the existing pondage/ reservoir have also been stabilized by rip rap boulder pitching and other protection measures and are well maintained. In addition to ongoing treatment measures taken by Uri-I Power Station, treatment measures for degraded areas with financial provision has been made Catchment Area Treatment Plan.

Upgradation and beautification of area and promotion of tourism activities in the projectarea.	A District level committee has been constituted on dated 19.02.2024 for action plan to undertake the irrigation facilities in the area. The implementation of the works shall be taken up with the consultation District Administration. Provision for the upgradation of religious places and promotion of tourism activities shall be taken up Local Area Development Plan after consultation withthe consultation of District Administration.

xx. The salient features of the project are as under: -

- **EAC Meeting Details:**

EAC meeting/s	23rd Meeting
Date of Meeting/s	29.01.2025
Date of earlier EAC meetings	10th Meeting (ToR), 15.04.2021 13th Meeting (EC), 13.08.2024

- **Project details:**

Name of the Proposal	Uri-I Stage-II Hydroelectric Project (240 MW)
Proposal No.	IA/JK/RIV/463699/2024
Location (Including Coordinates)	Uri and Boniyar tehsils of Baramulla district in Union Territory of Jammu & Kashmir Barrage is located at Latitude is $34^0$08’00” North & Longitude is $74^0$11’00” East. Powerhouse is located at Latitude is $34^0$05’00” North & Longitude is 74^0 03’00” East.
Company’s Name	NHPC Ltd.
CIN no. of Company/user agency	L40101HR1975GOI032564
Accredited Consultant and certificate no.	NABET/EIA/2225/RA 0274
Project location (Coordinates /River/ Reservoir)	Near Village: Boniyar, Jhelum River
Inter- state issue involved	Yes
Proposed on River/ Reservoir	Jhelum River

Type of Hydro-electric project	Run-of-river
Seismic zone	IV

- **Category details:**

Category of the project	A
Capacity / Cultural command area	240 MW
Attracts the General Conditions	No
Additional information (if any)	-

- **ToR/EC Details:**

ToR Proposal No.	IA/JK/RIV/204853/2021
EAC meeting date	15.04.2021
ToR Letter No.	J-12011/08/2021-IA.I (R)
ToR grant Date	10.06.2021
Cost of project	2167.61 Cr
Total area of Project	102.0 Ha
Height of Dam from River Bed (EL)	14.5m / 21.5 m (from riverbed level/ deepest
Details of submergence area	-
District to provide irrigation facility (if applicable)	NA
Details of tunnels on upper level & lower level and length of canal (if applicable)	
No. of affected Village	None
No. of Affected Families	None
Project Benefits	**Power Generation**: Uri I Stage II HEP is likely to generate 929.13 MUs in a 90% dependable year **Environmental**: □ Soil Conservation □ Biodiversity Conservation □ Conservation of Riverine Ecology □ Green Energy (The project would replace the carbon emissions to the extent of power generation, which is equivalent to the estimated energy generation of 929.13 MU in 90% dependable year.) **Social:** □ Job Opportunities □ Business Development

	□ Infrastructure Development
R&R details	No private land will be acquired for the proposed project; therefore, no family is affected due to the acquisition of land for the proposed project. Hence, requirement of preparation of Resettlement & Rehabilitation Plan is not envisaged in the present case.
Catchment area/ Command area	Catchment Area: 12,570 km^2
Types of Waste and quantity of generation during construction/Operation	Municipal Solid Waste- Bio degradable (112.00 Tons), Non degradable (112.00 Tons)
Material used for blasting and its composition as per DGMS standards.	Explosives are mainly required for open and underground rock excavation. Explosive Magazine is already available and the said land is in the possession of NHPC. The same Explosive Magazine site was utilized for construction existing Uri I & Uri II Power stations.
E-Flows for the Project	14.2 cumec release is recommended and adopted as e flow release. The barrage is equipped with a Fish Pass between bay No. 6 and bay No. 7 to release discharge of 2.5 cumec continuously. Balance e flow discharge of 11.7 cumec is provisioned to pass through the Silt excluder gate on a continuous basis.
Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in which project located. If yes then c) E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin. d) If not the E-Flows maintain criteria for sustaining river ecosystem.	No As per Scoping clearance issued by MoEF&CC release of **13.05 cumec** discharge is recommended for E-flow. However, as per NGT's order vide OA no- 425/ 2019 for e-flow release, 15% of average lean season (four months i.e., Oct – Jan) flow of Jhelum River at Uri Barrage as per average 10 daily flow series (Database: 1976-77 to 2019-20) is **14.2 cumec**.

Details on provision of fish pass	Proposed Uri-I Stage-II HEP utilizes existing operational barrage of Uri-I Stage-I Project. The barrage is equipped with a Fish Pass between bay No. 6 and bay No. 7. 2.5 cumec of water is being continuously maintain in the fish ladder which also served as conduit for provision of maintaining partial E-flow.
Project benefit including employment details (no of employee)	500 persons during peak phase of construction period and 120 persons during operational phase
Area of Compensatory Afforestation (CA) with tentative no of plantation.	As per forest proposal finalized by DFO Jhelum Valley Forest Division an area 350 kanal has been finalized for Compensatory Afforestation. As per proposal a total of 19300 no. of trees are proposed to be planted under CA scheme.
Previous EC details	-
EC Compliance Report by R.O, MOEF&CC	-

- **Electricity generation capacity:**

Powerhouse Installed Capacity	240 MW
Generation of Electricity Annually	929.13 MWH
No. of Units	2 nos. (2 X 120 MW)

- **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt land)	4
Cross section of proposed muck area, Height of muck with slope.	Attached as Appendix I
Distance of muck disposal area (location), from muck generation sources (project area)/River, HFL of proposed muck disposal area.	About 500 m more than 30 m from HFL.
Total Muck Disposal Area	16.90 ha
Estimate Muck to be generated	1158300 Cum

Transportation	All 04 pre identifies muck disposal sites are adjacent to proposed construction sites (< 500m). All the proposed sites are already under possession of NHPC Ltd.
Monitoring mechanism for Muck Disposal Transportation	All four designated sites for disposal of muck are adjacent to the source. The provisions of Monitoring have been kept under proposed Environmental Monitoring Plan.

- **Land Area Breakup:**

Private land	85.0
Forest Land	17.0 (Underground)
Submergence area/Reservoir area	None
Land required for project components	102.0

- **Presence of Environmentally Sensitive areas in the study area**

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certifica**
Reserve Forest/Protected Forest Land	No	Kazinag National Park, Lachipora Wildlife Sanctuary and Limber Wildlife Sanctuary are the nearest protected areas from Uri-I Stage-II HE Project. All the project components are outside the notified ESZ of the protected areas.
National Park	No	
Wildlife Sanctuary	No	
Archaeological sites monuments/historical temples etc	No	
Additional information (if any)	-	

- **Availability of Schedule-I species in study area:** Yes, As per Wildlife Protection Amendment Act, 2022, Common Leopard (*Panthera pardus*), Himalayan Musk Deer (*Moschus leucogaster*), Himalayan Goral (*Naemorhedus goral*), Jungle Cat (*Felis chaus*), Leopard Cat (*Prionailurus bengalensis*), Grey mongoose (*Herpestes edwardsii*), Small Indian mongoose (*Herpestes auropunctatus*), Golden Jackal (*Canis aureus*), Red Fox (*Vulpes vulpes*), Bengal Fox (*Vulpes bengalensis*), *Cuon*

alpinus (Wild Dog), Asiatic Black Bear (*Ursus thibetanus*), Himalayan Weasel (*Mustela sibirica*), Common Otter (*Lutra lutra*), Red Giant Flying Squirrel (*Petaurista petaurista*) and Indian Crested Porcupine (*Hystrix indica*) are the mammalian species and Crested-serpent eagle (*Spilornis cheela*) is listed as Schedule I species

- **Public Hearing (PH) Details**

Advertisement for PH with date	State level newspaper "Rising Kashmir" and "Chattan" daily" dated 22.11.2023
Date of PH	21.12.2023
Venue	Recreation Park (Children Park) Boniyar, Distt. Baramulla (adjacent to Uri NH)
Chaired by	Additional District Magistrate, District
Main issues raised during PH	• Provision of Employment of local Youth • Provision of Medical Facilities • Financial assistance for strengthening of basic infrastructure in the area
No. of people attended	340

- **Brief of base line Environment:**

Particulars	**Details**			
Period of baseline data collection/Sampling period.	**Parameters**	**Monsoon**	**Winter**	**Summer/ Pre-Monsoon**
	Soil	September 2021	January 2022	May 2022
	Air Environment	September 2021	January 2022	May 2022
	Noise & Traffic	September 2021	January 2022	May 2022
	Water Quality	September 2021	January 2022	May 2022
	Vegetation	September 2021	January 2022	May 2022
	Fauna surveys	September 2021	January 2022	May 2022

(Air, noise, water, land) flora and fauna of the project aquatic ecology, etc.	Socio-economic survey of Project affected villages	May 2022
Brief description on hydrology and water assessment as per the approved Pre-DPR:	The water availability series from 1994-95 to 2019-20 (26 years) has been approved by CWC Hydrology (N) Directorate vide their file no. T-11025/1//2021-HYD(N) Dte, dated 15-03-2021. The average annual yield for the series Jun-94 to May-20 is computed as 8080 Mcum (i.e. 633.7 mm).	
Additional detail (If any)		

- **Court case details: Nil**

- **Status of other statutory clearances**

Particulars	**Letter no. and date**
Status of Stage- I FC	The proposal for grant of 'in-principle' approval for the diversion of 17.00 hectares of forest land for the underground work of the Uri-I Stage II HEP has been recommended during the Advisory Committee (AC) meeting held on 26.12.2024. MoEF&CC has issued letter dated 14/01/2025 accorded Stage I/In principal approval for diversion 17 ha of forest land.
Approval of Central Water Commission	CWC Hydrology (N) Directorate vide their file no. T-11025/1//2021-HYD(N) Dte, dated 15-03-2021.
Approval of Central Electricity Authority	CEA Letter no. File No.CEA-HY-12-20/3/2021-HPA Division dated 20.03.2021.
Additional detail (If any)	
Is FRA (2006) done for FC-I	Yes, Attached as Appendix II

- **Details of the EMP**

S. No	Component of EMP	Capital Cost (Rs. In lakh)	Recurring Cost (Rs. In lakh)							Total Cost (Rs. In Lakh)
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
1	Catchment Area Treatment Plan	1297.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1297.00**
2	Compensatory Afforestation Plan	71.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**71.19**
3	Biodiversity Conservation & Wildlife Management Plan	186.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**186.00**
4	Fisheries Conservation and Management Plan	17.00	8.00	8.00	8.00	8.00	0.00	0.00	0.00	**49.00**
5	Muck Dumping and Management Plan	30.00	428.14	637.22	530.19	533.11	9.50	10.00	10.00	**2188.16**
6	Landscaping, Restoration of Quarry, and Construction Sites	25.00	0.00	25.00	30.00	20.00	15.00	15.00	0.00	**130.00**
7	Reservoir Treatment Plan*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
8	Green Belt Development Plan	0.00	4.13	4.12	11.01	14.48	19.93	11.18	10.74	**75.59**
9	Sanitation and Solid Waste Management Plan	111.00	31.64	25.64	21.64	16.64	0.00	0.00	0.00	**206.56**
10	Public Health Delivery System	50.00	29.00	29.00	29.00	29.00	0.00	0.00	0.00	**166.00**
11	Energy Conservation Measures	26.00	31.50	31.50	31.50	31.50	0.00	0.00	0.00	**152.00**
12	Labour Management Plan	35.00	4.00	7.00	7.00	7.00	0.00	0.00	0.00	**60.00**

S. No	Component of EMP	Capital Cost (Rs. In lakh)	Recurring Cost (Rs. In lakh)							Total Cost (Rs. In Lakh)
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	
13	Disaster Management Plan (Emergency Action Plan) **	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
14	Control of Air, Noise and Water Pollution	0.00	10.00	10.00	10.00	10.00	0.00	0.00	0.00	**40.00**
15	Environmental Monitoring Programme	0.00	11.65	11.65	11.65	11.65	0.00	0.00	0.00	**46.60**
16	Rehabilitation and Resettlement Plan***	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
17	Local Area Development Plan	1038.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1038.80**
	Total	2886.99	**558.06**	**789.13**	**689.99**	**681.38**	**44.43**	**36.18**	**20.74**	**5706.90**
18	NPV under B-land[#]	116.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**116.66**
	Total	3003.65	**558.06**	**789.13**	**689.99**	**681.38**	**44.43**	**36.18**	**20.74**	**5823.26**

* Reservoir Rim Management Plan is already implemented by Uri-I Power Station and Plantation is proposed under Greenbelt Development Plan.

** Emergency Action Plan is already implemented by Uri-I Power Station.

*** Rehabilitation and Resettlement Plan Not required as no private land is acquired for the project.

The cost of NPV shall come under the B-LAND in the DPR.

23.1.3 The proposal was earlier considered by the EAC in its 13th meeting held on 13.08.2024 wherein the proposal was deferred for want of additional information. PP vide letter dated 07.01.2025 submitted the following information sought by the EAC on Parivesh Portal:

ADS Point 1: The Project Proponent (PP) shall submit the data on the environmental flow (e-flow) monitored for the existing project.

Reply: Due to file size limitations, 3 months (January 2023 – March 2023) environmental flow (e-flow) data monitored for the existing project has been provided. The detailed month-wise data (Jan2023 to Nov 2024) has been submitted to the MoEFCC in hard copy.

ADS Point 2: The PP shall submit an approved wildlife conservation plan as project location is in close proximity to Wildlife Protected Area.

Reply: The Biodiversity Conservation & Wildlife Management Plan for Schedule I species has been approved by the office of Principal Chief Conservator of Forests (Wildlife)/ Chief Wildlife Warden vide letter no. WLP/Tech/2024/704-705 dated 14.10.2024. A copy of approval along with the Biodiversity Conservation & Wildlife Management Plan has been submitted.

ADS Point 3: Given that 17 hectares of forest land are involved, the PP shall provide a detailed classification of the project area, including information on forest density, species, diversity and other relevant ecological characteristics.

Reply: The detailed classification of the project area, including information on forest density, species, biodiversity, and other relevant ecological characteristics has been submitted, proposal for grant of 'in-principle' approval for the diversion of 17.00 hectares of forest land for the underground work of the Uri-I Stage II HEP has been recommended during the Advisory Committee (AC) meeting held on 26.12.2024.

ADS Point 4: The PP shall submit a videography of the entire public hearing proceedings to the Ministry.

Reply: A videography of the entire public hearing proceedings shall be submitted to the Ministry in pen drive as due to data size limitation, it cannot be uploaded on PARIVESH portal. Public Hearing video has been presented during next EAC meeting for appraisal of Uri I Stage II HEP.

ADS Point 5: The PP shall submit drone videography of the area where the proposed project is located.

Reply: Drone videography of the area where the proposed project is located shall be submitted to the Ministry in pen drive as due to data size limitation it cannot be submitted online on PARIVESH portal. Drone video has been presented during next EAC meeting for appraisal of Uri I Stage II HEP.

23.1.3 The EAC during deliberations noted the following:

- The Expert Appraisal Committee (EAC) deliberated on the information submitted by the Project Proponent and the details presented during the meeting. The Committee observed that the proposal pertains to the grant of Environmental Clearance for the Uri-I Stage-II Hydroelectric Project (240 MW), designed as a Run-of-River scheme covering an area of 102 hectares in Sub-District Uri, Boniyar, Kreeri, Baramulla, and Rafiabad, District Baramulla, Jammu & Kashmir, proposed by M/s NHPC Limited.

- The project falls under Item 1(c) of the Schedule to the Environmental Impact Assessment (EIA) Notification, 2006, and is categorized as a Category ‘A’ project, which requires appraisal at the Central level by the Expert Appraisal Committee (EAC).

- The EAC, constituted under the provisions of the EIA Notification, 2006, and comprising expert members/domain experts from various relevant fields, examined the proposal submitted by the Project Proponent. This examination included a review of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports, which were prepared and submitted by a QCI/NABET-accredited consultant on behalf of the Project Proponent.

- The EAC further noted that the project was previously considered during its 13th meeting held on 13.08.2024, wherein the proposal was deferred due to the requirement for additional information. The Project Proponent subsequently submitted the requisite information via letter dated 07.01.2025, and upon examination, the Committee found the details to be satisfactory.

- The EAC in its meeting held on 13.08.2024 inter alia noted the following:

    - The EAC noted that the Project Proponent (PP) has submitted an undertaking stating that the data and information provided in the application and its enclosures are true and accurate to the best of their knowledge and belief, and that no information has been suppressed in the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports. The PP has also acknowledged that if any part of the submitted data or information is found to be false or misleading at any stage, the project will be rejected, and any Environmental Clearance (EC) granted will be revoked at the risk and cost of the Project Proponent.

    - The Terms of Reference (ToR) for the project were issued by the Ministry vide letter No. J-12011/08/2021-IA.I (R) dated 10.06.2021. The EAC noted that the total land area required for the project is 102 hectares, comprising 85 hectares of non-forest land and 17 hectares of forest land. The Stage-I Forest Clearance (FC) for the forest land is still under process in the Ministry.

    - The estimated project cost is ₹2,167.61 crore. The total capital cost earmarked for the Environmental Management Plan (EMP) and environmental pollution control measures is ₹3,010.70 lakh, while the recurring cost for operation and maintenance is ₹2,819.91 lakh, amounting to approximately ₹402.84 lakh per annum.

    - The EAC noted that the Uri-I Stage-II Hydroelectric Project (240 MW) is an extension of the existing Uri-I Stage-I Hydroelectric Project (480 MW), located on the Jhelum River in Baramulla district, Union Territory of Jammu and Kashmir. The Environmental Clearance (EC) for the Uri-I Hydroelectric Project (480 MW) was granted by the Department of Science and Technology (DST), Government of India, to the Central Electricity Authority (CEA) on June 27, 1980. Additionally, the Forest Clearance (FC) for the diversion of 54.70 hectares

of forest land was granted by the Ministry of Environment & Forests on May 21, 1986.

- Stage-I of the project, with an underground powerhouse and an installed capacity of 480 MW, was commissioned by NHPC Ltd. in 1997. The existing structures from Uri-I Stage-I, including the barrage, head regulator up to the headrace tunnel (HRT) intake, spillway, and desilting basin, will be utilized for Stage-II of the hydroelectric project (HEP). For the Uri-I Stage-II HEP, new construction is proposed for the headrace tunnel (HRT), surge shaft, pressure shaft, powerhouse, and penstock.

- The committee further observed that the Uri-I Stage-II Hydroelectric Project (HEP) is planned to capitalize on the availability of diverted water from the Kishanganga River, which originates from the Kishanganga Power Station (330 MW) located near Bandipore in the Kashmir Valley. The Kishanganga Power Station, commissioned by NHPC in 2018, involves the transfer of water from the Kishanganga River to the Madhumati River, a tributary of the Jhelum River that flows into Wular Lake. The Jhelum River, which passes through Wular Lake, now receives additional water from the Kishanganga HEP. As a result, this increased water flow makes additional water available for utilization in the Uri-I Stage-II project.

- Given the significance of public participation in environmental decision-making, the EAC also discussed the concerns raised during the Public Hearing (PH) and reviewed the action plan submitted by the Project Proponent to address these issues. After detailed deliberation, the Committee found the action plan satisfactory, recognizing that the proposed mitigation measures adequately respond to stakeholders' concerns. Accordingly, the EAC advised the Project Proponent to submit a copy of the Public Hearing report to the Ministry, ensuring transparency and compliance with regulatory requirements.

- The EAC during the 23rd meeting held on 29.1.2025 noted the following:

  - The total land requirement for the Uri-I Stage-II Hydroelectric Project (HEP) is 102.0 hectares (ha), comprising 85.0 ha of non-forest land and 17.0 ha of forest land (allocated for underground project structures). At present, NHPC possesses the required 85.0 ha of non-forest land, which is proposed to be utilized for various above-ground components of the project. Additionally, the proposal for the diversion of 17.0 ha of forest land for underground project structures was recommended during the Advisory Committee (AC) meeting held on 26.12.2024. Subsequently, the Ministry issued a letter dated 14.01.2025, according Stage-I (in-principle) approval for the diversion of forest land. However, the Forest Clearance (FC) letter has not yet been submitted on the Parivesh portal,

necessitating further compliance measures from the Project Proponent. The EAC recommended to submit the Stage-I FC on EC PARIVESH portal.

- To ensure transparency in the public consultation process, the PP presented a videography of the Public Hearing (PH) conducted by the State Pollution Control Committee on 21.12.2023. The notice for the Public Hearing was published in state-level newspapers—"Rising Kashmir" and "Chattan Daily"—on 22.11.2023. The meeting was chaired by the Additional District Magistrate of Baramulla District, ensuring due diligence in addressing public concerns and regulatory compliance.

- The EAC also noted that the Biodiversity Conservation & Wildlife Management Plan for Schedule-I species has been approved by the office of the Principal Chief Conservator of Forests (Wildlife)/ Chief Wildlife Warden vide letter No. WLP/Tech/2024/704-705 dated 14.10.2024. A total of Rs. 186 lakh has been allocated under this plan for various conservation activities, including biodiversity conservation, wildlife management, conservation and management of Schedule-I species, and monitoring and evaluation.

- However, the EAC took cognizance of the revision in fund allocation for environmental management measures. The Project Proponent (PP) had initially earmarked Rs. 144 lakh for the Biodiversity Conservation & Wildlife Management Plan, which has now been increased to Rs. 186 lakh. Conversely, the funds allocated for the Catchment Area Treatment (CAT) Plan have been reduced from Rs. 1346.05 lakh to Rs. 1297.00 lakh, raising serious concerns. The EAC strongly advised the Project Proponent to restore the funds for the CAT Plan to the originally proposed amount of Rs. 1346.05 lakh, ensuring that essential catchment conservation activities are not compromised.

23.1.4 The EAC after examining the information submitted and detailed deliberations recommended the proposal for grant of prior Environmental Clearance by the Ministry to Uri-I Stage-II Hydroelectric project of 240 MW as Run of River scheme in an area of 102 ha in Sub District Uri, Boniyar, Kreeri, Baramullaand Rafiabad, District of Baramulla (Jammu and Kashmir) by M/s NHPC Limited, under the provisions of EIA Notification, 2006 and as amended with subject to compliance of applicable Standard EC conditions with the following specific environmental safeguard conditions:

[A] Environmental management and Biodiversity conservation:

i. The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP reports. The budgetary provisions for implementation of EMP, shall be fully utilized and not to be diverted to any other purpose. In case of

revision of the project cost or due to price level change, the cost of EMP shall also be updated proportionately.

ii. The contract clause limiting the No. of vehicles used during excavation and transportation shall followed scrupulously and the same shall informed to the ministry.

iii. Ambient Air Quality Monitoring Stations for real time data to be installed at project site before commencement of the construction, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC.

iv. No vehicle purchase shall be allowed from funds earmarked for implementation of Wildlife Conservation plan. Measures for minimizing the human–animal conflict specially for black bear and leopard be suitably incorporated in the wildlife conservation plan in consultation with State Forest Department.

v. Plantation of saplings shall be carried out as a part of the tree plantation campaign "Ek Ped Ma Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

[B] Disaster Management:

i. Disposal of the excavated muck and its filling on the low-lying area with proper measures for the stabilization and greenery to minimize the impacts of the generated construction muck shall be taken up pari passu with construction work.

ii. Stabilization of muck disposal sites using biological and engineering measures shall be taken up immediately to ensure that muck does not roll down the slopes and does not pollute the natural streams and water bodies in surrounding area. The plantation on muck disposal site with local species for restoration of ecology and environment of the project site area shall be done as per instructions of the Forest Department.

iii. Necessary control measures such as water sprinkling arrangements, and construction of paved roads leading to muck disposal sites etc. shall be taken up on priority to arrest fugitive dust at all the construction sites.

iv. Solid waste generated, especially plastic waste, etc. should not be disposed of as landfill material. It should be treated with scientific approach and recycled. Use of single-use plastics may be discouraged.

[C] Socio-economic:

i. Land acquired for the project shall be suitably compensated in accordance with the prevailing guidelines of the state government and provisions under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

ii. Solar panel be provided to the families living in rural areas within 10 km radius of project with annual maintenance.

iii. School up to 12^{th} Standard with smart classes shall be established and managed to

provide free quality education for children from project affected villages/Tribal villages.

iv. 50 bed multi-speciality hospital shall be established to cater the need of tribal population/locals. The tribal population within 10 km radius of the project shall be given free of cost medical facility.

v. The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit once in year. The compliance report of IRO shall be regularly submitted to MoEF&CC.

vi. Skill development Centre shall be established within 10 km radius of the project and regular training programmes for development and promotion of traditional art/products of tribal/local population.

[D] Miscellaneous:

i. After 5 years of the commissioning of the project, a study shall be undertaken regarding impact of the project on the environment. The study shall be undertaken by an independent agency.

ii. Bio-Gas plant shall be installed in the Project affected area for Utilizing Cattle waste (Cow Dung) into renewable source of fuel.

iii. PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis.

iv. PP shall procure construction material only from those Organizations having all valid legal/statutory clearances/permissions or necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and as amended thereof.

v. An institutional mechanism to be developed to ensure the preference of jobs to PAFs and also a policy for preferential treatment for award of sundry works to the PAFs and their dependents.

Agenda Item No. 23.2

Damanganga (Ekdare) - Godavari intrastate link project (CCA: 12998ha) in an area of 213.46 ha at Village Ekdare, Tehsil Peint, District Nashik (Maharashtra) by M/s National Water Development Agency- Amendment in Terms of Reference (TOR) -reg.

[Proposal No. IA/MH/RIV/464131/2025; F. No. J-12011/03/2019-IA-1 (R)]

23.2.1: The proposal is for grant of amendment in Terms of Reference to the project for Damanganga (Ekdare) - Godavari intrastate link project (CCA: 12998ha) in an area of 213.46 ha at Village Ekdare, Tehsil Peint, District Nashik (Maharashtra) by M/s National Water Development Agency.

The Project proponent vide letter dated 24.01.2025 informed that since, the parameters of the proposed project are going to be revised, they requested to withdraw Proposal Number - IA/MH/RIV/464131/2025; F.No. J-12011/03/2019-IA.I(R) from the Parivesh portal.

The proposal was ***returned*** on the above lines.

Agenda Item No. 23.3

Kamod Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 458.23 Ha at Village Chaupale, Kamod, Kotkhamb and Nagziri, Sub District Sakri and Nawapur, District Nandurbar, Maharashtra by M/s Megha Engineering & infrastructures Limited - Terms of References (TOR) – reg.

[Proposal No. IA/MH/RIV/518871/2025; F. No. J-12011/02/2025-IA.I (R)]

23.3.1: The proposal is for grant of Terms of References (ToR) to the project for Kamod Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 458.23 Ha at Village Chaupale, Kamod, Kotkhamb and Nagziri, Sub District Sakri and Nawapur, District Nandurbar, Maharashtra by M/s Megha Engineering & infrastructures Limited.

The Project proponent vide letter dated 25.01.2025 informed that due to technical reason, there were some modifications in the proposed project and requested to withdraw the same from the parivesh portal.

The proposal was ***returned*** on the above lines.

Agenda Item No. 23.4

Ghosla Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 350 Ha at Village Wadi, Tidka, Shewale etc, Sub District Pachora, Sillod and Soegaon, District Jalgaon and Aurangabad by M/s Megha Engineering & infrastructures Limited - Terms of References (TOR) – reg.

[Proposal No. IA/MH/RIV/516657/2025; F. No. J-12011/03/2025-IA.I (R)]

23.4.3: The proposal is for grant of Terms of References (ToR) to the project for Ghosla Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 350 Ha at Village Wadi,

Tidka, Shewale etc, Sub District Pachora, Sillod and Soegaon, District Jalgaon and Aurangabad by M/s Megha Engineering & infrastructures Limited.

23.4.2 The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. Ghosla Closed Loop Pumped Storage Hydro Electric Project is proposed with an installed capacity of 2000 MW/12000 MWH. The upper reservoir of the project is located in the Ghatnandra, Sillod Takuka, Aurangabad (now Chhatrapati Sambhajinagar) district in Maharashtra. The lower reservoir of the project falls in Ghosla village, Soegaon Taluk, Aurangabad.

ii. The geographical co-ordinate of the upper reservoir is at 20.474°latitude and 75.421° longitude and the lower reservoir is at geographical co-ordinate 20.491°latitude and 75.419°longitude.

iii. The project has two newly constructed reservoirs i.e., upper and lower reservoirs (closed-loop system) utilizing the maximum and minimum gross head of about 334 m and 280 m respectively. Total Water requirement for initial filling including evaporation loss is 17.49 MCM. The PSP scheme envisages a drawl of water from the existing Bahula Dam, Jalgaon District for initial filling into the proposed lower reservoir through a 25 km pipeline arrangement.

iv. **Land requirement:** The total land required for the construction of various components and related works for Ghosla PSP is estimated to be around 344.9 ha, out of which 315.4 ha is non-forest land and 29.5 ha is forest land. Diversion of forest land for non-forest purpose will be involved for construction of Ghosla project components. Therefore, Forest Clearance is required to be obtained under Forest Conservation Act. There is no Protected Area in the vicinity of the proposed project. Gautala WLS is about 17.0 Km from site, is the nearest protected area.

v. **Demographic details in 10 km radius of project area:**

- There are three villages, namely Nandgaon, Ghosala, and Dharla, located near the proposed project reservoir area, which falls under the Soegaon and Sillod tehsils of Aurangabad district.

- Among these, Nandgaon has approximately 48% tribal population, Ghosala has around 15% tribal population, while Dharla does not have any tribal population.

- The primary occupation of the residents in these villages is agriculture, with a significant portion of the working population engaged as cultivators and agricultural laborers. Agriculture serves as the backbone of the economy in all the villages within the project area.

- The cultural practices in these villages reflect the broader traditions of the Marathwada region. Marathi is the predominant language spoken by the residents.

- Traditional festivals, folk dances, and rituals are integral to the community's cultural life. The presence of Scheduled Tribes further enriches the cultural diversity of the area, contributing unique customs and traditions to the social fabric.

- These villages exemplify rural life in Maharashtra, showcasing communities deeply connected to agriculture and rich in cultural heritage.

vi. **Water requirement:** Ghosla Close Loop Pumped Storage Hydro Electric Project will require 17.49 MCM for initial reservoir filling and thereafter 3.59 MCM per year will be required on annual basis from Bahula reservoir for restoring the storage capacity lost due to evaporation.

vii. **Project Cost**: The estimated project cost is Rs 9899.95 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).

viii. **Project Benefit:** Total Employment will be 1250 nos during construction & 250 nos during O&M. persons as direct & persons indirect after expansion.

ix. **Environmental Sensitive area:** There is no Protected Area in the vicinity of the proposed project. Gautala Autramghat WLS is 17.5 km far from the proposed project area. River/ water body, Bahula river is flowing at the aerial distance of 11.0 km in south to north direction.

x. MoU signed with Government of Maharashtra dated 26-09-2024.

xi. **Alternative Studies:** The Nine (9) PSP alternatives have been studied for selecting the final layout of the project.

The following aspects have been considered for the formulation of alternative layouts.

- Maximum utilization of available heads at the project site.
- Development of economical and optimized layout.
- Minimize the land acquisition of cultivated land to accommodate project components.
- Away from habitation.
- Ease of construction.

The alternatives considered have been focussed on the formation of a separate standalone reservoir for both upper and lower reservoirs where the topography allows this kind of arrangement. Continuous peaking of 6 hours has been considered for fixing installed capacity and computation of annual energy for all the alternatives.

a) Alternative 1 – PSP 1

The upper reservoir has been proposed at an elevation of 735 meters with geographic coordinates of 20.329° latitude and 74.939° longitude and the lower reservoir has been proposed at an elevation of 445 meters with geographic coordinates of 20.341° latitude and 74.987° longitude to generate a gross hydraulic head of 290 meters. The storage volume of reservoirs in this alternative has been worked out to 11 million cubic meters and features a plan length of water conductor system of 1.5 kilometers. This alternative has an installed generation capacity of 1200 MW with an energy storage capacity of 7200 MWh.

b) Alternative 2– PSP-2

The upper reservoir has been proposed at an elevation of 745 meters with geographic coordinates of 20.333° latitude and 75.026° longitude and the lower reservoir has been proposed at an elevation of 455 meters with geographic coordinates of 20.340° latitude and 75.016° longitude to generate a gross hydraulic head of 290 meters. The storage volume of reservoirs in this alternative has been worked out to 17 million cubic meters and features a plan length of water conductor system of 1.2 kilometers. This alternative has an installed generation capacity of 1850 MW with an energy storage capacity of 11100 MWh.

c) Alternative 3– PSP-3

The upper reservoir has been proposed at an elevation of 775 meters with geographic coordinates of 20.343° latitude and 75.114° longitude and the lower reservoir has been proposed at an elevation of 465 meters with geographic coordinates of 20.357° latitude and 75.102° longitude to generate a gross hydraulic head of 310 meters. The storage volume of reservoirs in this alternative has been worked out to 10 million cubic meters and features a plan length of water conductor system of 1.6 kilometers. This alternative has an installed generation capacity of 1100 MW with an energy storage capacity of 6600 MWh.

d) Alternative 4– PSP-3A

The upper reservoir of this alternative is the same as that of alternative PSP-3. However, the lower reservoir has been proposed at an elevation of 455 meters with geographic coordinates of 20.363° latitude and 75.114° longitude to generate a gross hydraulic head of 320 meters. The storage volume of reservoirs in this alternative has been worked out to 10 million cubic meters and features a plan length of water conductor system of 1.6 kilometers. This alternative has an installed generation capacity of 1150 MW with an energy storage capacity of 6900 MWh.

e) Alternative 5– PSP-4

The upper reservoir has been proposed at an elevation of 775 meters with geographic coordinates of 20.384° latitude and 75.204° longitude and the lower reservoir has been proposed at an elevation of 425 meters with geographic coordinates of 20.403° latitude and 75.192° longitude to generate a gross hydraulic head of 350 meters. The storage volume of reservoirs in this alternative has been worked out to 19 million cubic meters and features a plan length of water conductor system of 1.7 kilometers. This alternative has an installed generation capacity of 2500 MW with an energy storage capacity of 15000 MWh.

f) Alternative 6– PSP-5

The upper reservoir has been proposed at an elevation of 765 meters with geographic coordinates of 20.426° latitude and 75.264° longitude and the lower reservoir has been proposed at an elevation of 425 meters with geographic coordinates of 20.442° latitude and 75.253° longitude to generate a gross hydraulic head of 340 meters. The storage volume of reservoirs in this alternative has been worked out to 10 million cubic meters and features a plan length of water conductor system of 1.7 kilometers. This alternative has an installed generation capacity of 1300 MW with an energy storage capacity of 7800 MWh.

g) Alternative 7– PSP-6

The upper reservoir has been proposed at an elevation of 715 meters with geographic coordinates of 20.461° latitude and 75.377° longitude and the lower reservoir has been proposed at an elevation of 405 meters with geographic coordinates of 20.475° latitude and 75.387° longitude to generate a gross hydraulic head of 310 meters. The storage volume of reservoirs in this alternative has been worked out to 13 million cubic meters and features a plan length of water conductor system of 1.5 kilometers. This alternative has an installed generation capacity of 1600 MW with an energy storage capacity of 9600 MWh.

h) Alternative 8– PSP-7

The upper reservoir has been proposed at an elevation of 805 meters with geographic coordinates of 20.484° latitude and 75.455° longitude and the lower reservoir has been proposed at an elevation of 435 meters with geographic coordinates of 20.502° latitude and 75.439° longitude to generate a gross hydraulic head of 370 meters. The storage volume of reservoirs in this alternative has been worked out to 17 million cubic meters and features a plan length of water conductor system of 1.8 kilometers. This alternative has an installed generation capacity of 2400 MW with an energy storage capacity of 14400 MWh.

i) Alternative 9– PSP-8

The upper reservoir has been proposed at an elevation of 685 meters with geographic

coordinates of 20.474° latitude and 75.421° longitude and the lower reservoir has been proposed at an elevation of 385 meters with geographic coordinates of 20.491° latitude and 75.419° longitude to generate a gross to 17 million cubic meters and features a plan length of water conductor system of 1.4 kilometers. This
alternative has an installed generation capacity of 2000 MW with an energy storage capacity of 12000 MWh.

Selection of preferred alternatives
The alternatives have been studied based on the following parameters and any alternative lying within any of the following zones has been discarded.

- Protected zone
- World heritage area
- Sanctuary
- Tiger corridor
- Elephant corridor
- Archaeological monument
- Buffer zone

Accordingly, PSP-1 to PSP-5 have been discarded as these alternatives have been falling within Gautala Autramghat Wildlife Sanctuary and its Eco-sensitive zone as per the notification issued by the Ministry of Environment, Forest and Climate Change, dated December 9, 2016, in New Delhi.

Further, PSP-6 is also discarded for further study as both the reservoirs and WCS in this alternative were falling on the forest land and having the lowest installed capacity.

Therefore, PSP-7 and PSP-8 have been considered the most promising alternatives with respect to the acquisition of minimum forest land (from topo sheets, Survey of India).

Comparative study of PSP-7 and PSP-8

The comparison study between PSP-7 and PSP-8 has been carried out based on project features
including considerations for the following parameters:-

- Head
  Reasonable head – preferably more than 300 m head to produce acceptable cyclic efficiency and be cost-effective.
- Storage capacity

Enough storage capacity in the upper reservoir so that water could be pumped up to the upper reservoir during off-peak hours and then be used for generation during peak hours.

- Distance between two reservoirs

  The minimum distance between the lower and upper reservoir would reduce the construction cost of the water conductor system.
- L/H ratio

  The minimum horizontal distance to head (L/H) ratio between the lower and upper reservoir, however, L/H should not be more than 10.
- Proximity of water body

  Search for the proximity of any waterbody or any existing reservoirs by utilizing a drainage network, satellite images, and Google Maps.
- Installed capacity and power potential

  Higher installed capacity and energy generation would be more advantageous.
- Cycle efficiency

  Greater cycle efficiency would be more beneficial.
- Resettlement and rehabilitation

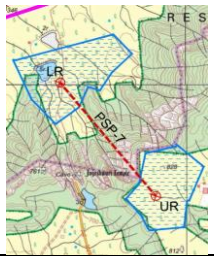
  Proximity of settlement area and involvement of rehabilitation, minimum houses, and minimum forest land would be more advantageous.
- Site Access

  The better accessible site would be more advantageous.
- High-level cost per MW

  The PSP with a lower cost per MW would be more attractive.

The comparative study of PSP-7 and PSP-8 is presented below:

S.no.	Parameters	PSP-7	PSP-8
1	Head (m)	370 (✓)	300
2	Energy storage	14400 (✓)	12000
3	Distance between two	1.8	1.1 (✓)
4	L/H ratio	4.86	3.67 (✓)
5	Proximity of water bodies	The nearest Gavhlya Dam is approx. 8 km from LR7 and Bahula Dam is approx 21.5 km	The nearest Gavhlya Dam is approx. 9 km from LR8 and Bahula Dam is approx. 22 km
6	Installed capacity	2400 (✓)	2000
7	Cycle efficiency	76%	77 %(✓)

8	Suitability and land availability private/ public/ forest/ protected wildlife.		 (✓)
9	Site Access	The reservoirs are accessible by village road, SH, and NH. Approx 5 km stretch of village roads are not motorable for both the reservoirs.	The reservoirs are accessible by village road, SH, and NH. Approx 1 km stretch of village roads is not motorable for the lower
10	High-level Cost per	1.14(✓)	1.29
11	Social issues (Google Earth and site visit)	Few houses are there in the upper and lower reservoir	No houses are there in the upper and lower reservoirs (✓)
12	Land requirement (Ha)	419.5	344(✓)
13	Transmission lines (Km) up to	70 (✓)	71

Choice of the final project layout

Taking into consideration the comparative study presented in the above table, it is evident that PSP-8 requires lesser forest land acquisition and has a lesser number of houses, and better accessibility. Therefore, this has been considered for the preparation of the pre-feasibility report owing to its advantages over other alternatives.

xii. Status of Litigation Pending against the proposal, if any. **No**

xiii. The salient features of the project are as under:

- **EAC Meeting Details:**

EAC meeting/s	23rd Meeting
Date of Meeting/s	29.01.2025
Date of earlier EAC meetings	Nil

- **Project details:**

Name of the Proposal	Ghosla Close Loop Pumped Storage Hydro Electric Project
Location (Including coordinates)	Lower Reservoir : 75.419º E; 20.491º N Upper Reservoir : 75.421º E; 20.474º N
Inter- state issue involved	No
Seismic zone	Zone-II

- **Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	2000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

- **Electricity generation capacity:**

Powerhouse Installed Capacity	2000 MW
Generation of Electricity Annually	4161 MU
No. of Units	8 nos. (6X300 MW+2X100 MW)
Additional information (if any)	Nil

- **ToR/EC Details:**

Cost of project	9899.95 Cr.
Total area of Project	350.0 ha
Height of Dam from River Bed (EL)	Lower Dam – 31.0 m Upper Dam –32.0 m
Length of Tunnel/Channel	1131.0 m
Details of Submergence area	224.0 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Closed Loop Pumped Storage Project (PSP)

Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. If not the E-Flows maintain criteria for sustaining river ecosystem.	No

- **Muck Management Details:**

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	65 ha (58 ha in Non-Forest Land; 7 ha in Forest Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

- **Land Area Breakup:**

Private Land	317.75 ha
Government land/Forest Land	32.25 ha
Submergence area/Reservoir area	224.0 ha
Land required for project components	126.0 ha
Additional information (if any)	Nil

- **Presence of Environmentally Sensitive areas in the study area**

Forest Land/ Protected Area/Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate / letter/ Remarks**
Reserve Forest/Protected Forest Land	--	There is no Protected Area in the vicinity of the proposed project. Gautala Autramghat WLS is approx. 17.5 km far from the proposed project area.
National Park	--	
Wildlife Sanctuary	--	

- **Court case details: Nil**

- **Previous EC compliance and necessary approvals:**

Particulars	**Letter no. and date**
Certified EC compliance report (if applicable)	Not Applicable
Status of Stage- I FC	Yet to Apply
Additional detail (If any)	Nil
Is FRA (2006) done for FC-I	Yet to Apply

- **Miscellaneous**

Particulars	**Details**
Details of consultant	M/s. R S Envirolink Technologies Pvt. Ltd. (RSET) (NABET Accredited Consultant Organization) Certificate No : NABET/EIA/2225/RA0274 Validity : August 15, 2025 Contact Person : Mr. Ravinder Bhatia Name of Sector : River Valley and Hydroelectric Projects Category : A MoEF Schedule : I(C) Address : 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana - 122009 E-mail : ravi@rstechnologies.co.in Land Line : (0124) 4295383 Cellular : (+91) 9810136853
Project Benefits	• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal

	technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. • Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: o Least expensive source of electricity, not requiring fossil fuel for generation o An emission-free renewable source o Balancing grid for demand driven variations o Balancing generation driven variations o Voltage support and grid stability Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.
Status of other statutory clearances	Forest Clearance - Online application seeking forest diversion for around 32.25 Ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies
Additional detail (If any)	Nil

23.3.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Ghosla Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 350 Ha at Village Wadi, Tidka, Shewale etc, Sub District Pachora, Sillod and Soegaon, District Jalgaon and Aurangabad by M/s Megha Engineering & infrastructures Limited.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The EAC observed that the total land requirement for the Ghosla Pumped Storage Project (PSP) is estimated at 344.9 hectares (ha), comprising 315.4 ha of non-forest land and 29.5 ha of forest land. However, the application for Stage-I Forest Clearance (FC) has not yet been submitted, necessitating further action from the Project Proponent. The proposed project site does not fall within any Protected Area, and the nearest protected zone, Gautala Autramghat Wildlife Sanctuary (WLS), is located 17.5 km away.

The EAC further noted that the total water requirement for the project is 17.49 Million Cubic Meters (MCM) for initial reservoir filling, with an annual replenishment requirement of 3.59 MCM from the Bahula Reservoir. However, given that the project is located in the drought-prone districts of Jalgaon and Aurangabad, the EAC raised concerns about water availability and its potential impact on the region's ecosystem. To ensure sustainability, the EAC recommended conducting a comprehensive Water Utilization Mapping within a 10 km radius of the project site. This study should include:

- Assessment of all surface water sources (rivers, lakes, reservoirs, and canals)
- Evaluation of groundwater availability (aquifer condition, recharge potential, and extraction levels)
- Mapping of existing water users (agriculture, industries, and domestic consumption)
- Analysis of seasonal variations in water availability
- Assessment of potential risk for depletion of water availability due to project installation

The EAC emphasized that this study is critical to maintaining the long-term water security and ecological balance of the region.

Additionally, the Project Proponent has submitted a Memorandum of Understanding (MoU) dated 31.07.2024, signed between the Department of Water Resources, Government of Maharashtra and M/s Megha Engineering & infrastructures Limited, granting in-principle approval for the establishment of the Ghosla Pumped Storage Project with a capacity of 2000 MW.

23.4.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Specific ToR issued by the Ministry for Close Loop Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed

construction of the project for Ghosla Close Loop Pumped Storage Hydro Electric Project (2000 MW) in an area of 350 Ha at Village Wadi, Tidka, Shewale etc, Sub District Pachora, Sillod and Soegaon, District Jalgaon and Aurangabad by M/s Megha Engineering & infrastructures Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

[A] Environmental Management and Biodiversity Conservation:

i. PP shall submit the Water Utilization Mapping within a 10 km radius of the project for sustainability of ecosystem of the region.

ii. Action plan for survival or diversion of the rivulets/stream, if any, leading to join Reservoir shall be submitted.

iii. Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.

iv. Explore the possibilities for reducing the Forest land requirement. The application for obtaining Stage I FC for 29.5 ha of forest land involved in the project shall be submitted within stipulated time.

v. Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.

vi. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.

vii. PP shall submit the detailed plan for filling the reservoir from the Bahula reservoir along with necessary approval form water resource department.

viii. Transportation Plan for transporting construction materials shall be submitted.

ix. Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.

x. The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.

xi. Calculation and values of GHGs (CO2, CH4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.

xii. The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.

xiii. Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted.The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.

xiv. Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted in terms of construction and operation phase.

xv. Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.

xvi. Cumulative Impact of projects in the basin on carrying capacity and sustainability of Reservoir/ River /nala of catchment area due to tapping of water for filling reservoir shall be studied.

xvii. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.

xviii. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.

xix. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.

xx. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be

prepared and incorporated in EIA/ EMP report.

xxi. Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

[B] Socio-economic Study

i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.

ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.

iii. PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.

iv. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.

[C] Muck Management

i. Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided.

ii. Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.

iii. Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area.

iv. Restoration plan for construction area including dumping site of excavated materials

by levelling, filling up of burrow pits, landscaping etc.

[D] Disaster Management

i. Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.

ii. The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks.

[E] Miscellaneous

i. Both capital and recurring expenditure under EMP shall be submitted.

ii. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

iii. The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.

iv. Drone video of project site shall be recorded and to be submittted.

v. Undertaking need to be submitted on affidavit stating that no activities has been started on the project site.

vi. Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.

vii. Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.

viii. As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable.

Agenda Item No. 23.5

Saidongar 1 - Karjat Open Loop Pumped Storage Project (3000 MW) in an area of 377 Ha at Village Potal, Saidongar, Ambot, Dhak, Bhaliwadi, Sub District Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 3 Private Limited - Terms of References (TOR) – reg.

[Proposal No. IA/MH/RIV/517008/2025; F. No. J-12011/04/2025-IA.I (R)]

23.5.1: The proposal is for grant of Terms of Reference (TOR) to the project for Saidongar 1 - Karjat Open Loop Pumped Storage Project (3000 MW) in an area of 377 Ha at Village Potal, Saidongar, Ambot, Dhak, Bhaliwadi, Sub District Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 3 Private Limited.

23.5.2: The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. The Saidongar 1 - Karjat Open Loop Pumped Storage Project envisages construction of two artificial reservoirs at village Potal, Saidongar, Ambot, Dhak, Bhaliwadi, Sub District Karjat, District Raigad, Maharashtra. Saidongar-1 (Karjat) Off-stream Open Loop Pumped Storage Project (PSP) is proposed with an installed capacity of 3000 MW/18000 MWH.

ii. The geographical co-ordinate of the project are Lower Dam: 73°25’34” E; 18°54’37” N; Upper Dam : 73°24'32" E; 18°54'15" N.

iii. The Project comprises of formation of new upper reservoir with a gross storage capacity of 0.56 TMC (15.87 MCM) and a new lower reservoir with a gross storage capacity of 1.02 TMC (28.96 MCM).

iv. The upper reservoir will be constructed with maximum Embankment height of 27.00m from NSL, and the lower reservoir will be constructed with maximum dam height of 59.00m from the deepest riverbed level to create the desired storage capacity. The scheme of operation for the project is with 6.00 Hours of peak power per day and 6.88 Hours for pumping back the water to the upper reservoir. The proposed lower reservoir is located on a seasonal stream in the Raigad District, whereas the UR is proposed on the left bank at a higher plateau to the west of proposed lower reservoir. The seasonal stream is tributary of River Ulhas.

v. **Land requirement:** The total land required for the construction of various components and related works for Saidongar-1 Karjat PSP is estimated to be around 377.0 ha, out of which 144.0 ha is non-forest land and 233.0 ha is forest land. Diversion of forest land

for non-forest purposes will be involved for construction of Saidongar-1 Karjat project components. Therefore, Forest Clearance is required to be obtained under the Forest Conservation Act. There is no Protected Area in the vicinity of the proposed project. Bhimashankar WLS is about 15.0 Km from site, is the nearest protected area.

vi. **Demographic details in 10 km radius of project area:** The proposed project reservoir area encompasses four villages: Dhak, Pali T. Kothal Khalathi, Done, and Potal located in the Karjat tehsils of Raigad district. The local population is predominantly tribal, with tribal communities comprising around 90% of the residents. However, Potal village has a lower tribal population, making up just 6%.

- According to secondary literature, the main tribal groups in the area are Thakurs, Mahadev Kolis, and Katkaris, who together form the majority of the population.
- Agriculture is the primary livelihood in the project area, serving as the main source of income for the residents. Agriculture here is largely subsistence-based, with a single rainfed crop of paddy cultivated in lowland areas and millets (such as finger millet and proso millet) grown on the gentle slopes during the Kharif (monsoon) season. Pulses are also intercropped with millets to diversify their agricultural yield.
- In addition to agriculture, the local population heavily depends on the surrounding forest for their livelihood. Forest resources provide firewood, fodder, and minor forest produce, which are essential for their daily sustenance and income.
- The residents of the project area speak various regional languages, with Marathi being the official language and the most widely spoken.

vii. **Water requirement:** Saidongar 1 - Karjat PSP (3000 MW) will require 23 MCM for initial reservoir filling and thereafter ~ 3 MCM per year will be required on annual basis from catchment of Ulhas River for restoring the storage capacity lost due to evaporation.

viii. **Project Cost:** The estimated project cost is Rs 13017.302 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).

ix. **Project Benefit:** Total Employment will be 2000 persons as direct & persons indirect after expansion.

x. **Environmental Sensitive area:** There is no Protected Area in the vicinity of the proposed project. Bhimashankar WLS is 15 km far from the proposed project area. River/ water body, Lower reservoir is located on Pej River, a tributary of Ulhas River, is flowing in south to north direction.

xi. MoU signed with the Government of Maharashtra dated 03-09-2024.

xii. **Alternative Studies:**

The major aspects considered for formulation of layouts are as given below:

- Utilization of available head at project site to the maximum extent feasible.
- Development of economical and optimized layout.
- Ease of construction.
- Minimal area of land acquisition to accommodate various project components.
- Avoid / minimize submergence of forest land.
- Topography and geology

Considering one lower reservoir (LR-1) and three upper reservoirs are identified (UR- 1, 2 and 3). With these set of upper and lower reservoirs, four alternative layouts have been formulated for the alternative studies. LR-1 being a common lower reservoir both for Saidongar-1 and 2 PSP, the optimum storage capacity of the proposed lower reservoir (at valley) has been calculated based on Saidongar-1 and 2 project's requirement.

Four alternative layouts have been prepared for Saidongar 1 - Karjat PSP, which are mentioned below:

Alternative 1:	Upper Reservoir -1 (UR-1) +Lower Reservoir (LR-1)
Alternative 2:	Upper Reservoir -2 (UR-2) + Lower Reservoir (LR-1)
Alternative 3:	Upper Reservoir -3 (UR-3) + Lower Reservoir (LR-1)
Alternative 4:	Upper Reservoir -1 (UR-1) + Lower Reservoir (LR-1)

a) Except 'Alternative-4' in all other four alternatives underground powerhouse is proposed. In Alternative-4 a deep pit powerhouse is planned. Also, in this alternative- 4, to accommodate the powerhouse, the dam alignment is slightly skewed in the left bank, however, length and height of the dam is almost same. Hence, in Alternative- 4, lower reservoir is also termed as LR-1.
b) Alternative 3 is rejected due to highest L/H ratio, highest overall land requirement and partial submergence of a village leading to displacement.
c) Alternative 2 is rejected due to highest forest land requirement among all the four alternatives.
d) In Alternative 1 and 4 total land requirement and forest land requirement is comparable and no displacement is envisaged, however, alternative 4 is considered better due to pit type powerhouse, reducing construction period and hence lower construction phase impacts.
e) Therefore, Alternative 4 is selected.

xiii. Status of Litigation Pending against the proposal, if any. **No**

xiv. The salient features of the project are as under: -

- **EAC Meeting Details:**

EAC meeting/s	23rd Meeting
Date of Meeting/s	29.01.2025
Date of earlier EAC meetings	Nil

- **Project details:**

Name of the Proposal	Saidongar 1 Karjat Open Loop Pumped Storage Project
Location (Including coordinates)	Lower Dam: 73°25’34” E; 18°54’37” N Upper Dam: 73°24'32" E; 18°54'15" N
Inter- state issue involved	No
Seismic zone	Zone-III

- **Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	3000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

- **Electricity generation capacity:**

Powerhouse Installed Capacity	3000 MW
Generation of Electricity Annually	6241.50 MU
No. of Units	11 nos. (9X300 MW+2X150 MW)
Additional information (if any)	Nil

- **ToR/EC Details:**

Cost of project	13017.302 Cr.
Total area of Project	377.0 ha
Height of Dam from Riverbed (EL)	Lower Dam – 59.0 m Upper Dam –27.0 m

Length of Tunnel/Channel	9959.0 m
Details of Submergence area	228.1477 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Off-Stream Open Loop Pumped Storage Project (PSP)
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then c) E-flow with TOR /Recommendation by d) EAC as per CIA&CC study of River Basin. If not the E-Flows maintain criteria for sustaining river ecosystem.	No

- **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt. land)	41.8847 ha Non-Forest Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring Mechanism for Muck Disposal	Will be Provided in EIA/EMP report

- **Land Area Breakup:**

Private Land	144.0 ha
Government land/Forest Land	233.0 ha
Submergence area/Reservoir area	228.1477 ha
Land required for project components	148.8523 ha
Additional information (if any)	Nil

- **Presence of Environmentally Sensitive areas in the study area**

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate / letter/ Remarks
Reserve Forest/Protected Forest Land	--	There is no Protected Area in the vicinity of the proposed project. Bhimashankar WLS is approx. 15 km far from the proposed project area.
National Park	---	
Wildlife Sanctuary	---	

- **Court case details: Nil**

- **Previous EC compliance and necessary approvals:**

Particulars	Letter no. and date
Certified EC compliance report (if applicable)	Not Applicable
Status of Stage- I FC	Online application seeking forest diversion for around 233.0 Ha has been submitted vide proposal no. FP/MH/HYD/IRRIG/515850/2024. Status: Pending at MS for acceptance in PSC-I
Additional detail (If any)	Nil
Is FRA (2006) done for FC-I	Yet to Apply

- **Miscellaneous**

Particulars	Details
Details of consultant	M/s. R S Envirolink Technologies Pvt. Ltd. (RSET) (*NABET* Accredited *Consultant Organization*) Certificate No : NABET/EIA/2225/RA0274 Validity : August 15, 2025 Contact Person : Mr. Ravinder Bhatia Name of Sector : River Valley and Hydroelectric Projects Category : A

	MoEF Schedule : I(C) Address : 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana - 122009 E-mail : ravi@rstechnologies.co.in Land Line : (0124) 4295383 Cellular : (+91) 9810136853
Project Benefits	• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. • Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: o Least expensive source of electricity, not requiring fossil fuel for generation o An emission-free renewable source

	○ Balancing grid for demand driven variations ○ Balancing generation driven variations ○ Voltage support and grid stability Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.
Status of other statutory clearances	Forest Clearance - Online application seeking forest diversion for around 233.0 Ha has been submitted vide proposal no. **FP/MH/HYD/IRRIG/515850/2024**. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies
Additional detail (If any)	Nil

23.5.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Saidongar 1 - Karjat Open Loop Pumped Storage Project (3000 MW) in an area of 377 Ha at Village Potal, Saidongar, Ambot, Dhak, Bhaliwadi, Sub District Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 3 Private Limited.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The EAC observed that earlier Project was appraised for grant of TOR in EAC meeting dated 11/08/2023 and after recommendation TOR was accorded by the MoEF&CC on 23/09/2023 for conducting EIA/EMP and Public hearing. PP submitted that there is no change in location and installed capacity of project, however, there are changes in the water source and land requirement. Further, due to formation of SPV and revised MoU with state government, project name and company name has also changed. Therefore, instead of TOR amendment, PP has applied for a fresh TOR.

The EAC observed that the total land requirement for the construction of various components and associated works of the project is estimated at 377.0 hectares (ha), comprising 144.0 ha of non-forest land and 233.0 ha of forest land. It was noted that an application for Stage-I Forest Clearance (FC) seeking the diversion of 233.0 ha of forest land has been submitted via proposal no. FP/MH/HYD/IRRIG/515850/2024.

Furthermore, the EAC noted that no Protected Area lies in the immediate vicinity of the proposed project. The Bhimashankar Wildlife Sanctuary (WLS) is located 15 km away. Additionally, the lower reservoir of the project is situated on the Pej River, a tributary of the Ulhas River, which flows in a south-to-north direction. This hydrological consideration is crucial for assessing the project's environmental impact on water bodies.

The EAC further observed that the one-time water filling requirement for Saidongar-1 PSP has been estimated at 23 MCM, which, as per the Water Resources Department (WRD) approval, will be sourced from the catchment area of the lower dam without impacting downstream users. The annual replenishment requirement has been estimated at 3 MCM, which will also be sourced from the same catchment. The Project Proponent (PP) clarified that 23 MCM of water would be captured from the catchment over three years (i.e., 7 to 8 MCM per year from the 34.177 MCM net yield available at the lower dam). Additionally, the annual recoupment of 3 MCM would be captured each year, while the remaining natural flow (~31 MCM) will continue downstream without any impact from the project. Also, Design Note on Water availability study for the proposed project has been carried out by the water resources department, Govt. of Maharashtra vide certificate no. WFR/Ulhas River Sub Basin/992 dated 13.01.2025

Additionally, the Project Proponent has submitted a Memorandum of Understanding (MoU), dated 06.06.2023 and 22.08.2024 which has been signed between the Department of Water Resources, Government of Maharashtra and M/s Torrent Psh 3 Private Limited. The MoU grants in-principle approval for the establishment of the Pumped Storage Project with a capacity of 3000 MW in Dhak village, Kajrat, Raigarh, Maharashtra.

The EAC emphasized that the PP should make provisions in the project design to release self-catchment water downstream of the stream during the monsoon season. The PP was directed to submit hydrological data, certified by the Central Water Commission (CWC) or the State Water Resources Department, regarding the amount of water received by the small stream where the lower reservoir is proposed. Additionally, the PP was instructed to submit a monitoring mechanism for releasing the self-catchment water from the small stream, along with an action plan for the conservation and protection of other streams and rivulets within a 10 km radius of the project.

23.5.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Specific ToR issued by the Ministry for Open Loop

Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed construction of the project for Saidongar 1 - Karjat Open Loop Pumped Storage Project (3000 MW) in an area of 377 Ha at Village Potal, Saidongar, Ambot, Dhak, Bhaliwadi, Sub District Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 3 Private Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

[A] Environmental Management and Biodiversity Conservation:

i. The PP shall submit 10 years water availability data certified by the CWC/State Water Resource Department for quantity of water that is received annually in the small stream on which Lower reservoir is proposed.

ii. The PP will submit a monitoring mechanism for releasing the self -catchment water of small stream draining in to lower reservoir of the project along with action plan for conservation and protection of other streams/rivulets draining in to upper and lower reservoirs.

iii. The Project Proponent (PP) shall submit a detailed action plan for the survival or diversion of any rivulets or streams that may be impacted by the project, particularly those that flow into or join the Pej River, a tributary of River Ulhas. The action plan should include measures to ensure that these water bodies are adequately protected or diverted in a manner that does not negatively affect the overall hydrology of the area. The PP should also provide an assessment of potential environmental impacts on these streams and propose mitigation measures to minimize any adverse effects.

iv. Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.

v. Explore the possibilities for reducing the Forest land requirement.

vi. Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.

vii. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.

viii. PP shall submit the detailed plan for filling the reservoir from the catchment along with necessary approval form water resource department.

ix. Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within proposed the Wildlife Sanctuary shall be included in the EIA report.

x. Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.

xi. The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.

xii. Calculation and values of GHGs (CO2, CH4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.

xiii. The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.

xiv. Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted. The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.

xv. Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted in terms of construction and operation phase.

xvi. Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.

xvii. Cumulative Impact of projects in the basin on carrying capacity and sustainability of Reservoir/ River /nala of catchment area due to tapping of water for filling reservoir shall be studied.

xviii. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.

xix. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact

zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.

xx. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.

xxi. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.

xxii. Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

[B] Socio-economic Study

i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.

ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.

iii. PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.

iv. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.

[C] Muck Management

i. Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided.

ii. Details of muck management such as dumping sites and its locations, transportation

plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.

iii. Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area.

iv. Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc.

[D] Disaster Management

i. Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.

ii. The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks.

[E] Miscellaneous

i. TOR accorded by the MoEF&CC on 23/09/2023 to the stands null and void.
ii. Both capital and recurring expenditure under EMP shall be submitted.

iii. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

iv. The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.

v. Drone video of project site shall be recorded and to be submittted.

vi. Undertaking need to be submitted on affidavit stating that no activities has been started on the project site.

vii. Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.

viii. Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum

No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.

ix. As per Ministry's OM dated 1st August, 2013, the application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable.

Agenda Item No. 23.6

Saidongar 2 - Maval Open Loop Pumped Storage Project (1200 MW) in an area of 141.44 Ha at Village Dhak, Kusur, Pali T. Kothal Khalathi and Saidongar, Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 4 Private Limited - Terms of References (TOR) – reg.
[Proposal No. IA/MH/RIV/516980/2025; F. No. J-12011/05/2025-IA.I (R)]

23.6.1: The proposal is for grant of Terms of Reference (TOR) to the project for Saidongar 2 - Maval Open Loop Pumped Storage Project (1200 MW) in an area of 141.44 Ha at Village Dhak, Kusur, Pali T. Kothal Khalathi and Saidongar, Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 4 Private Limited.

23.6.2: The Project Proponent and the accredited Consultant R. S. Envirolinks Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. The Saidongar 2 - Maval Open Loop Pumped Storage Project envisages construction of two artificial reservoirs at village Dhak, Kusur, Pali T. Kothal Khalathi and Saidongar, Karjat, District Raigarh, Maharashtra.

ii. The geographical co-ordinate of the project are Lower Dam: 73º25'34" E; 18º54'37" N; Upper Dam : 73°26'50" E; 18°53'60" N.The Saidongar 2 - Maval Pumped Storage Project (PSP) is proposed with an installed capacity of 1200 MW/7200 MWH. The Project comprises of formation of new upper reservoir with a gross storage capacity of 0.26 TMC (7.22 MCM) and a new lower reservoir with a gross storage capacity of 1.02 TMC (28.96 MCM). This scheme is categorized as an Off-Stream Open Loop type project.

iii. The upper reservoir will be constructed with maximum Embankment height of 29.00m from NSL, and the lower reservoir will be constructed with maximum dam height of 59.00m from the deepest riverbed level to create the desired storage capacity. The scheme of operation for the project is with 6.00 Hours of peak power per day and 6.87 Hours for pumping back the water to the upper reservoir.

iv. The proposed lower reservoir is located on a seasonal stream in the Raigad District, whereas the upper reservoir is proposed near Kusur village on the right bank and a common lower reservoir is envisaged near Pali T. Kothal Khalathi village. The seasonal stream is tributary of River Ulhas.

v. **Land requirement:** The total land required for the construction of various components and related works for Saidongar 2 - Maval PSP is estimated to be around 141.44 ha, out of which 105.84 ha is non-forest land and 35.6 ha is forest land. Diversion of forest land for non-forest purposes will be involved for construction of Saidongar 2 - Maval project components. Therefore, Forest Clearance is required to be obtained under the Forest Conservation Act. There is no Protected Area in the vicinity of the proposed project. Bhimashankar WLS is about 15.0 Km from site, is the nearest protected area.

vi. **Demographic details in 10 km radius of project area:**

- The proposed project reservoir area encompasses three villages: Kusur, Pali T. Kothal Khalathi, and Saidongar, located in the Maval and Karjat tehsils of Raigad district.
- The primary inhabitants of the project area are tribal communities, constituting approximately 70% of the population. However, in Saidongar, there is no tribal population.
- According to secondary literature, the main tribal groups in the area are Thakurs, Mahadev Kolis, and Katkaris, who together form the majority of the tribal population.
- Agriculture is the primary livelihood in the project area, serving as the main source of income for the residents. Agriculture here is largely subsistence-based, with a single rainfed crop of paddy cultivated in lowland areas and millets (such as finger millet and proso millet) grown on the gentle slopes during the Kharif (monsoon) season. Pulses are also intercropped with millets to diversify their agricultural yield.
- In addition to agriculture, the local population heavily depends on the surrounding forest for their livelihood. Forest resources provide firewood, fodder, and minor forest produce, which are essential for their daily sustenance and income.
- The residents of the project area speak various regional languages, with Marathi being the official language and the most widely spoken.

vii. **Water requirement:** Saidongar 2 - Maval PSP (1200 MW) will require 13 MCM for initial reservoir filling and thereafter ~ 2 MCM per year will be required on annual basis from catchment of Ulhas River for restoring the storage capacity lost due to evaporation.

viii. **Project Cost:** The estimated project cost is Rs 6088.67 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).

ix. **Project Benefit**: Total Employment will be 1500 persons as direct & persons indirect after expansion.

x. **Environmental Sensitive area:** There is no Protected Area in the vicinity of the proposed project. Bhimashankar WLS is 15 km far from the proposed project area. River/ water body, Lower reservoir is located on Pej River, a tributary of Ulhas River, is flowing in south to north direction.

xi. MoU signed with Government of Maharashtra dated 03-09-2024.

xii. **Alternative Studies:**

The major aspects considered for formulation of layouts are as given below:

- Utilization of available head at project site to the maximum extent feasible.
- Development of economical and optimized layout.
- Ease of construction.
- Minimal area of land acquisition to accommodate various project components.
- Avoid / minimize submergence of forest land.
- Topography and geology

Considering above aspects three upper reservoir locations (UR-1, 2 & 3) and three lower reservoir (LR-1, 2 and 3) locations are identified. It is observed that at proposed upper reservoir locations the topography is very flat, hence for the alternative study all the upper dams are considered as embankment type of dam, whereas at lower reservoir area 'V' shaped valley exists where base width is not much therefore a concrete gravity type dam has been considered for LR. However, the type of dam will be finalised after detailed geological exploration at site. With these identified upper and lower reservoirs various alternative layouts has been prepared.

Four alternative layouts have been prepared for Saidongar 2 – Maval PSP, which are mentioned below:

Alternative 1:	Upper Reservoir -1 (UR-1) +Lower Reservoir (LR-1)
Alternative 2:	Upper Reservoir -3 (UR-3) + Lower Reservoir (UR-1)
Alternative 3:	Upper Reservoir -3 (UR-3) + Lower Reservoir (LR-3)
Alternative 4:	Upper Reservoir -2 (UR-2) + Lower Reservoir (LR-2)

- LR-1 is common with Saidongar 1, whereas LR-2 and LR-3 are u/s and d/s of LR-1 respectively for Saidongar 2 only.

- Except 'Alternative-4' in all other alternatives underground powerhouse is proposed. In Alternative-4 a deep pit powerhouse is planned.

- Considering the available head, in all the alternative the installed capacity of the project has been kept same for better comparison.

xiii. Status of Litigation Pending against the proposal, if any. **No**

xiv. The salient features of the project are as under: -

- **EAC Meeting Details:**

EAC meeting/s	23rd Meeting
Date of Meeting/s	29.01.2025
Date of earlier EAC meetings	Nil

- **Project details:**

Name of the Proposal	Saidongar 2 - Maval Open Loop Pumped Storage Project
Location (Including coordinates)	Lower Dam : 73º25’34” E; 18º54’37” N Upper Dam : 73°26'50" E; 18°53'60" N
Inter- state issue involved	No
Seismic zone	Zone-III

- **Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	1200 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

- **Electricity generation capacity:**

Powerhouse Installed Capacity	1200 MW
Generation of Electricity Annually	2496.60 MU
No. of Units	5 nos. (3X300 MW+2X150 MW)
Additional information (if any)	Nil

- **ToR/EC Details:**

Cost of project	6088.67 Cr.
Total area of Project	141.44 ha
Height of Dam from River Bed (EL)	Lower Dam – 59.0 m Upper Dam –29.0 m
Length of Tunnel/Channel	8,775.00 m
Details of Submergence area	54.89 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Off-Stream Open Loop Pumped Storage Project (PSP)
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then a) E-flow with TOR /Recommendation by b) EAC as per CIA&CC study of River Basin. If not the E-Flows maintain criteria for sustaining river ecosystem.	No

- **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt. land)	35 ha Non-Forest Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

- **Land Area Breakup:**

Private Land	105.84 ha
Government land/Forest Land	35.6 ha
Submergence area/Reservoir area	54.89 ha
Land required for project components	86.55 ha

Additional information (if any)	Nil

- **Presence of Environmentally Sensitive areas in the study area**

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate / letter/ Remarks**
Reserve Forest/Protected Forest Land	--	There is no Protected Area in the vicinity of the proposed project. Bhimashankar WLS is approx. 15 km far from the proposed project area.
National Park	---	
Wildlife Sanctuary	---	

- **Court case details: Nil**

- **Miscellaneous**

Particulars	**Details**
Details of consultant	M/s. R S Envirolink Technologies Pvt. Ltd. (RSET) (NABET Accredited Consultant Organization) Certificate No : NABET/EIA/2225/RA0274 Validity : August 15, 2025 Contact Person : Mr. Ravinder Bhatia Name of Sector : River Valley and Hydroelectric Projects Category : A MoEF Schedule : I(C) Address : 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana - 122009 E-mail : ravi@rstechnologies.co.in Land Line : (0124) 4295383 Cellular : (+91) 9810136853
Project Benefits	• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and

	reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. • Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: o Least expensive source of electricity, not requiring fossil fuel for generation o An emission-free renewable source o Balancing grid for demand driven variations o Balancing generation driven variations o Voltage support and grid stability Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.
Status of other statutory clearances	Forest Clearance - Online application seeking forest diversion for around 35.60 Ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies
Additional details (If any)	Nil

23.6.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Saidongar 2 - Maval Open Loop Pumped Storage Project (1200 MW) in an area of 141.44 Ha at Village Dhak, Kusur, Pali T. Kothal Khalathi and Saidongar, Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 4 Private Limited.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The EAC observed that earlier Project was appraised for grant of TOR in EAC meeting dated 11/08/2023 and after recommendation TOR was issued on 23/09/2023 for conducting EIA/EMP and Public hearing. PP submitted that there is no change in location and installed capacity of project, however, there are changes in the water source and land requirement. Further, due to formation of SPV and revised MoU with state government, project name and company name has also changed. Therefore, instead of TOR amendment, PP has applied for a fresh TOR.

The EAC observed that the total land requirement for the construction of various components and associated works of the project is estimated at 141.44 hectares (ha), comprising 105.84 ha of non-forest land and 35.6 ha of forest land. However, it was noted that an application for Stage-I Forest Clearance (FC) has not yet been submitted, which remains a critical regulatory requirement for project approval.

Furthermore, the EAC noted that no Protected Area lies in the immediate vicinity of the proposed project. The Bhimashankar Wildlife Sanctuary (WLS) is located 15 km away. Additionally, the lower reservoir for the project is located on the Pej River, a tributary of the Ulhas River, which flows in a south-to-north direction. This hydrological aspect is essential for assessing the project's potential environmental impact.

The EAC further observed that the one-time water filling requirement for Saidongar-2 PSP has been estimated at 13 MCM, which, as per the Water Resources Department (WRD) approval, will be sourced from the catchment area of the lower dam. Additionally, the annual replenishment requirement is estimated at 2 MCM, which will also be sourced from the same catchment. A Water Availability Study was conducted by the Water Resources Department, Government of Maharashtra, and a certification (Certificate No. WFR/Ulhas River Sub Basin/993 dated 13.01.2025) has been provided.

Moreover, the Project Proponent has submitted two Memorandums of Understanding (MoUs) dated 06.06.2023 and 22.08.2024, signed between the Department of Water Resources, Government of Maharashtra, and M/s Torrent PSH 4 Private Limited. These MoUs grant in-principle approval for the establishment of a 3000 MW Pumped Storage Project in Kusur village, Maval, Pune, Maharashtra.

The EAC emphasized that the PP should make provisions in the project design to release self-catchment water downstream of the stream during the monsoon season. The PP was directed to submit hydrological data, certified by the Central Water Commission (CWC) or the State Water Resources Department, regarding the amount of water received by the small stream where the lower reservoir is proposed. Additionally, the PP was instructed to submit a monitoring mechanism for releasing the self-catchment water from the small stream, along

with an action plan for the conservation and protection of other streams and rivulets within a 10 km radius of the project.

23.6.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Specific ToR issued by the Ministry for Open Loop Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed construction of the project for Saidongar 2 - Maval Open Loop Pumped Storage Project (1200 MW) in an area of 141.44 Ha at Village Dhak, Kusur, Pali T. Kothal Khalathi and Saidongar, Karjat, District Raigarh, Maharashtra by M/s Torrent Psh 4 Private Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR

[A] Environmental Management and Biodiversity Conservation:

i. The PP shall submit 10 years water availability data certified by the CWC/State Water Resource Department for quantity of water that is received annually in the small stream on which Lower reservoir is proposed.

ii. The PP will submit a monitoring mechanism for releasing the self -catchment water of small stream draining in to lower reservoir of the project along with action plan for conservation and protection of other streams/rivulets draining in to upper and lower reservoirs.

iii. The Project Proponent (PP) shall submit a detailed action plan for the survival or diversion of any rivulets or streams that may be impacted by the project, particularly those that flow into or join River Ulhas. The action plan should include measures to ensure that these water bodies are adequately protected or diverted in a manner that does not negatively affect the overall hydrology of the area. The PP should also provide an assessment of potential environmental impacts on these streams and propose mitigation measures to minimize any adverse effects.

iv. Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.

v. Explore the possibilities for reducing the Forest land requirement. The application for obtaining Stage I FC for 35.6 ha of forest land involved in the project shall be submitted within stipulated time.

vi. Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.

vii. Certificate and certified map from Chief Wildlife Warden shall be submitted

mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.

viii. PP shall submit the detailed plan for filling the reservoir from the catchment along with necessary approval form water resource department.

ix. Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within proposed the Wildlife Sanctuary shall be included in the EIA report.

x. Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.

xi. The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.

xii. Calculation and values of GHGs (CO_2, CH_4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.

xiii. The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.

xiv. Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted. The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.

xv. Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted in terms of construction and operation phase.

xvi. Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.

xvii. Cumulative Impact of projects in the basin on carrying capacity and sustainability of Reservoir/ River /nala of catchment area due to tapping of water for filling reservoir shall be studied.

xviii. Impact zone decided prior to base line data generation and accordingly, sampling

location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.

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xx. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.

xxi. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.

xxii. Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

[B] Socio-economic Study

i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.

ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.

iii. PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.

iv. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.

[C] Muck Management

i. Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided.

ii. Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.

iii. Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area.

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[E] Miscellaneous

i. TOR was accorded by the MoEF&CC on 23/09/2023 stands null and void.
ii. Both capital and recurring expenditure under EMP shall be submitted.

iii. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

iv. The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.

v. Drone video of project site shall be recorded and to be submitted.

vi. Undertaking need to be submitted on affidavit stating that no activities has been started on the project site.

vii. Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.

viii. Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.

ix. As per Ministry's OM dated 1st August, 2013, the application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable.

*****

ANNEXURE

ATTENDANCE

S. No.	Name of Member	Role
1.	Prof. Govind Chakrapani	Chairman
2.	Dr. Uday Kumar R Y	Member
3.	DR. J. V. Tyagi	Member
4.	Shri Ajay Kumar Lal	Member
5.	Dr. Mukesh Sharma	Member
6.	Shri Rajeev Varshney	Member Representative of Central Electricity Authority (CEA)
7.	Shri Balram Kumar	Member Representative of Central Water Commission (CWC)
8.	Shri Yogendra Pal Singh	Member Secretary

Approval of the Chairman

Re: [WARNING: ATTACHMENT(S) MAY CONTAIN MALWARE]Fwd: Re: [WARNING: ATTACHMENT(S) MAY CONTAIN MALWARE]Draft MOM of the 23rd EAC (RVHEP) meeting held on 29.01.2025-reg.

CG Chakrapani GovindaJoseph <govind.chakrapani@es.iitr.ac.in>
Thu, 06 Feb 2025 12:18:45 PM +0530 •

To "Yogendra Pal Singh" <yogendra78@nic.in>

Cc "chakrapani govind" <chakrapani.govind@gmail.com>

Reading 1 / 11

Approved.
Chakrapani