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

Minutes of EXPERT APPRAISAL COMMITTEE meeting River Valley and Hydro electric Projects held from 13/08/2024 to 13/08/2024

Date: 27/08/2024

MoM ID: EC/MOM/EAC/244949/7/2024

Agenda ID: EC/AGENDA/EAC/244949/7/2024

Meeting Venue: MOEF&CC, INDIRA PARYAVARAN BHAWAN

Meeting Mode: Physical

Date & Time:

13/08/2024	10:30 AM	05:30 PM

1. Opening remarks

The 13th meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 13th August, 2024 through Physical mode, under the Chairmanship of Prof. G. J. Chakrapani. The list of Members present in the meeting is at **Annexure**.

2. Confirmation of the minutes of previous meeting

Confirmation of the Minutes of the 12th EAC meeting:

The EAC confirmed the Minutes of the 12th EAC meeting held on 18/07/2024 to 19/07/2024 with following corrections:

[A] Correction in the Minutes of Agenda item No. 12.8 regarding Discussion on the Report of the Site visit undertaken by EAC(Sub-Committee), River Valley & Hydro-electric during 21.06.2023 to 25.06.2023 at Shongtong-Karcham (402 MW) Hydroelectric Power Project in District Kinnaur of Himachal Pradesh by M/s Shongtong Karchham Hydro Electric Project, HPPCL

The Member Secretary informed the EAC that site visit report of the EAC sub-Committee for the Shongtong-Karcham (402 MW) Hydroelectric Power Project in District Kinnaur of Himachal Pradesh by M/s Shongtong Karchham Hydro Electric Project, HPPCL was discussed by the EAC (RVHEP) during its 12th meeting held on 18/07/2024 to 19/07/2024. The EAC after acceptance of the report recommended following:

1. The PP will submit the information on following points as recommended by the EAC sub committee after conducting site visit:

a. The revised EMP along with status of implementation of the present EMP. Steps taken to mitigate the impacts of additional muck generation.
b. Status of implementation of Catchment Area Treatment Plan, R&R and other Management Measures.
c. Action Plan for maintaining the E-Flow.

The EAC observed that above recommendations of the EAC after perusal of the site visit report of the EAC Sub Committee could not be mentioned in the minutes of the 12th EAC meeting held on 18/07/2024 to 19/07/2024. Accordingly, EAC decided to incorporate the aforesaid recommendations in the Minutes.

[B] The proposal for grant of Terms of Reference (ToR) for conducting EIA study for proposed construction of Naying Hydro Electric Project of 1000 MW (4x250 MW) run-of-river project on river Siyom, in an area of 470.8 ha. located at Village Yapik, Hone, Lipo, Row and etc, Sub District Payum Circle and tato, District Shi Yomi & Siang, Arunachal Pradesh by M/s North Eastern Electric Power Corporation Ltd. [vide Proposal No. IA/AR/RIV/470969/2024] as an Agenda no 11.6 was deliberated in the 11th EAC meeting held on 27.06.2024. The EAC recommended the proposal for grant of Standard ToR along with certain additional TOR for conducting EIA study with Public consultation (Public Hearing + written submission). It was found that incorrect project details have been inadvertently mentioned at S. No xvi. Therefore, details mentioned at S. No xvi shall be read as follows:

Name of the Proposal	Naying Hydro Electric Project (1000 Mw) – Near Village- Yapik, Districts- Shi Yomi & Siang, State- Arunachal Pradesh
Location (Including coordinates)	Near Village- Yapik, Districts- Shi Yomi & Siang, State- Arunachal Pradesh Coordinates : Dam Site: 28°31'10"N, 94°30'25"E Powerhouse:28°31'53.60"N,94°33'54.30"E
Inter- state issue involved	No
Seismic zone	Zone V
Category of the project	A
Provisions	-
Capacity / Cultural command area (CCA)	1000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-
Powerhouse Installed Capacity	4 X 250 MW
Generation of Electricity Annually	Energy generation in 90% Dependable Year is 3809 MU
No. of Units	4
Additional information (if any)	-

Cost of project	Rs.9558.52 Crores (present day)
Total area of Project	470.80 Ha
Height of Dam from River Bed (EL)	108.0 m
Length of Tunnel/Channel	7080 m (Head Race Tunnel)
Details of Submergence area	160 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	E-flow values are 14.25 cumec, 42.19 cumec and 86.45 cumec for lean season, pre-monsoon and post-monsoon season

	respectively.
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 EAC as per CIA&CC study of River Basin. b) If not the E-Flows maintain criteria for sustaining river ecosystem.	a) EAC in 97th meeting held on 26 Aug, 2016 recommended the following "Environment flow release recommendation as mentioned in Siang basin study report shall be implemented for Naying, Tato-II and Hirong HEPs without any relaxation". NEEPCO carried out Power Potential Studies (PPS) based on recommendations of Basin Study report for introduction of e-flow for development of Naying HEP. The CEA vide letter dated 29.03.2022 cleared the PPS for Naying H. E. Project (1000MW) as submitted by NEEPCO. These e-flow values are 14.25 cumec, 42.19 cumec and 86.45 cumec for lean season, pre-monsoon and post-monsoon season respectively.
No. of proposed disposal area/(type of land-Forest/Pvt. land)	Total 6 No. of disposal sites have been identified/ land type USF category.
Muck Management Plan	About 30% of the muck generated is proposed to be reused for production of coarse and fine aggregates. The balance unutilized quantity shall be disposed off at the designated disposal sites. The muck disposal sites would be developed by constructing boulder filled gabion walls or stone masonry wall over concrete bases, as toe support to the muck. Detailed Muck Management Plan shall be included in the EIA/EMP Report.
Monitoring mechanism for Muck Disposal	When the capacity of any disposed site is exhausted; the top surface would be leveled and graded to make the surface area fit for some alternative use. The monitoring mechanism shall be detailed in EIA/EMP Report.

Private land	Nil
Government land/Forest Land	470.80 ha (total project area)
Submergence area/Reservoir area	160 Ha
Land required for project components	470.80 Ha (total project area)
Additional information (if any)	Total project area of 470.80 Ha is of USF category

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate/ letter/Remarks**
Reserve Forest/Protected Forest Land	No	-
National Park	No	
Wildlife Sanctuary	No	
Court Case	Nil	

Additional information (if any)	Nil
Affidavit/Undertaking	Nil
Additional information (if any)	

Particulars	**Letter no. and date**
Certified EC compliance report (if applicable)	Nil
Status of Stage- I FC	To be applied
Additional detail (If any)	Being applied afresh with reduced area.
Is FRA (2006) done for FC-I	-

Particulars	**Details**
Details of consultant	P and M Solution, C-88, Sector- 65, NOIDA-201301
Project Benefits	The project will improve access to social services like education, healthcare, etc. Improvement in direct and indirect employment and business opportunities locally. Continued CSR activities in and around the project areas. Financial benefit to the state by generating recurring revenue. With the revenue @12% free power and additional 1% for Local area development.
Status of other statutory clearances	CEA has accorded Concurrence to Naying HEP (1000 MW) on 11-09-2013. CEA transferred the Concurrence in favour of NEEPCO on 20-10-2023.
R&R details	Total 9 villages, with 120 families, is likely to be affected due to land acquisition for various components of the proposed HEP.
Additional detail (If any)	The project with total land of 644 Ha, was earlier considered by EAC for Environmental Clearance. The earlier EAC meeting details are as follow: • 66th EAC Meeting held on 04-05-2013 • 73rd EAC Meeting held on 26-03-2014 • 97th EAC Meeting held on 26-08-2016 MOEF&CC approved development of Naying HEP in the present form without any reduction of FRL. Land requirement has been reassessed at 470.80 Ha by NEEPCO and project diversion proposal is being submitted afresh with reduced area of 470.80 Ha.

3. Details of proposals considered by the committee

Day 1 -13/08/2024

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

13.1.1: 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.

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

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	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

e v el	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

S. No	Parameters	Min	Max	Standards
1	pH	6.59	8.06	8.5
2	Total Dissolved Solids, mg/L	89.7	156	500

quality at 1 location

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 06locations

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-serpenteagle (*Spilornis cheela*) is listed as Schedule I species.						

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

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.
	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.
	NHPC is abided to follow the provisions/ guidelines of issued by State Government/ Central Government related to free/ subsidized power to
	During the construction phase of the proposed project large number of skilled and unskilled workersshall 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.
	A District level committee has been constituted on dated 19.02.2024 for action plan to undertake the irrigation facilities in the area.
	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.
	A District level committee has been constituted on dated 19.02.2024 for action plan to undertake the irrigation facilities in the area.

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

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 of the project	A
Capacity / Cultural command area (CCA)	240 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-
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 foundation level)
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	-
Powerhouse Installed Capacity	240 MW
Generation of Electricity Annually	929.13 MWH
No. of Units	2 nos. (2 X 120 MW)
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.
Private land	85.0
Forest Land	17.0 (Underground)
Submergence area/Reservoir area	None
Land required for project components	102.0

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)	-	

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 Baramulla
Main issues raised during PH	
No. of people attended	340

Particulars	Details
Period of baseline data collection/Sampling period.	
(Air, noise, water, land)	
flora and fauna of the project area,	
aquatic ecology, etc.	

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
Socio-economic survey	May 2022		

	<table><tr><th>Parameters</th><th>Monsoon</th><th>Winter</th><th>Summer/ Pre-Monsoon</th></tr><tr><td>of Project affected villages</td><td></td><td></td><td></td></tr></table>
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)	

Particulars	**Letter no. and date**
Status of Stage- I FC	Under Process, REC recommended the proposal for in- principle approval on 25.01.2024 & the proposal was discussed in Advisory Committee, MoEFF & CC on dated 30.04.2024.
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

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	1346.05	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 Plan	144.00	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

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

S. No	Component of EMP	Capital Cost (Rs. In lakh)	Recurring Cost (Rs			
			Year 1	Year 2	Year 3	Year 4
7	Reservoir Treatment Plan*	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
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	2894.04	**558.06**	**789.13**	**689.99**	**681.38**
18	NPV under B-land#	116.66	0.00	0.00	0.00	0.00
	Total	3010.70	**558.06**	**789.13**	**689.99**	**681.38**

** 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.

3.1.3. Deliberations by the committee in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

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.

3.1.5. Recommendation of EAC

Deferred for ADS

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Bilaspur Pumped Storage Project (1000 MW) by **JINDAL RENEWABLE POWER PRIVATE LIMITED** located at **BILASPUR,CHHATTISGARH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/CG/RIV/454612/2023	J-12011/06/2024-IA.I (R)	11/12/2023	River Valley/Irrigation projects (1(c))

3.2.2. Project Salient Features

13.2.1: The proposal is for grant of Terms of Reference (ToR) to the project for Setting up of Bilaspur Close Loop Pumped Storage Project of capacity 1000 MW in an area of 274.5 Ha in Village Manjurpah & Karichhaper, District Bilaspur, Chhattisgarh by M/s Jindal Renewable Power Private Limited.
13.2.2: The Project Proponent and the accredited Consultant M/s R S Envirolink Technologies Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:
Forest Land : 163.0 ha
Non-forest Land : 111.50 ha
Total Land :274.50 Ha

- **Project details:**

Location	Lower Reservoir : 82°20'58.66"E;
(Including coordinates)	22°11'58.87"N
	Upper Reservoir : 82°21'22.13”E;
	22°13'9.21"N
Inter- state issue involved	No
Seismic zone	Zone-II

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	1000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

Powerhouse Installed Capacity	1000 MW
Generation of Electricity Annually	2872.2 MU
No. of Units	4 nos. (4X250 MW)

Additional information (if any)	Nil

Cost of project	5331.56 Cr.
Total area of Project	274.50 ha
Height of Dam from River Bed (EL)	Lower Dam – 30.0 m Upper Dam – 37.0 m
Length of Tunnel/Channel	1861.79 m
Details of Submergence area	92.19 ha (39.47ha for UR & 52.72ha for LR)
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 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

No. of proposed disposal area/ (type of land- Forest/Pvt. land)	92 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	135.50
Government land/Forest Land	166.0 ha
Submergence area/Reservoir area	128.0 ha
Land required for project components	173.50 ha
Additional information (if any)	Nil

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate / letter/ Remarks**

Reserve Forest/Protected Forest	--	There is no Protected Area in the vicinity of the proposed project. Achanakmar Tiger Reserve is about 34.0 Km from site is the nearest protected area from the proposed project.
Land		
National Park	--	
Wildlife Sanctuary	--	

Court Case	Nil
Additional information (if any)	Nil

Particulars	**Details**
Details of consultant	M/s. R S Envirolink Technologies Pvt. Ltd. (RSET) (*NABET* Accr edited *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, Gu rugram, Haryana - 122009
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 community by creating employment opportunities and will result in upliftment o f livelihood and socio-economic conditions.
Status of other statutory clea rances	Forest Clearance - Online application seeking forest diversion for ar ound 163.0 Ha after receipt of ToR Approval. Alongside, other statu tory clearances (as applicable) from State as well as Central govern ment will be obtained post completion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies

13.3.3: The Proposal was earlier considered by the EAC in its 6th meeting held on 23.01.2024 wherein the EAC deferred the proposal and sought additional information. Accordingly, the PP vide its reply dated 25.07.2024 re-submitted the proposal along with following information sought by the EAC:

Query 1: Site visit shall be conducted by a sub-committee of the EAC to examine forest status and alternative locations proposed by the project proponent

Reply: The EAC sub-committee visited project site from 10/05/2024 to 12/05/2024. The site visit report

was discussed in the EAC meeting held on 27/06/2024 and the Minutes of the Meeting (MoM ID: EC/MOM/EAC/900121/5/2024) were uploaded on 16/07/2024. Replies to EAC Observations/Suggestions on the site visit report are as follows:

S. No.	EAC Observations/Suggestions	JRPPL's Replies
1	Vegetative cover and forests being pri me issue due to their predominant pres ence, any decision on environment cle arance will heavily hinge on the forest clearance (FC). Therefore, grant of To R calls for strict condition of any furth er consideration for EC will be subject to Stage-I Clearance. Detailed docume nts pertaining to species diversity, dens ity, enumeration and proposed CA pla ns etc. should be submitted before EA C also, applying for FC.	As discussed with EAC during site visit, o n award of TOR we shall initiate the proce ss of baseline data collection and filing of application for diversion of forest land. W e shall include detailed documents pertain ing to species diversity, density, enumerat ion and CA land in the EIA report. We are well aware of the fact that stage I f orest clearance is pre-requisite for issue of environment clearance and therefore we w ill work for both clearances simultaneousl y.
2	The 16 km long pipeline proposed to withdraw water from the existing reser voir and later to fill the proposed lower reservoir to be given requisite details o f land and type of land requirement lik ely soil and area disturbance etc. This details should be an integral part of the overall proposal.	Noted, will be addressed in EIA/ EMP rep ort.
3	Necessary permission for water allocat ion from State Government and Mahan adi Water Dispute Tribunal (MWDT) (if applicable) should be obtained. The clarification regarding clearance/permi ssion from MWDT shall be submitted t hrough State Water Resource Departm ent.	JRPPL vide application dated 28/12/2023 applied for sanction of allotment of water (Water Availability Certificate) for Bilasp ur PSP to Water Resource Department, G ovt. of Chhattisgarh through State Investm ent Promotion Board, Raipur. The proposa l is under process.
4	Possibility be explored to reduce dump ing area by increasing height and verti cal capacity in case of forest land, if us ed for dumping of muck. Also, a full p rogressive reclamation with local speci es of fruit bearing trees and actions nee d to be placed while seeking EC.	We have re-designed the muck dumping a rea by increasing the height to reduce the area. Muck disposal area has been reduced from earlier proposed 116 ha to 92 ha. Du mping of muck is proposed in non-forest a rea and not in forest area.
5	Constructions of proposed reservoir bo undary/ peripheral walls/dams will req uire excavation, reuse and carriages. A t present, air quality and noise level is not at all a concern. However, adequat e measures need to ensure, no consider able damage to either local population (villages) or any existing streams/ nall ahs etc.	EIA report will address the baseline data (pre-project environment quality) and mak e prediction of impacts based on project a ctivities proposed during construction and operation. Appropriate mitigation measure s shall be recommended to minimize impa ct on surrounding population. A monitorin g program shall also be designed to periodically monitor environment quality parameters.
6	The 1.5 mts diameter pipe is proposed for filling the reservoir in the two mon	We shall explore the possibility of sharing the pipeline for local use with WRD.

	soon seasons. However, after filling of reservoir, this pipeline would be required for only 10-15% make up water annually. Therefore, it is advised to evolve a mechanism for using the full capacity of pipe by sharing with state authorities for water supply to the nearest town/villages/cities etc.	
7	Ambient Air Quality Monitoring Station shall be established in the villages for collecting the air quality data and impact assessment modelling due to construction and transportation of man/material shall be assessed and submitted in EIA/EMP report.	Ambient air quality monitoring and impact assessment modelling will be carried out during EIA study.
8	PP shall explore and demarcate the area for solid waste management/recycling to be generated during construction / operation since it was not clear from the present proposal.	Solid waste management plan preparation is part of the specific Tor for Pump Storage projects and shall be adhered to.
9	Conservation of flora fauna in existing Upper Reservoir area.	Inventory of flora and fauna in the upper reservoir will be prepared during baseline studies with the help of primary and secondary data. Biodiversity conservation and management plan shall be prepared to address the impacts.
10	Project Proponent shall explore alternate road for accessing the project area, movement of man and heavy machinery during investigation and survey of site. Same alternate road can be used for construction, if in case of grant of EC.	There will be no movement of heavy machinery during the investigation works. Currently, we use the village road for regular site visits, as it is the shortest route to the Bilaspur PSP. However, alternative routes are available and will be utilized during the construction phase. The alternative routes have been marked on Google map and enclosed at Annex-A.

Query 2: PP shall explore any alternate source of water nearer to the site and details of other consumers.

Reply:

Alternative Source 2: Constructing a water Intake located at Ghatora, just downstream of Kharang and Arpa rivers. This location has more catchment area than Khutaghat dam. The catchment area of Ghatora site is about 2022 sq.km. This location is about 25 km from the project site. Kharang river on which Khutaghat dam is constructed is a tributary of Arpa River which is itself a major tributary of the river Seonath that meets with Mahanadi. 38 years (From 1980-81 to 2017-18) annual runoff data of Arpa river available at Ghatora site is used to find the runoff at Khutaghat dam. Sketch showing tentative pipeline arrangement from Ghatora site to Project Lower reservoir is given below. Discharge data of Ghatora site has been submitted.

CONCLUSION

Among above two alternatives, Khutaghat dam is nearest to the Project and water is planned to be taken in flood season (2 seasons). Thus, requires less pipe length and pumping energy. Hence, it is preferred to obtain water from Khutaghat dam.

The Water allotment for the Project for nearest source i.e. Khutaghat Dam has been applied online to

Water Resources Department, Govt. Chhattisgarh on 28/12/2023 for sanction of allotment of water for Bilaspur PSP (1000MW) through the nodal Agency State Investment Promotion Board (SIPB) Government of Chhattisgarh. The application is under active consideration.

Query 3: PP shall explore the possibility to reduce the forest land for the proposed project and also for reduction of muck disposal area by increasing the height of muck dump.

Reply:

Regarding the possibility to reduce the forest land:

The Upper and Lower Reservoirs occupy maximum forest land for Bilaspur PSP, as against the other project components. The construction facility and muck disposal sites are planned in non-forest land. As suggested by EAC, the possibility of reduction of forest land has been explored by increasing the dam height.

Considering various technical parameters, it is proposed to increase the dam height of Lower Reservoir by about 4 m, resulting in reduction of forest land required by about 6 Ha. As such, in the present proposal, land required for lower reservoir has been revised from 71 Ha (planned in our original Proposal) to 65 Ha (proposed in the latest Proposal).

Upper reservoir is proposed over a flat-topped plateau having limited area due to its topography. As reservoir is to be built on a plateau, its area is restricted by its topography and height (Maximum height of about 40.0m). Increasing the height beyond this range is not technically feasible as it is to be constructed on a plateau. Thus, storage capacity of this reservoir is limited due to above constraints.

As per EAC sub-committee's recommendations in the site visit report, additional approach roads have been proposed to avoid the existing village roads. Therefore, land for approach road has increased from 10.5 ha (as proposed earlier) to 13.5 ha i.e. an increase of 3 Ha, making effective reduction in forest land by 3 ha.

Regarding reduction of muck disposal area by increasing the height of muck dump:

For construction of different components of the project, substantial surface and underground excavation in over burden and rock for dams, intake tunnel, pressure shaft, powerhouse and tailrace tunnel would be generated. The excavation shall result in large quantity of excavated material i.e. muck which have to be evacuated, disposed off and roller compacted or laid on mild slopes moving together with the excavation work to such designated areas where the muck piles do not substantially interfere with either environment / ecology. The disposal of muck has to be scientifically planned keeping in view the economic aspects necessitating nearness to the muck generating component of work, which understandably reduce the travel time of dumpers, less interference to surface flow and ground water aquifer and disposition of habitation. Based on the quantities of surface and underground excavation including 10% over break a muck management plan, shall be formulated to manage the disposal of muck and restore such areas from further degradation of the environment. During construction of the project, huge quantities of excavation will be carried out from the underground and surface components and shall be dumped in designated areas to provide stable slopes.

It is proposed to utilize about 50% of the excavated material as construction material for rockfill, shotcreting and for construction of various project components. The balance 50% shall have to be disposed off away from sites to make available the site clear. Retaining wall of 4-5m height was planned for the muck dumping area due to which the total muck dumping area was estimated as 116 Ha. However, we have now optimized the required area by adopting more height of retaining wall (upto 12m height) and thus the total area required for muck dumping is reduced from 116 Ha to 92 Ha. The required land requirement and the revised layout has been submitted.

The muck shall be properly roller compacted and dumped on slopes and treated to mix and match with the surrounding environment with least change in landscape.

The selection of muck disposal sites is carried out considering the quantity of the muck, landscape, cost effectiveness, nearness to source of generation, absence of ground and surface water, relief and scope for afforestation works. All the dumping locations shall be well supported at base and at higher elevation by suitable retaining structures. Subsequently all the spoil tips (muck disposal sites) will be developed by taking up plantation through bio-technological methods to generate a thick forest canopy over them. Sketch showing muck disposal arrangement has been submitted.

Following tables showing the land requirement in original and present proposal are given below:

Requirement of Land in Forest Area:

S.No.	Project Components	Earlier Land (Ha)	Current Land (Ha)
1	Upper Reservoir	57	57
2	**Lower Reservoir**	**71**	**65**
3	WCS excluding Dam area	17	17
4	Power House Complex	5	5
5	**Approach Roads**		
5.1	Approach Road to UR	8	7.1
5.2	Approach Road to VPS	-	0.6
5.3	Approach Road to PH	-	0.7
5.4	Approach Road to LR	-	0.3
5.5	Approach Road to Labour Camp	-	0.2
5.6	Approach Road to Muck disposal	-	3.8
6	Main access Tunnel	-	0.8
7	Approach Roads LR, PH	2.5	-
8	Pipeline including Pump-House at water source	5.5	5.5
	Total Forest Land Required (Ha)	**166**	**163**

Requirement of Land in Non-Forest Area:

S.No.	Project Components	Earlier Land (Ha)	Current Land (Ha)
1A	Site Office UR	1	1
1B	Site Office LR	1	1
2A	Crushing & Batching Plant UR	2.25	2.25
2B	Crushing & Batching Plant LR	2.25	2.25
3A	Stacking Area and Workshop UR	1	1

3B	Stacking Area and Workshop LR	1	1
4	Magazine Area	0.5	0.5
5A	Labour Camps UR	2	2
5B	Labour Camps LR	2	2
6A	Colony Area UR	2	2
6B	Colony Area LR	2	2
7	Muck Disposal Area	116	92

	Category of Land	**Land Requirement (Ha)**	
Sl. No.	**Land Category**	**Original Proposal**	**Revised Proposal**
1.	Forest Land	166.00	163.00
2.	Non Forest Land	135.50	111.50
	Total Land	301.50	274.50
	Reduction in Land Requirement	27.00	

Query 4: PP shall submit an undertaking stating that power to be use for pumping the water will be from green source.

Reply: The PP submitted the undertaking.

Query 5: Demographic profile of the 10km radius of the project area shall be provided.

Reply:

Information about Demographic & Occupation Profile of the Study Area

Demographic Profile of the 10 Km Radius of the Project Area (Study Area)

Table 4: Demographic Profile of Study Area

Parameter	**Districts Profile**	
	Number	**% to Respective Total**
Household	**48419**	
Total Population	**213845**	
Male	108405	50.69
Female	105440	49.30
Sex Ratio	**972**	
Scheduled Castes (SC)	36802	17.20
Male	18637	50.64

Female	18165	49.35
Scheduled Tribes	59890	28.00
Male	29939	49.98
Female	29951	50.01

Occupation Profile of the Study Area

According to the Census of India 2011, the total working population in the study area was 45.28%, of which 58.20% were classified as main workers, while 41.79% were identified as marginal workers. Of the main and marginal workers, 21.29% are cultivator, 59.05% are agricultural labourers, only 1.59 % are household industrial workers and remaining 18.05% of the working population are engaged in other services category viz. Government and private jobs. Percentage of working population in the study area is given in **Table 5**.

The workers coming under main and marginal workers category are those involved in activities such as cultivation, agriculture, livestock, fishing, plantation, manufacturing, servicing, and repair in household industry, construction, trade and commerce, transportation, and other services.

Agriculture and allied activities are the primary occupations in the study area and most of the people in the study area are agricultural labour. The people in the study area also move to nearby industries and other cities for labour work.

Table 5: Occupation Profile of the Study Area

Particulars	**Percentage (%)**
Total Workers	45.28
Main Workers	58.20
Marginal Worker	41.79
Cultivators	21.29
Agricultural Labours	59.05
Household Industrial Workers	1.59
Other Workers	18.05

Query 6: Secondary data of presence/occurrence of wildlife in the in consultation in forest department and local people shall be provided.

Reply:

Faunal Diversity in the Study Area

The project location falls within the jurisdiction of the Bilaspur Forest Division, Chhattisgarh. Information regarding the faunal diversity comprising of mammals, birds and herpetofauna, is acquired through the discussion with forest officials, local people and referring to the working plan of the Bilaspur Forest Division (implementing years 2022-23 to 2031-32). The faunal species reported from the Bilaspur Forest Division listed as Schedule I of WPAA –Wildlife (Protection) Amendment Act, 2022 are given below in table.

S. No.	**Family**	**Common Name**	**Scientific Name**	**Conservation Status**	
				WPAA 20	**IUCN 202**

				22	**3-1**
	MAMMALS				
1	Cervidae	Sambhar	*Cervus unicolor*	I	VU
2	Bovidae	Indian Bison	*Bos gaurus*	I	VU
3	Canidae	Indian Fox	*Vulpes bengalensis*	I	LC
4	Canidae	Wild Dog	*Cuon alpinus*	I	EN
5	Felidae	Golden Jackal	*Canis aureus*	I	LC
6	Felidae	Indian Wolf	*Canis lupus*	I	LC
7	Felidae	Common Leopard	*Panthera pardus*	I	VU
8	Felidae	Tiger	*Panthera tigris*	I	EN
9	Herpestidae	Indian Grey Mongoose	*Herpestes edwardsii*	I	LC
10	Hyaenidae	Striped hyaena	*Hyaena hyaena*	I	NT
11	Ursidae	Sloth Bear	*Melursus ursinus*	I	VU
12	Mustelidae	Honey Badger	*Mellivora capensis*	I	LC
13	Hystricidae	Indian Crested Porcupine	*Hystrix indica*	I	LC
	AVIFAUNA				
14	Accipitridae	Red-headed vulture	*Sarcogyps calvus*	I	CR
15	Phasianidae	Indian Peafowl	*Pavo cristatus*	I	LC
	HERPETOFAUNA				
16	Chamaeleonidae	Indian Chameleon	*Chamaeleo zeylanicus*	I	LC
17	Elapidae	Indian cobra	*Naja naja*	I	LC
18	Viperidae	Russell's Viper	*Daboia russelii*	I	LC

19	Varanidae	Bengal Monitor Lizard	*Varanus bengalensis*	I	NT
20	Pythonidae	Indian Python	*Python molurus*	I	NT

WPAA –Wildlife (Protection) Amendment Act, 2022; UCN Ver. 2023-1 - *International Union for Conservation of Nature; LC - Least Concern; CR: Critically Endangered; EN Endangered; VU: Vulnerable; NT: Near Threatened;*

The list of faunal species reported from the Bilaspur Forest Division are as follows:

A. Mammals

B.

S. No.	**Order/ Family**	**Common Name**	**Scientific Name**	**Conservation Status**	
				IUCN 2023-1	**WPAA, 2022**
	ARTIODACTYLA				
1	Suidae	Wild Pig	*Sus scrofa*	LC	II
2	Cervidae	Spotted Dear	*Axis axis*	LC	II
3	Cervidae	Barking deer	*Muntiacus muntjac*	LC	-
4	Cervidae	Sambhar	*Cervus unicolor*	VU	I
5		Indian Bison	*Bos gaurus*	VU	I
	CARNIVORA				
6	Canidae	Indian Fox	*Vulpes bengalensis*	LC	I
7	Canidae	Wild Dog	*Cuon alpinus*	EN	I
8	Felidae	Golden Jackal	*Canis aureus*	LC	I
9	Felidae	Indian Wolf	*Canis lupus*	LC	I
10	Felidae	Common Leopard	*Panthera pardus*	VU	I
11	Felidae	Tiger	*Panthera tigris*	EN	I
12	Felidae	Common Jungle cat	*Felis chaus*	LC	II
13	Herpestidae	Indian Grey Mongoose	*Herpestes edwardsii*	LC	I
14	Hyaenidae	Striped hyaena	*Hyaena hyaena*	NT	I
15	Ursidae	Sloth Bear	*Melursus ursinus*	VU	I

Avifauna

16	Mustelidae	Honey Badger	*Mellivora capensis*	LC	I
	LAGOMORPHA				
17	Leporidae	Common Hare	*Lepus nigricollis*	LC	II
	PRIMATES				
18	Cercopithecidae	Rhesus macaque	*Macaca mulatta*	LC	II
19	Cercopithecidae	Common Langur	*Semnopithecus entellus*	LC	II
	RODENTIA				
20	Hystricidae	Indian Crested Porcupine	*Hystrix indica*	LC	I

IUCN Ver. 2023-1 - *International Union for Conservation of Nature; LC - Least Concern; VU: Vulnerable; NT: Near Threatened; En Endangered; WPAA –Wildlife (Protection) Amendment Act, 2022*

S. No.	**Family**	**Common Name**	**Scientific name**	**Conservation Status**	
				IUCN 2023-1	**WPAA, 2022**
	Order: Accipitriformes				
1	Accipitridae	Red-headed vulture	*Sarcogyps calvus*	CR	I
	Order: Anseriformes				
2	Anatidae	Indian Spot-billed Duck	*Anas poecilorhyncha*	LC	II
	Order: Bucerotiformes				
3	Upupidae	Common Hoopoe	*Upupa epops*	LC	II
	Order: Charadriiformes				
4	Charadriidae	Red-wattled Lapwing	*Vanellus indicus*	LC	II
5	Recurvirostridae	Black-winged Stilt	*Himantopus himantopus*	LC	II

IUCN Ver. 2023-1 - *International Union for Conservation of Nature; LC - Least Concern; CR:*

6	Scolopacidae	Wood Sandpiper	*Tringa glareola*	LC	II
	Caprimulgiformes				
7	Caprimulgidae	*Caprimulgus asiaticus*	Indian Nightjar	LC	II
	Order: Columbiformes				
8	Columbidae	Laughing Dove	*Streptopelia senegalensis*	LC	II
9	Columbidae	Spotted Dove	*Spilopelia suratensis*	LC	II
10	Columbidae	Eurasian Collard-Dove	*Streptopelia decaocto*	LC	II
11	Columbidae	Rock Dove	*Columba livia*	LC	II
	Order: Coraciiformes				
12	Alcedinidae	Common Kingfisher	*Alcedo atthis*	LC	II
13	Alcedinidae	Pied Kingfisher	*Ceryle rudis*	LC	II
14	Alcedinidae	White-throated Kingfisher	*Halcyon gularis*	LC	II
15	Coraciidae	Indian Roller	*Coracias benghalensis*	LC	II
16	Meropidae	Asian Green Bee-eater	*Merops orientalis*	LC	II
	Order: Cuculiformes				
17	Cuculidae	Western Koel	*Eudynamys scolopaceus*	LC	II
18	Cuculidae	Greater Coucal	*Centropus sinensis*	LC	II
	Order: Passeriformes				
19	Dicruridae	Black Drongo	*Dicrurus macrocercus*	LC	II
20	Hirundinidae	Wire-tailed Swallow	*Hirundo smithii*	LC	II
21	Laniidae	Long-tailed Shrike	*Lanius schach*	LC	II
22	Leiothrichidae	Jungle Babbler	*Turdoides striata*	LC	II
23	Motacillidae	White Wagtail	*Motacilla alba*	LC	II

24	Motacillidae	Western Yellow Wag tail	*Motacilla flava*	LC	II
25	Muscicapidae	Oriental Magpie-Rob in	*Copsychus saularis*	LC	II
26	Muscicapidae	Indian Robin	*Saxicoloides fulicatus*	LC	II
27	Passeridae	House Sparrow	*Passer domesticus*	LC	II
28	Ploceidae	Baya Weaver	*Ploceus philippinus*	LC	II
29	Pycnonotidae	Red-vented Bulbul	*Pycnonotus cafer*	LC	II
30	Sturnidae	Common Myna	*Acridotheres tristis*	LC	II
31	Motacillidae	White-browed Wagta il*	*Motacilla maderaspat ensis*	LC	II
	Order: Pelecanif ormes				
32	Ardeidae	Grey Heron	*Ardea cinerea*	LC	II
33	Ardeidae	Cattle Egret	*Bubulcus ibis*	LC	II
34	Ardeidae	Little Egret	*Egretta garzetta*	LC	II
	Order: Piciforme s				
35	Ramphastidae	Coppersmith Barbet	*Psilopogon haemacep halus*	LC	II
	Order: Psittacifo rmes				
36	Psittaculidae	Rose-ringed Parakeet	*Psittacula krameri*	LC	II
	Order: Suliforme s				
37	Phalacrocoracidae	Little Cormorant	*Microcarbo niger*	LC	II
	Order: Galliform es				
38	Phasianidae	Indian Peafowl	*Pavo cristatus*	LC	I
39	Phasianidae	Red Junglefowl	*Gallus gallus*	LC	II
40	Phasianidae	Jungle bush quail	*Perdicula asiatica*	LC	II

41	Phasianidae	Black Francolin	*Francolinus francolinus*	LC	II
	Order: Strigiformes				
42	Strigidae	Eurasian Eagle-owl	*Bubo bubo*	LC	I

Critically Endangered; WPAA –Wildlife (Protection) Amendment Act, 2022

C. Herpetofauna

S. No.	Family	Common Name	Species Name	Conservation Status	
				IUCN 2023-1	WPA, 2022
1	Chamaeleonidae	Indian Chameleon	*Chamaeleo zeylanicus*	LC	I
2	Agamidae	*The oriental garden lizard*	*Calotes versicolor*	LC	-
3	Colubridae	Indian Rat Snake	*Ptyas mucosa*	LC	II
4	Elapidae	Common Krait	*Bungarus caeruleus*	LC	II
5	Elapidae	Indian cobra	*Naja naja*	LC	I
6	Viperidae	Russell's Viper	*Daboia russelii*	LC	I
7	Varanidae	Bengal Monitor Lizard	*Varanus bengalensis*	NT	I
8	Pythonidae	Indian Python	*Python molurus*	NT	I
9	Bufonidae	*Duttaphrynus melanostictus*	Asian Common Toad	LC	--

IUCN- International Union for Conservation of Nature; LC- Least Concern; NT-Near Threatened; WPA 2022- The Wild Life (Protection) Amendment Act, 2022.

3.2.3. Deliberations by the committee in previous meetings

Date of EAC 1 :23/01/2024

Deliberations of EAC 1 :
The EAC after detailed deliberation on the information submitted and as presented observed that the project proponent has not given the justification for proposing water from Khutaghat dam as the reservoir is about 16 km from the proposed lower reservoir. Also, the availability of water in the said reservoir is unknown. Further, it was observed that the location of the project is near to Achanakmar Tiger Reserve and presence of Tiger corridor is required to be affirmed. Also, the proposed location of the project comes under dense forest especially Sal Forest which is having high ecological value and hence the EAC is concerned with the proposed location of the project. The EAC was of the view to conduct site visit by the sub-committee of the EAC to examine forest status and alternative locations proposed by the project proponent.

1. Site visit shall be conducted by a sub-committee of the EAC to examine forest status and alternative locations proposed by the project proponent
2. PP shall explore any alternate source of water nearer to the site and details of other consumers.
3. PP shall explore the possibility to reduce the forest land for the proposed project and also for reduction of muck disposal area by increasing the height of muck dump.
4. PP shall submit an undertaking stating that power to be use for pumping the water will be from green source.
5. Demographic of the 10km radius of the project area shall be provided.
6. Secondary data of presence/occurrence of wildlife in the in consultation in forest department and local people shall be provided.

The proposal was therefore ***deferred*** *till site visit and other documents.*

3.2.4. Deliberations by the EAC in current meetings

13.2.4 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 terms of reference to the project for Bilaspur Open Loop Pumped Storage Project (1000 MW) in an area of 274.5 Ha in Village Manjurpah & Karichhaper, District Bilaspur, Chhattisgarh by M/s Jindal Renewable Power Private Limited.
The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.
The total land requirement for the project is 274.50 hectares, of which 163.0 hectares are forest land and 111.50 hectares are non-forest land. The application for Stage-I forest clearance has yet to be obtained. It was also noted that the Project Proponent has signed a Memorandum of Understanding (MoU) with the State Government on 08/09/2023.

3.2.5. Recommendation of EAC

Recommended

3.2.6. Details of Terms of Reference

3.2.6.1. Specific

Environmental Management and Biodiversity Conservation:	
1.	Points suggested by the Sub-committee after the site visit shall be complied with
2.	Forest Division of the Ministry and State Government while appraising Forest Clearance, shall take

	into account the richness of biodiversity and pristine forest area to take appropriate decision
3.	Explore the possibilities for reducing the Forest land requirement. The application for obtaining Stage I FC for 274.5 Ha of forest land involved in the project shall be submitted
4.	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
5.	PP shall submit the detailed plan for filling the reservoir in 2 years for generating envisaged capacity with excess monsoon water only
6.	No Objection Certificate from State of Jharkhand and Bihar as there may be genuine concern of downstream consumers to avoid scarcity of water to consumers. The availability of water in the river shall be submitted by Project Proponent certified by the Central Water Commission and State Water Resources Department
7.	Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within the Wildlife Sanctuary shall be included in the EIA report
8.	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
9.	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
10.	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
11.	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
12.	Conducting site specific ecological study with respect to riverine ecology focus on 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
13.	Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ River /nala of catchment area / due to tapping of water for filling reservoir
14.	Action plan for survival or diversion of the rivulets/stream leading to join river shall be submitted
15.	Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard 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
16.	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

17.	Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP
18.	Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
19.	The project area should not come up on any critical mineral zone to be verified by GSI/NMDC.
20.	Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI. No mineral zone on the proposed site be certified by Geological Survey of India or any other concerned Government Organization
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. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter
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 shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013
5.	Budget earmarked for R&R, CSR shall not include in the cost of EMP and compliance of issues raised during Public Hearing
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.	PP shall submit the proposal of EAC and seek approval of CEA/CWC for DPR, with a distance of 100 mts from HFL to avoid future damage due to flood. The data and distance of HFL shall be certified by concerned State Government and shall be submitting grant submitting the proposal of grant of EC
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
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 submit
5.	Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose
6.	Detailed plan to restore wider roads and convert them into narrow upto 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
7.	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 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
8.	Detailed report on cumulative effect of multiple projects already proposed within the region on the same source

3.2.6.2. 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.
2	For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study

5.	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
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
2	Impact on increase traffic

9.	
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.
17.	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.
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.

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

MP30 Gandhi Sagar Standalone Pumped Storage Project by **GREENKO MP01 IREP PRIVATE LIMITED** located at **NEEMUCH,MADHYA PRADESH**			
Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MP/RIV/477062/2024	J-12011/22/2019-IA-I (R)	29/07/2024	River Valley/Irrigation projects (1(c))

3.3.2. Project Salient Features

13.3.1: The proposal is for grant of amendment in Environmental Clearances MP30 Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) in an area of 402.50 ha by M/s Greenko MP01 IREP Private Limited in village Khemla Block, Tehsil Rampur, District Neemuch, Madhya Pradesh.

i. The proposal is for amendment in the Environmental Clearance granted by the Ministry Vide letter dated 02.12.2021 for the project MP30 Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) located at in village Khemla Block, Tehsil Rampur, District Neemuch, Madhya Pradesh in favour of M/s Greenko MP01 IREP Private Limited (Previously Greenko Energies Private Limited).

ii. The project proponent has requested for amendment in the EC with the details are as under;

S. No.	Para of EC issued by MoEF& CC	Details as per the EC	To be revised/ read as	Justification/ reasons
1	Point No. 4 (vi)	Two nos. Reversible Francis turbine each of 120 MW capacity operating under a rated head of 121.0 m in generating mode and 128.70 m in pumping mode	Two nos. Reversible Francis turbine each of 120 MW capacity operating under a rated head of 119.95 m in generating mode and 127.85 m in pumping mode	The heads have been reworked out and therefore there is minor change in rated head values.
2	Subject	MP30Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) in an area of 402.50 ha	MP30Gandhi Sagar Off Stream Open Loop Pumped Storage Project (1920 MW) in an area of 420.0272 ha	There is no change in project category except that capacity has been enhanced. However, as per new CEA guidelines such projects are categorized as Off-stream Open loop pumped storage project. There is a change in land requirement (Forest land 17.52

				72Ha) for the projec t.
3	Point No. 2	Capacity - 1440 MW	Capacity - 1920 M W	The project capacity 1440 MW (5X240 M W + 2X120 MW) ha s been enhanced to 1 920 MW (7X240 M W + 2X120 MW) as per the requirements and demand from var ious State DISCOM s/STUs, to meet Off-peak hrs supply as w ell as peak supply for around 6 hr.
4	Point No. 4 (iii)	The project envis ages non-consum ptive re-utilizatio n of 1.22 TMC of water of the Gan dhi Sagar reservo ir by recirculation	The project envisa ges non-consumpti ve re-utilization of 1.24 TMC of water of the Gandhi Saga r reservoir by recir culation	Without changing th e project reservoir sh ape and levels the sto rage capacity rework ed out to 1.24 TMC. The same shall be us ed for recirculation f or generation & pum ping vice versa as no n-consumptive reutili zation.
5	Point No. 4 (iv)	Capacity - 1440 MW	Capacity - 1920 M W	The project capacity 1440 MW (5X240 M W + 2X120 MW) ha s been enhanced to 1 920 MW (7X240 M W + 2X120 MW) as per the requirements and demand from var ious State DISCOM s/STUs, to meet Off-peak hrs supply as w ell as peak supply for around 6 hr.
6	Point No. 4 (vi)	The project will i nvolve constructi on of rock fill em bankment of max imum height of 3 5 m for creation o f MP 30 Gandhi Sagar Off-Stream PSP upper reserv	The project will in volve construction of GFRD embank ment of maximum height of 38 m for creation of MP 30 Gandhi Sagar Off-Stream PSP upper r eservoir of 1.90 T	The type of dam cha nged to PVC Geome mbrane Faced Rockfi ll Dam (GFRD) from the earlier proposed r ockfill dam due to sh orter construction per iod, less maintenanc e, easy connection to

		oir of 1.80 TMC gross storage and 1.22 TMC live st orage	MC gross storage a nd 1.24 TMC live s torage	concrete surface, hig her placing rate and r esistance against win d uplift and the high drawdown rate of res ervoir. In both the da ms, the fill material i s the rockfill and hen ce there is no change in the material type.
7	Point No. 4 (vi)	The upper reserv oir is located at E L 491 m and the FRL and MDDL of this reservoir i s at EL 523.00 m & EL. 508.00 m r espectively	The upper reservoi r is located at EL 4 91.25 m and the F RL and MDDL of t his reservoir is at E L 522.20 m & EL. 508.00 m respectiv ely	As per the latest topo graphical survey the reservoir levels have been optimized corre sponding to the requi red storage capacities without changing the location.
8	Point No. 4 (vi)	6 nos. each of 68 3.48 m long and 7.5 m dia. surface circular steel line d Penstock/ Press ure Shaft in whic h 5 nos.. will feed 5 units each of 24 0 MW and 1 will bifurcate in to 2 o f 5.3 m dia to fee d 2 units of each of 120 MW	8 nos. each of 280. 33 m long and 7.5 m dia. surface circ ular steel lined Pen stock/ Pressure Sha ft in which 7 nos.. will feed 7 units ea ch of 240 MW and 1 will bifurcate in t o 2 of 5.3 m dia to feed 2 units of each of 120 MW	The project capacity has been enhanced to 1920 MW by adding two more units of 24 0 MW each which re quires two additional Penstock/pressure sh aft. Thus, the total no of penstock/pressure shaft are 8
9	Point No. 4 (vi)	A surface powerh ouse having an in stallation of 5 no s. of Reversible F rancis turbine eac h of 240 MW cap acity operating u nder a rated head of 121.70 m in ge neration mode an d 127.70 m in pu mping mode	A surface powerho use having an insta llation of 7 nos. of Reversible Francis turbine each of 240 MW capacity oper ating under a rated head of 121.45 m i n generation mode and 127.25 m in pu mping mode	Enhancement of inst alled capacity from 1 440 MW to 1920 M W requires installatio n of two additional p ump turbines of 240 MW each i.e. numbe r of total units has in creased from 5 to 7.
10	Salient Features	Project Cost – 69 91.25 Cr.	Project Cost – 114 69.08 Cr.	The cost of the proje ct has been increased due to addition of tw o more units, increas ed size of TRC, and

				change in power evacuation system.
1		**FEATURS OF THE PROJECT**	**1440 MW**	**1920 MW**
2		**Location**		
	a	Country	India	India
	b	State	Madhya Pradesh	Madhya Pradesh
	c	District	Neemach	Neemuch
	d	Village near Powerhouse	Khemla Block, Rampura Taluk	Khemla Block
3		**Geographical Co-Ordinates**		
	a	**MP 30 GANDHI SAGAR PSP Upper Reservoir - (NowProposed)**		
		Latitude	24° 31' 6.89" N	24°31'6.89"N
		Longitude	75° 30' 56.12" E	75°30'56.12"E
	b	**Gandhi Sagar reservoir – Lower Reservoir (Existing)**		
		Latitude	24° 31' 5.4" N	24° 31' 5.4" N
		Longitude	75° 32' 5.28" E	75° 32' 5.28" E
4		**Access To Project Site**		
	a	Airport	Neemach, 85Km from project site	Neemach, 85Km from project site
	b	Rail head	Neemach, 67 Km from project site	Neemach, 67 Km from project site
	c	Road	SH 31A	SH 31A
	d	Port	Navlakhi	Navlakhi
5		**Project**		
	a	Type	Off-stream open loop pumped storage project	Off-stream open loop pumped storage project
	b	Storage Capacit	10411.20 MWH	10272 MWH

		y		
	c	Rating	1440 MW	1920 MW
	d	Peak operation duration	7.23 Hours daily	5.35 Hours daily
6		**MP 30 GANDHI SAGAR PSP – Upper Reservoir**		
	a	Live Storage	1.22 TMC	1.24 TMC
	b	Dead Storage	0.58 TMC	0.66 TMC
	c	Gross Storage	1.80 TMC	1.90 TMC
	d	Full Reservoir l evel (FRL)	EL +523.00 m	EL 522.2 m
	e	Minimum Draw Down Level (M DDL)	EL +508.00m	EL 508.0 m
	f	Top Bund Leve l (TBL)	EL +526.00m	EL 527.8 m
	g	Foundation Lev el	EL +491.00 m	-
	h	Max Height of Embankment	35.00 m	38.0 m
	i	Length of Emba nkment	5561.131 m	5990.0 m
7		**Gandhi Sagar reservoir – Lower Reservoir – (Existing)**		
	a	Type of Dam	Masonry Gravity Dam	Masonry Gravity Dam
	b	Full Reservoir Level (FRL)	EL 400.00 m	EL 400.00 m
	c	Minimum Draw Down Level (M DDL)	EL 381.00 m	EL 381.00m
	d	Height of Dam above deepest b ed level	63.70 m	63.70 m

	e	Length of Dam	514.00m	514.00 m
	f	Gross Storage Capacity	258.47 TMC	258.47 TMC
8		**RCC intake Structure**		
	a	Type	Diffuser Type	Diffuser Type
	b	Elevation of Intake center line	EL +495.50 m	EL 495.00 m
	c	Elevation of Intake bottom	EL +491.05 m	EL 491.25 m
9		**Penstock /Pressure Shafts**		
	a	Type	Finished steel lined – circular	Finished steel lined - circular
	b	Number of Penstocks	6 Nos. wherein 1 No. Independent Pressure shaft bifurcated in to 2 for smaller units.	8 Nos. wherein 1 No. Independent Pressure shaft bifurcated in to 2 for smaller units.
	c	Diameter of Penstock	7.5 m - Main Penstock 5.3 m – Branch Penstock	7.5 m - Main Penstock 5.3 m – Branch Penstock
	d	Length of penstock/Pressure Shaft	For 5 nos. – 683.48 m each (MainPenstock) for 5 larger units For 1 no. – 607.23m long (Main Penstock) and 76.25 m each Branch Penstock for 2smaller units	For 7 nos. – 671.33 m each (MainPenstock) for 7 larger units For 1 no. – 631.93 m long (Main Penstock) and 75.00 m each Branch Penstock for 2 smaller units
10		**Powerhouse**		
	a	Type	Surface Powerhouse	Surface Powerhouse
	b	Dimensions (Excluding Service Bay)	181.20m (L) x 25.50m (W) x 56.10m (H)	233.25 m (L) x 25.5 m (W) x 53.10 m (H)
11		**Tail Race Tunnel**		
	a	Type	Concrete Lined - Circular	Steel lined - circular
	b	Number of tunnels	7 Nos (5 individual tunnels for larger units & 2 individual tunnels for smaller units)	9 No (7 individual tunnels for larger units & 2 individual tunnels for smaller units)

	c	Diameter for lar ger unit	8.5 m each	8.5 m each
	d	Length for large r unit	97.318 m each	97.33 m each
12		**Tail Race Channel**		
	a	Type & Shape	Concrete lined & Trapezoidal	Concrete lined & Trapezoidal
	b	Length of the c hannel	860.00 m	4002 m
	c	Bed Width	85.00 m	280 m
	d	Full supply dept h	6.0 m	5.0 m
	e	Bed slope	1 in 7000	1 in 4002
13		**Tailrace Outlet Structure**		
	a	Type	Diffuser Type	Diffuser Type
	b	Elevation of out let Centre line	EL +370.71 m	EL 370.60 m for larger units EL 369.45 m for smaller units
14		**Hydro-Mechanical Equipment**		
	a	**RCC Intake Structure**		
	i	Trash Rack	Vertical with inclination of 1 5°	Vertical with inclination of 1 5°
	ii	No. of Trash rac ks	6 nos.	8 nos.
	ii i	No. of bays in e ach trash rack	2 nos. of 7.75m(W) x 10.97 m(H) & 1 no. of 8.5m(W) x 10.97 m(H) for each unit	3 No of 8.0 m(W) x 11.18 m(H) for each intake
	iv	Intake Service Gate	Size – 6.20m (W) x 7.50 m (H) – 6 Nos. with Rope Dru m Hoist	8 No. - 5.9 m(W) x 7.5 m (H) with independent rope drum h oist
	v	Intake Stop log Gate	Size – 6.20m (W) x 7.50 m (H) – 1 No. with moving Ga ntry	1 No. - 5.9 m (W) x 7.5 m (H) with moving gantry

	b	**Draft Tube Gates**	High pressure steel type slide gates	-
	i	No. of Service gates per unit	5 Nos. - 7.0 m (W) x 8.5 m (H) for Larger Units & 2 Nos. - 5.1 m (W) x 6.2 m (H) for Smaller Units with Independent Hydraulic Hoist	-
	ii	No. of Stoplog gates per unit	1 No. – 7.0 m (W) x 8.5 m (H) for Larger Units & 1 No. - 5.1 m (W) x 6.2 m (H) for Smaller Units with Moving Gantry Crane	-
	c	**Tailrace Outlet Structure**		
	i	No. of Trash racks	7 nos.	9 No. (7 No. for larger units & 2 no. forsmaller units
	ii	No. of bays in each trash rack	2 nos. of 6.65m(W) x 10.87 m(H) & 1 no. of 6.70m(W) x 10.87m(H) for each larger unit & 2 nos. of 5.20m(W) x 6.73m(H) + 1no. of 6.60m(W) x 6.73m(H) for each smaller unit	3 No 6.67 m(W) x 12.0m (H) for each largerunit 3 No 5.67 m(W) x 7.87 m(H) for eachsmaller unit
15		**Coffer dam**		
		Length	-	1011 m
		Max. height	-	17.0 m
		Top level	-	EL 405.0 m
16		**Electro-Mechanical Equipment**		
	i	Pump Turbine	Francis type, vertical shaft reversible Pump-turbine	Francis type, vertical shaft reversible pump-turbine
	ii	Total No of units	7 no’s (5 X 240MW & 2 X 120 MW)	9 No (7 X 240MW & 2 X 120 MW)
	iii	Total Design Discharge (Turbine Mode)	1326.75 Cumec	1798.92 Cumec
	iv	Rated Head in Turbine mode	121.70 m for larger unit & 121.00m for	121.45 m for larger unit & 119.95m for

			smaller unit	smaller unit
	A	**240 MW Turbines**		
	i	Total No of units	5 Units (Fixed speed)	7 Units (Fixed speed)
	ii	Turbine Design Discharge	220.91 Cumec	224.04 cumec
	iii	Rated Head in Turbine Mode	121.70m	121.45 m
	iv	Pump Capacity	251 MW	249 MW
	v	Rated Pumping Head	127.90 m	127.25 m
	Vi	Rated Pump Discharge	183.86 Cumec	185.02 Cumec
	vii	Synchronous speed	136.36 rpm	187.50 rpm
	I	**Generator-Motor**		
	a	Type	Three (3) phase, alternating current synchronous generator motor semi umbrella type with vertical shaft	Three phase, alternating current synchronous, generator motor semi umbrella type with vertical shaft
	b	Number of units	5 Units	7 Units
	c	Rated Capacity	Generator – 240 MW; Pump Input – 251 MW	Generator – 240 MW Pump Input – 249 MW
	d	Rated Voltage	18 KV	18 kV
	II	**Main Power Transformer**		
	a	Type	Three Single Phase Power transformers with Off-Circuit tap changer (OCTC)	Outdoor three-Phase transformers with on-load tap changer (OLTC)
	b	Number of units	15 Numbers (ie. 3 Nos./Unit)	7 units
	c	Rated Capacity of each unit	Single Phase, 18KV/400 KV, 100 MVA	315 MVA

	d	Rated Voltage	Primary – 18 kV; Secondary - 400 kV adjustable range of the secondary voltage: - 10% to +10%(3kV/tap)	Primary – 18 kV; Secondary - 400 kV adjustable range of the secondary voltage: -10% to +10% (in 1.25% of steps
	B	**120 MW Turbines**		
	i	Total No of units	2 Units (Variable speed)	2 Units (both are Fixed speed)
	ii	Turbine Design Discharge	111.10 Cumec	115.32 cumec
	iii	Rated Head in Turbine Mode	121.00 m	119.95 m
	iv	Pump Capacity	135 MW	134 MW
	v	Rated Pumping Head	128.70 m	127.85 m
	vi	Rated Pump Discharge	98.16 Cumec	98.78 cumec
	vii	Synchronous speed	187.50 rpm	272.73 rpm
	I	**Generator-Motor**		
	a	Type	Three (3) phase, alternating current asynchronous generator motor semi umbrella type with vertical shaft	Three (3) phase, alternating current synchronous, generator motor semi umbrella type with vertical shaft
	b	Number of units	2 Units	2 units
	c	Rated Capacity	Generator – 120 MW Pump Input – 135 MW	Generator – 120 MW Pump input – 134 MW
	d	Rated Voltage	18 KV	18 kV
	II	**Main Power Transformer**		
	a	Type	Indoor, 3-Ph transformers with Off-Circuit tap changer (OCTC)	Outdoor, 3-Ph transformers with On-load tap changer (OLTC)
	b	Number of units	2 Units	2 units

	c	Rated Capacity of each unit	Each 160 MVA, 18KV/400 KV rating power transformers.	166 MVA
	d	Rated Voltage	Primary – 18 KV; Secondary - 400 kVadjustable range of the secondary voltage: -10% to +10%(3kV/tap)	Primary – 18 kV; Secondary - 400 kV adjustable range of the secondary voltage:-10% to +10% (in 1.25% of steps)
17		**Gas Insulated Switchgear (GIS)**	**400 KV Gas Insulated Switchgear**	**420 kV Gas Insulated Switch gear**
	b	No. of GIS units	One No.	One No. with bus sectionaliser
	c	Location	Inside GIS Building above ground	Inside GIS building above ground
	d	Scheme	Double Busbar Arrangement with bus coupler	Double busbar arrangement with bus sectionaliser
18		**Power Evacuation**		
	a	Voltage Level (KV)	400 KV	400 kV
	b	No. of Transmission lines	One 400 KV transmission line with double circuit.	one 400 kV double circuit transmission line on lattice towers from MP30 Gandhi Sagar PSP pothead yard to 765/400 kV PGCIL Mandsaur Substation, Madhya Pradesh State.
	c	Total Length	400 KV Double Circuit Transmission Lines with Moose conductor of length 81 Kms (app) from PSP will be connected to **400 / 220 KV PGCIL substation** at **Kota of Rajasthan State** for evacuation of generated Power and for Supply of power during pumping mode	Transmission Lines are of 65 km (approx.) length for evacuation of Stored Power from MP30 Gandhisagar PSP during Generating mode and for input power to PSP during pumping mode.
19		**ESTIMATED COST**		
	a	Civil Works	2797.67 Cr.	7057.26 Cr

	b	E&M Works incl. Transmission line	1930.50 Cr.	3112.34 Cr
	c	IDC & Others	2263.08 Cr.	1299.48 Cr
		Total Project Cost with IDC	**6991.25 Cr.**	11469.08 Cr

3.3.3. Deliberations by the committee in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

13.3.4 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 amendment in Environmental Clearance MP30 Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) in an area of 402.50 ha by M/s Greenko MP01 IREP Private Limited in village Khemla Block, Tehsil Rampur, District Neemuch, Madhya Pradesh.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry**.**

The EAC noted that the Environmental Clearance letter was issued by MoEF&CC vide letter dated 02.12.2021 and Greenko has applied for entity name change from Greenko Energies private Limited to Greenko MP01 IREP Private Limited in EC letter and amendment letter was issued by MoEF&CC vide letter dated 13.02.2023. The EAC noted that the Project Proponent (PP) has applied amendment in EC under Paragraph 7(ii) of the EIA Notification, 2006, as amended.

The EAC deliberated on the EC compliance status report of the concerned MoEF&CC Regional Office, Bhopal issued vide letter dated 10.08.2024. The Regional Office has inter-alia informed that the Project Proponent is currently complying all the applicable environment protection measures meant for the construction phase. However, some partly complied points were also observed. The Regional Office suggested to prepare time targeted action plan for the same. The EAC found the EC compliance status satisfactory.

The EAC inquired about the public consultation/hearing details for the additional land required for the proposed expansion, the PP then informed that no additional private land is required only Forest Clearance for forest land diversion for 17.52 ha forest additional forest land is applicable. The application for getting Stage-I FC has already been submitted (Proposal No. FP/MP/HYD/IRRIG/488223/2024) and the Project Screening Committee, Madhya Pradesh Forest Department has accepted the proposal in its meeting held on 19.07.2024. The Public Consultation with Public hearing has already been held at the of grant of earlier Environmental Clearance and public concerns were addressed satisfactorily. The EAC suggested to submit an undertaking in this regard and advised the Ministry to upload the same on PARIVESH portal along with EC compliance status report received from Regional office, MoEF&CC, Bhopal.

13.3.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of amendment in Environmental Clearance dated 02.12.2021 for MP30 Gandhi Sagar Off Stream Pumped Storage Project (1920 MW) in an area of 420.0272 ha by M/s Greenko MP01 IREP Private Limited in village Khemla Block, Tehsil Rampur, District Neemuch, Madhya Pradesh, under the provisions of EIA Notification, 2006, as amended subject to the following additional

conditions:

3.3.5. Recommendation of EAC

Recommended (Subject to submission of requisite information/ documents)

3.3.6. Details of Environment Conditions

3.3.6.1. Specific

Additional conditions	
1.	The requisite documents, as per the Office Memorandum dated April 11, 2022, shall be uploaded to the Parivesh portal
2.	Stage-I Forest Clearance shall be obtained for the additional 17.5272 hectares of forest land before grant of amendment in EC
3.	Miyawaki green plantation shall be carried out within a 10 km radius of the project area, in consultation with the Gram Panchayat
4.	Time bound action plan for ensuring the compliance of partly complied Environmental Safeguard measures as reported by the Regional Office, MoEF&CC shall be submitted within one month to the concerned regional office
5.	All the conditions mentioned in Environmental Clearance dated 02.12.2021 and its subsequent amendment shall be complied with

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	
7	Shri Ajay Kumar Lal	Member (EAC)	akl****@gmail.com	
8	Shri Alok Paul Kalsi	Member (EAC)	emo***@nic.in	

9	Shri Rajeev Varshney	Member	rva**********@gov.in	
10	Dr A K Sahoo	Member (EAC)	ami***@gmail.com	
11	Shri Yogendra Pal Singh	Member Secretary	yog*******@nic.in	

MINUTES OF THE 13TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 13TH AUGUST, 2024 AT MOEF&CC, INDIRA PARYAVARAN BHAWAN, NEW DELHI.

The 13th meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 13th August, 2024 through Physical 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 12th EAC meeting:

The EAC confirmed the Minutes of the 12th EAC meeting held on 18/07/2024 to 19/07/2024 with following corrections:

[A] Correction in the Minutes of Agenda Item No. 12.8 regarding Discussion on the Report of the Site visit undertaken by EAC(Sub-Committee), River Valley & Hydro-electric during 21.06.2023 to 25.06.2023 at Shongtong-Karcham (402 MW) Hydroelectric Power Project in District Kinnaur of Himachal Pradesh by M/s Shongtong Karchham Hydro Electric Project, HPPCL

The Member Secretary informed the EAC that site visit report of the EAC sub-Committee for the Shongtong-Karcham (402 MW) Hydroelectric Power Project in District Kinnaur of Himachal Pradesh by M/s Shongtong Karchham Hydro Electric Project, HPPCL was discussed by the EAC (RVHEP) during its 12th meeting held on 18/07/2024 to 19/07/2024. The EAC after acceptance of the report recommended following:

1. The PP will submit the information on following points as recommended by the EAC subcommittee after conducting site visit:

   a. The revised EMP along with status of implementation of the present EMP. Steps taken to mitigate the impacts of additional muck generation.
   b. Status of implementation of Catchment Area Treatment Plan, R&R and other Management Measures.
   c. Action Plan for maintaining the E-Flow.

2. The Ministry may take suitable action for observed non-compliance of safeguard condition mentioned in the Environmental Clearance issued by the Ministry vide letter dated 19.05.2011, which states that *"Any change in the scope of the project shall be intimated to the Ministry and fresh approval if required, shall be taken from the Ministry"*.

The EAC observed that above recommendations of the EAC after perusal of the site visit report of the EAC Sub Committee could not be mentioned in the minutes of the 12th EAC meeting held on 18/07/2024 to 19/07/2024. Accordingly, EAC decided to incorporate the aforesaid recommendations in the Minutes.

[B] The proposal for grant of Terms of Reference (ToR) for conducting EIA study for proposed construction of Naying Hydro Electric Project of 1000 MW (4x250 MW) run-of-river project on river

Siyom, in an area of 470.8 ha. located at Village Yapik, Hone, Lipo, Row and etc, Sub District Payum Circle and tato, District Shi Yomi & Siang, Arunachal Pradesh by M/s North Eastern Electric Power Corporation Ltd. [vide Proposal No. IA/AR/RIV/470969/2024] as an Agenda no 11.6 was deliberated in the 11th EAC meeting held on 27.06.2024. The EAC recommended the proposal for grant of Standard ToR along with certain additional TOR for conducting EIA study with Public consultation (Public Hearing + written submission). It was found that incorrect project details have been inadvertently mentioned at S. No xvi. Therefore, details mentioned at S. No xvi shall be read as follows:

- **Project Details**

Name of the Proposal	Naying Hydro Electric Project (1000 Mw) – Near Village- Yapik, Districts- Shi Yomi & Siang, State- Arunachal Pradesh
Location (Including coordinates)	Near Village- Yapik, Districts- Shi Yomi & Siang, State- Arunachal Pradesh Coordinates : Dam Site: 28°31'10"N, 94°30'25"E Powerhouse:28°31'53.60"N,94°33'54.30 "E
Inter- state issue involved	No
Seismic zone	Zone V

- **Category details:**

Category of the project	A
Provisions	-
Capacity / Cultural command area (CCA)	1000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

- **Electricity generation capacity:**

Powerhouse Installed Capacity	4 X 250 MW
Generation of Electricity Annually	Energy generation in 90% Dependable Year is 3809 MU
No. of Units	4
Additional information (if any)	-

- **ToR/EC Details:**

Cost of project	Rs.9558.52 Crores (present day)
Total area of Project	470.80 Ha
Height of Dam from River Bed (EL)	108.0 m
Length of Tunnel/Channel	7080 m (Head Race Tunnel)
Details of Submergence area	160 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	E-flow values are 14.25 cumec, 42.19 cumec and 86.45 cumec for lean season, pre-monsoon and post-monsoon season respectively.
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 EAC as per CIA&CC study of River Basin. b) If not the E-Flows maintain criteria for sustaining river ecosystem.	EAC in 97th meeting held on 26 Aug, 2016 recommended the following "Environment flow release recommendation as mentioned in Siang basin study report shall be implemented for Naying, Tato-II and Hirong HEPs without any relaxation". NEEPCO carried out Power Potential Studies (PPS) based on recommendations of Basin Study report for introduction of e-flow for development of Naying HEP. The CEA vide letter dated 29.03.2022 cleared the PPS for Naying H. E. Project (1000MW) as submitted by NEEPCO. These e-flow values are 14.25 cumec, 42.19 cumec and 86.45 cumec for lean season, pre-monsoon and post-monsoon season respectively.

- **Muck Management Details**

No. of proposed disposal area/(type of land-Forest/Pvt. land)	Total 6 No. of disposal sites have been identified/ land type USF category.
Muck Management Plan	About 30% of the muck generated is proposed to be reused for production of

	coarse and fine aggregates. The balance unutilized quantity shall be disposed off at the designated disposal sites. The muck disposal sites would be developed by constructing boulder filled gabion walls or stone masonry wall over concrete bases, as toe support to the muck. Detailed Muck Management Plan shall be included in the EIA/EMP Report.
Monitoring mechanism for Muck Disposal	When the capacity of any disposed site is exhausted; the top surface would be leveled and graded to make the surface area fit for some alternative use. The monitoring mechanism shall be detailed in EIA/EMP Report.

- **Land Area Breakup:**

Private land	Nil
Government land/Forest Land	470.80 ha (total project area)
Submergence area/Reservoir area	160 Ha
Land required for project components	470.80 Ha (total project area)
Additional information (if any)	Total project area of 470.80 Ha is of USF category

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

Forest Land/Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate/ letter/Remarks**
Reserve Forest/Protected Forest Land	No	-
National Park	No	
Wildlife Sanctuary	No	

- **Court case details**

Court Case	Nil
Additional information (if any)	Nil

- **Affidavit/Undertaking details:**

Affidavit/Undertaking	Nil
Additional information (if any)	

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

Particulars	**Letter no. and date**
Certified EC compliance report (if applicable)	Nil
Status of Stage- I FC	To be applied
Additional detail (If any)	Being applied afresh with reduced area.
Is FRA (2006) done for FC-I	-

- **Miscellaneous**

Particulars	**Details**
Details of consultant	P and M Solution, C-88, Sector- 65, NOIDA-201301
Project Benefits	The project will improve access to social services like education, healthcare, etc. Improvement in direct and indirect employment and business opportunities locally. Continued CSR activities in and around the project areas. Financial benefit to the state by generating recurring revenue. With the revenue @12% free power and additional 1% for Local area development.
Status of other statutory clearances	CEA has accorded Concurrence to Naying HEP (1000 MW) on 11-09-2013. CEA transferred the Concurrence in favour of NEEPCO on 20-10-2023.
R&R details	Total 9 villages, with 120 families, is likely to be affected due to land acquisition for various components of the proposed HEP.
Additional detail (If any)	The project with total land of 644 Ha, was earlier considered by EAC for Environmental Clearance. The earlier EAC meeting details are as follow:

	• 66th EAC Meeting held on 04-05-2013 • 73rd EAC Meeting held on 26-03-2014 • 97th EAC Meeting held on 26-08-2016 MOEF&CC approved development of Naying HEP in the present form without any reduction of FRL. Land requirement has been reassessed at 470.80 Ha by NEEPCO and project diversion proposal is being submitted afresh with reduced area of 470.80 Ha.

Agenda Item No. 13.1

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)]

13.1.1: 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.

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

i. The proposal is for Environmental Clearance to the project for Uri I Stage II Hydro Electric Project (240MW) as Run of River scheme in an area of 102.0 Ha in Sub district Uri, Boniyar, Kreeri, Baramulla and Rafiabad, District Baramulla (Jammu & Kashmir) by M/s NHPC Limited.

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 ofReference (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. The project is listed at S.N. 1 (c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and are appraised at Central Level by Expert Appraisal

Committee(EAC).

iv. 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.

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

vi. **Land requirement:**

Forest Land	: 17.0 ha (Underground)
Non-forest Land	: 85.0 ha
Total Land	: 102.0 Ha

vii. 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 schoolsand 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 thearea, 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.

viii. Water requirement: 453 Cumecs (design discharge)

ix. 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.

x. 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).

xi. 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. ChiefConservator 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.

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

xiii. 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.

xiv. 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.

xv. 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.

xvi. Baseline Environmental Scenario:

Period — **From September 2021 To May 2022**

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

Unit in $\mu g/m^3$

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 [$\mu g/m^3$]	Baseline Concentration[A]	Predicted incremental value considering worst case stability class [B]	Total GLC [A]+[B]
PM10	$\mu g/m^3$	23.0	20	43.0
PM2.5	$\mu g/m^3$	58.4	10	68.4
SOx	$\mu g/m^3$	7.4	4	11.4
NOx	$\mu g/m^3$	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 watersamples 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 06locations

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 6Locations

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.

xvii. 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.

xviii. Public Hearing for the proposed project has been conducted by the State Pollution Control Committee on 21.12.2023, 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 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 workersshall 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 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	A District level committee has been

revived after successful construction of the project forthe affected areas.	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.

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

- **EAC Meeting Details:**

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

- **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	Municipal Solid Waste- Bio degradable (112.00 Tons), Non degradable (112.00

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
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
Previous EC details	-
EC Compliance Report by R.O,	-

- **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

- **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	**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	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”
Date of PH	21.12.2023
Venue	Recreation Park (Children Park) Boniyar, Distt. Baramulla
Chaired by	Additional District Magistrate,
Main issues raised during PH	• Provision of Employment of local Youth • Provision of Medical Facilities • Financial assistance for
No. of people attended	340

- **Brief of base line Environment:**

Particulars	**Details**			
Period of baseline data collection/Sampling (Air, noise, water, land) flora and fauna of the aquatic ecology, etc.	**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
	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	Under Process, REC recommended the proposal for in- principle approval on 25.01.2024 & the proposal was discussed in Advisory Committee, MoEFF & CC on dated 30.04.2024.
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
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	1346.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**1346.05**
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	144.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**144.00**
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**
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	0.00	11.65	11.65	11.65	11.65	0.00	0.00	0.00	**46.60**

	Monitoring Programme									
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	2894.04	**558.06**	**789.13**	**689.99**	**681.38**	**44.43**	**36.18**	**20.74**	**5713.95**
18	NPV under B-land[#]	116.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**116.66**
	Total	3010.70	**558.06**	**789.13**	**689.99**	**681.38**	**44.43**	**36.18**	**20.74**	**5830.61**

*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.

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 EAC, constituted under the provision of the EIA Notification, 2006 comprising Expert Members/domain experts in various fields, examined the proposal submitted by the Project Proponent in desired format along with EIA/EMP reports prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the Project Proponent.

- The EAC noted that the Project Proponent has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.

- 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.

Agenda Item No. 13.2:

Bilaspur Open Loop Pumped Storage Project (1000 MW) in an area of 274.5 Ha in Village Manjurpah & Karichhaper, District Bilaspur, Chhattisgarh by M/s Jindal Renewable Power Private Limited – Reconsideration for Terms of References (TOR) – reg.

[Proposal No. IA/CG/RIV/454612/2023; F. No. J-12011/06/2024-IA.I (R)]

13.2.1: The proposal is for grant of Terms of Reference (ToR) to the project for Setting up of Bilaspur Close Loop Pumped Storage Project of capacity 1000 MW in an area of 274.5 Ha in Village Manjurpah & Karichhaper, District Bilaspur, Chhattisgarh by M/s Jindal Renewable Power Private Limited.

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

i. The Bilaspur close Loop Pumped Storage Project is located in Bilaspur district in the state of Chhattisgarh. The upper reservoir is located near Manjurpah village and lower reservoir is located near Karichhaper village in Bilaspur district which is about 165 km from Raipur airport.

ii. The geographical co-ordinate of the project are Lower Reservoir: 82°20'58.66"E; 2211'58.87"N; Upper Reservoir: 82°21'22.B"E; 22°13'9.21"N.

iii. The Pumped Storage Component of Bilaspur PSP envisages construction of upper reservoir located near Manjurpah village in Bilaspur district whereas the lower reservoir is located near Karichhaper village in Bilaspur district of the Chhattisgarh state. The required quantum of 10.14 MCM of water for one-time filling of the proposed Bilaspur PSP lower reservoir will be taken up from nearby existing Khutaghat dam reservoir by pumping which is located at about 16 km from the proposed lower reservoir.

iv. **Land requirement:**
Forest Land : 163.0 ha
Non-forest Land : 111.50 ha
Total Land :274.50 Ha

v. **Water requirement:** Bilaspur PSP (1000 MW) will require 13.76 MCM for initial reservoir filling and thereafter ~ 1.40 MCM per year will be required on annual basis from Khutaghat dam reservoir for restoring the storage capacity lost due to evaporation.

vi. **Environmental Sensitive area:** Achanakmar Tiger Reserve is located about 34.0 Km. River/ water body, Sagri Nala is flowing at the aerial distance of 1.0 km in east to west direction.

vii. MoU signed with State Government on 08-09-2023.

viii. **Project Cost:** The estimated project cost is Rs 5331.56 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. The Salient features and area statement are as under:

- **Project details:**

Location (Including coordinates)	Lower Reservoir : 82°20'58.66"E; 22°11'58.87"N Upper Reservoir : 82°21'22.13”E; 22°13'9.21"N
Inter- state issue involved	No
Seismic zone	Zone-II

- **Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	1000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

- **Electricity generation capacity:**

Powerhouse Installed Capacity	1000 MW
Generation of Electricity Annually	2872.2 MU

No. of Units	4 nos. (4X250 MW)
Additional information (if any)	Nil

- **ToR Details:**

Cost of project	5331.56 Cr.
Total area of Project	274.50 ha
Height of Dam from River Bed (EL)	Lower Dam – 30.0 m Upper Dam – 37.0 m
Length of Tunnel/Channel	1861.79 m
Details of Submergence area	92.19 ha (39.47ha for UR & 52.72ha for LR)
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 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)	92 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	135.50
Government land/Forest Land	166.0 ha
Submergence area/Reservoir area	128.0 ha
Land required for project components	173.50 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. Achanakmar Tiger Reserve is about 34.0 Km from site is the nearest protected area from the proposed project.
National Park	--	
Wildlife Sanctuary	--	

- **Court case details:**

Court Case	Nil
Additional information (if any)	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

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 favourably 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 163.0 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

13.3.3: The Proposal was earlier considered by the EAC in its 6th meeting held on 23.01.2024 wherein the EAC deferred the proposal and sought additional information. Accordingly, the PP vide its reply dated 25.07.2024 re-submitted the proposal along with following information sought by the EAC:

Query 1: Site visit shall be conducted by a sub-committee of the EAC to examine forest status and alternative locations proposed by the project proponent

Reply: The EAC sub-committee visited project site from 10/05/2024 to 12/05/2024. The site visit report was discussed in the EAC meeting held on 27/06/2024 and the Minutes of the Meeting (MoM ID: EC/MOM/EAC/900121/5/2024) were uploaded on 16/07/2024. Replies to EAC Observations/Suggestions on the site visit report are as follows:

S. No.	EAC Observations/Suggestions	JRPPL's Replies
1	Vegetative cover and forests being prime issue due to their predominant presence, any decision on environment clearance will heavily hinge on the forest clearance (FC). Therefore, grant of ToR calls for strict condition of any further consideration for EC will be subject to Stage-I Clearance. Detailed documents pertaining to species diversity, density, enumeration and proposed CA plans etc. should be submitted before EAC also, applying for FC.	As discussed with EAC during site visit, on award of TOR we shall initiate the process of baseline data collection and filing of application for diversion of forest land. We shall include detailed documents pertaining to species diversity, density, enumeration and CA land in the EIA report. We are well aware of the fact that stage I forest clearance is pre-requisite for issue of environment clearance and therefore we will work for both clearances simultaneously.
2	The 16 km long pipeline proposed to withdraw water from the existing reservoir and later to fill the proposed lower reservoir to be given requisite details of land and type of land requirement likely soil and area disturbance etc. This details should be an integral part of the overall proposal.	Noted, will be addressed in EIA/ EMP report.
3	Necessary permission for water allocation from State Government and Mahanadi Water Dispute Tribunal (MWDT) (if applicable) should be obtained. The clarification regarding clearance/permission from MWDT shall be submitted through State Water Resource Department.	JRPPL vide application dated 28/12/2023 applied for sanction of allotment of water (Water Availability Certificate) for Bilaspur PSP to Water Resource Department, Govt. of Chhattisgarh through State Investment Promotion Board, Raipur. The proposal is under process.
4	Possibility be explored to reduce dumping area by increasing height and vertical capacity in case of forest land, if used for dumping of muck. Also, a full progressive reclamation with local species of fruit bearing trees and actions need to be placed while seeking EC.	We have re-designed the muck dumping area by increasing the height to reduce the area. Muck disposal area has been reduced from earlier proposed 116 ha to 92 ha. Dumping of muck is proposed in non-forest area and not in forest area.

5	Constructions of proposed reservoir boundary/ peripheral walls/dams will require excavation, reuse and carriages. At present, air quality and noise level is not at all a concern. However, adequate measures need to ensure, no considerable damage to either local population (villages) or any existing streams/ nallahs etc.	EIA report will address the baseline data (pre-project environment quality) and make prediction of impacts based on project activities proposed during construction and operation. Appropriate mitigation measures shall be recommended to minimize impact on surrounding population. A monitoring program shall also be designed to periodically monitor environment quality parameters.
6	The 1.5 mts diameter pipe is proposed for filling the reservoir in the two monsoon seasons. However, after filling of reservoir, this pipeline would be required for only 10-15% make up water annually. Therefore, it is advised to evolve a mechanism for using the full capacity of pipe by sharing with state authorities for water supply to the nearest town/villages/cities etc.	We shall explore the possibility of sharing the pipeline for local use with WRD.
7	Ambient Air Quality Monitoring Station shall be established in the villages for collecting the air quality data and impact assessment modelling due to construction and transportation of man/material shall be assessed and submitted in EIA/EMP report.	Ambient air quality monitoring and impact assessment modelling will be carried out during EIA study.
8	PP shall explore and demarcate the area for solid waste management/recycling to be generated during construction / operation since it was not clear from the present proposal.	Solid waste management plan preparation is part of the specific Tor for Pump Storage projects and shall be adhered to.
9	Conservation of flora fauna in existing Upper Reservoir area.	Inventory of flora and fauna in the upper reservoir will be prepared during baseline studies with the help of primary and secondary data. Biodiversity conservation and management plan shall be prepared to address the impacts.
10	Project Proponent shall explore alternate road for accessing the project area, movement of man and heavy machinery during investigation and survey of site. Same alternate road can be used for construction, if in case of	There will be no movement of heavy machinery during the investigation works. Currently, we use the village road for regular site visits, as it is the shortest route to the Bilaspur PSP.

	grant of EC.	However, alternative routes are available and will be utilized during the construction phase. The alternative routes have been marked on Google map and enclosed at Annex-A.

Query 2: PP shall explore any alternate source of water nearer to the site and details of other consumers.

Reply:

Bilaspur PSP is proposed with two artificial reservoirs i.e., Upper and Lower Reservoir (both reservoirs to be constructed afresh). These two reservoirs are not located across any perennial streams. Total water requirement for one time filling of reservoirs -

Up to MDDL of Upper reservoir : 0.86 MCM Up
to FRL of Lower reservoir : 11.90 MCM
Evaporation and other losses : 0.85 MCM
Water in WCS MCM : 0.15
Total requirement : 13.75 MCM

We have proposed to use the Khutaghat dam reservoir for initial filling and for regular recuperation. The source was reviewed again and in addition, one more source was identified and compared as discussed in ensuing text.

Alternative Source 1: Khutaghat dam reservoir is located at a distance of about 16 km from the project location. Data of evaporation, temperature, humidity, radiation, wind velocity, etc. has been obtained from IMD website https://indiawris.gov.in/wris/ for the IMD observation station near the project site. First time filling of lower reservoir is planned to be carried out in monsoon months from Khutaghat (Kharang) Dam, utilizing excess river inflows during this season.

Annual inflow at Khutaghat dam site has been estimated based on transposition of available long term annual inflow volume at junction of Kharang and Arpa rivers at Ghatora observation site using their catchment area proportion. The catchment area of Khutaghat dam site is about 614 sq.km. Rainfall data from 01 Jan 2004 to 31 Dec, 2023 has been taken from "India Water Resource Information System" on website of India Metrological Department for obtaining the Average Annual Rainfall in Bilaspur district of Chhattisgarh. The monthly rainfall data has been submitted.

Khutaghat dam provides domestic water to Ratanpur and Kota areas of Bilaspur, this dam also provides irrigation to agricultural land of the outskirt villages. Live storage capacity of Khutaghat dam is 192.32 MCM. The Annual Estimated runoff volume during average year is estimated about 265.19 MCM in the Khutaghat (Kharang) Dam. The average yearly estimated overflow from the dam is about 72.95 MCM, Construction schedule for construction of lower dam is envisaged in a way that monsoon seasons would be available for filling of lower reservoir. Total water requirement for initially filling of the reservoirs is 13.75 MCM including evaporation losses, which shall be fulfilled

in two monsoon seasons. Thus, first requirement of reservoirs filling per monsoon season is 6.875 MCM against an average available overflow of 72.95 MCM.

Alternative Source 2: Constructing a water Intake located at Ghatora, just downstream of Kharang and Arpa rivers. This location has more catchment area than Khutaghat dam. The catchment area of Ghatora site is about 2022 sq.km. This location is about 25 km from the project site. Kharang river on which Khutaghat dam is constructed is a tributary of Arpa River which is itself a major tributary of the river Seonath that meets with Mahanadi. 38 years (From 1980-81 to 2017-18) annual runoff data of Arpa river available at Ghatora site is used to find the runoff at Khutaghat dam. Sketch showing tentative pipeline arrangement from Ghatora site to Project Lower reservoir is given below. Discharge data of Ghatora site has been submitted.

CONCLUSION

Among above two alternatives, Khutaghat dam is nearest to the Project and water is planned to be taken in flood season (2 seasons). Thus, requires less pipe length and pumping energy. Hence, it is preferred to obtain water from Khutaghat dam.

The Water allotment for the Project for nearest source i.e. Khutaghat Dam has been applied online to Water Resources Department, Govt. Chhattisgarh on 28/12/2023 for sanction of allotment of water for Bilaspur PSP (1000MW) through the nodal Agency State Investment Promotion Board (SIPB) Government of Chhattisgarh. The application is under active consideration.

Query 3: PP shall explore the possibility to reduce the forest land for the proposed project and also for reduction of muck disposal area by increasing the height of muck dump.

Reply:

Regarding the possibility to reduce the forest land:

The Upper and Lower Reservoirs occupy maximum forest land for Bilaspur PSP, as against the other project components. The construction facility and muck disposal sites are planned in non-forest land. As suggested by EAC, the possibility of reduction of forest land has been explored by increasing the dam height.

Considering various technical parameters, it is proposed to increase the dam height of Lower Reservoir by about 4 m, resulting in reduction of forest land required by about 6 Ha. As such, in the present proposal, land required for lower reservoir has been revised from 71 Ha (planned in our original Proposal) to 65 Ha (proposed in the latest Proposal).

Upper reservoir is proposed over a flat-topped plateau having limited area due to its topography. As reservoir is to be built on a plateau, its area is restricted by its topography and height (Maximum height of about 40.0m). Increasing the height beyond this range is not technically feasible as it is to be constructed on a plateau. Thus, storage capacity of this reservoir is limited due to above constraints.

As per EAC sub-committee's recommendations in the site visit report, additional approach roads have been proposed to avoid the existing village roads. Therefore, land for approach road has increased from 10.5 ha (as proposed earlier) to 13.5 ha i.e. an increase of 3 Ha, making effective reduction in forest land by 3 ha.

Regarding reduction of muck disposal area by increasing the height of muck dump:

For construction of different components of the project, substantial surface and underground excavation in over burden and rock for dams, intake tunnel, pressure shaft, powerhouse and tailrace tunnel would be generated. The excavation shall result in large quantity of excavated material i.e. muck which have to be evacuated, disposed off and roller compacted or laid on mild slopes moving together with the excavation work to such designated areas where the muck piles do not substantially interfere with either environment / ecology. The disposal of muck has to be scientifically planned keeping in view the economic aspects necessitating nearness to the muck generating component of work, which understandably reduce the travel time of dumpers, less interference to surface flow and ground water aquifer and disposition of habitation. Based on the quantities of surface and underground excavation including 10% over break a muck management plan, shall be formulated to manage the disposal of muck and restore such areas from further degradation of the environment. During construction of the project, huge quantities of excavation will be carried out from the underground and surface components and shall be dumped in designated areas to provide stable slopes.

It is proposed to utilize about 50% of the excavated material as construction material for rockfill, shotcreting and for construction of various project components. The balance 50% shall have to be disposed off away from sites to make available the site clear. Retaining wall of 4-5m height was planned for the muck dumping area due to which the total muck dumping area was estimated as 116 Ha. However, we have now optimized the required area by adopting more height of retaining wall (upto 12m height) and thus the total area required for muck dumping is reduced from 116 Ha to 92 Ha. The required land requirement and the revised layout has been submitted.

The muck shall be properly roller compacted and dumped on slopes and treated to mix and match with the surrounding environment with least change in landscape.

The selection of muck disposal sites is carried out considering the quantity of the muck, landscape, cost effectiveness, nearness to source of generation, absence of ground and surface water, relief and scope for afforestation works. All the dumping locations shall be well supported at base and at higher elevation by suitable retaining structures. Subsequently all the spoil tips (muck disposal sites) will be developed by taking up plantation through bio-technological methods to generate a thick forest canopy over them. Sketch showing muck disposal arrangement has been submitted.

Following tables showing the land requirement in original and present proposal are given below:

Requirement of Land in Forest Area:

S.No.	Project Components	Earlier Land (Ha)	Current Land (Ha)
1	Upper Reservoir	57	57
2	**Lower Reservoir**	**71**	**65**
3	WCS excluding Dam area	17	17
4	Power House Complex	5	5
5	**Approach Roads**		

5.1	Approach Road to UR	8	7.1
5.2	Approach Road to VPS	-	0.6
5.3	Approach Road to PH	-	0.7
5.4	Approach Road to LR	-	0.3
5.5	Approach Road to Labour Camp	-	0.2
5.6	Approach Road to Muck disposal	-	3.8
6	Main access Tunnel	-	0.8
7	Approach Roads LR, PH	2.5	-
8	Pipeline including Pump-House at water source	5.5	5.5
	Total Forest Land Required (Ha)	**166**	**163**

Requirement of Land in Non-Forest Area:

S.No.	Project Components	Earlier Land (Ha)	Current Land (Ha)
1A	Site Office UR	1	1
1B	Site Office LR	1	1
2A	Crushing & Batching Plant UR	2.25	2.25
2B	Crushing & Batching Plant LR	2.25	2.25
3A	Stacking Area and Workshop UR	1	1
3B	Stacking Area and Workshop LR	1	1
4	Magazine Area	0.5	0.5
5A	Labour Camps UR	2	2
5B	Labour Camps LR	2	2
6A	Colony Area UR	2	2
6B	Colony Area LR	2	2
7	Muck Disposal Area	116	92

	Category of Land	Land Requirement (Ha)	
Sl. No.	Land Category	Original Proposal	Revised Proposal
1.	Forest Land	166.00	163.00
2.	Non Forest Land	135.50	111.50
	Total Land	301.50	274.50
	Reduction in Land Requirement	27.00	

Query 4: PP shall submit an undertaking stating that power to be use for pumping the water will be from green source.

Reply: The PP submitted the undertaking.

JINDAL RENEWABLES

Undertaking

We hereby undertake to use the green power for pumping the water during the operation of Bilaspur Pump Storage Project to the extent possible subject to the limits specified by Ministry of Power (MoP), Government of India and availability of green power from the grid.

According to the Order No. 23/12/2016-R&R, dated 23/11/2021 of Ministry of Power (MoP), Government of India, at least 51% of the annual electricity requirement for pumping water in Pumped Storage Project is met by utilizing electricity generated from solar and/or wind power plants.

We, hereby undertake to comply the aforesaid provision of MoP which is applicable to all pumped storage project.

Further, we, hereby confirm to comply with all orders, rules, and regulations set forth by the Ministry of Environment Forest & Climate Change, Ministry of Power, Central Electricity Authority (CEA), and Central Electricity Regulatory Commission (CERC) concerning the green energy source for pumping the water.

JINDAL RENEWABLE POWER PVT LTD

Authorized Signatory
For and on behalf of Jindal Renewable Power Private Limited

JINDAL RENEWABLE POWER PRIVATE LIMITED
CIN No. U35106DL2023PTC410563
Registered Office OSM-648, 6th Floor, DLF Towers Shivaji Marg, Najafgarh Road, Moti Nagar, Delhi (West) New Delhi - 110015 INDIA T +91 11 41462000

Query 5: Demographic profile of the 10km radius of the project area shall be provided.

Reply:

Information about Demographic & Occupation Profile of the Study Area

The proposed Bilaspur Pumped Storage Project study area (10 km radius of the project area) falls under Bilaspur, Kota and Masturi tehsils in Bilaspur district, Baloda and Akaltara tehsils in Janjgir Champa district and Pali tehsil in Korba district of Chhattisgarh State. All the component areas of the project like proposed upper and lower reservoir area, colony area, muck dumping site, pumping alignment etc. fall under Bilaspur and Masturi tehsils in Bilaspur district.

Demographic Profile of the 10 Km Radius of the Project Area (Study Area)

There are total of 121 villages falling in the study area; of these, 30 are in Bilaspur tehsil, 42 are in Masturi tehsil, 8 are in Kota tehsil of Bilaspur district, 4 are in Baloda tehsil, 5 are in Akaltara tehsil of Janjgir Champa district and 32 are in Pali tehsil of Korba district. The demographic profile of villages in the study area based on the Census of India 2011 is given below at **Table 4**.

The population of the study area is 213845 of which 108405 (50.69%) are males and 105440 (49.30%) are females. The number of households is 48419 with an average occupancy of 4 to 5 persons per household. The sex ratio was found to be 972 females per 1000 males. Village wise demographic details are given in **Table 4**.

The total Scheduled Caste population in the study area is 36802, which is 17.20% of the total population, of which 18637 are male and 18165 are female. The total ***Scheduled Tribe*** population is 59890, which is 28% of the total population, of which 29939 are male and 29951 are female. The village-wise caste profile is given in **Table 4**.

According to secondary source, most of the tribal group people live in villages near the project area in Masturi tehsil of Bilaspur district.

Table 4: Demographic Profile of Study Area

Parameter	Districts Profile	
	Number	% to Respective Total
Household	**48419**	
Total Population	**213845**	
Male	108405	50.69
Female	105440	49.30
Sex Ratio	**972**	
Scheduled Castes (SC)	36802	17.20
Male	18637	50.64
Female	18165	49.35
Scheduled Tribes	59890	28.00
Male	29939	49.98
Female	29951	50.01

Occupation Profile of the Study Area

According to the Census of India 2011, the total working population in the study area was 45.28%, of which 58.20% were classified as main workers, while 41.79% were identified as marginal workers. Of the main and marginal workers, 21.29% are cultivator, 59.05% are agricultural labourers, only 1.59 % are household industrial workers and remaining 18.05% of the working population are engaged in other services category viz. Government and private jobs. Percentage of working population in the study area is given in **Table 5**.

The workers coming under main and marginal workers category are those involved in activities such as cultivation, agriculture, livestock, fishing, plantation, manufacturing, servicing, and repair in household industry, construction, trade and commerce, transportation, and other services.

Agriculture and allied activities are the primary occupations in the study area and most of the people in the study area are agricultural labour. The people in the study area also move to nearby industries and other cities for labour work.

Table 5: Occupation Profile of the Study Area

Particulars	**Percentage (%)**
Total Workers	45.28
Main Workers	58.20
Marginal Worker	41.79
Cultivators	21.29
Agricultural Labours	59.05
Household Industrial Workers	1.59
Other Workers	18.05

Query 6: Secondary data of presence/occurrence of wildlife in the in consultation in forest department and local people shall be provided.

Reply:

Faunal Diversity in the Study Area

The project location falls within the jurisdiction of the Bilaspur Forest Division, Chhattisgarh. Information regarding the faunal diversity comprising of mammals, birds and herpetofauna, is acquired through the discussion with forest officials, local people and referring to the working plan of the Bilaspur Forest Division (implementing years 2022-23 to 2031-32). The faunal species reported from the Bilaspur Forest Division listed as Schedule I of WPAA –Wildlife (Protection) Amendment Act, 2022 are given below in table.

S. No.	**Family**	**Common Name**	**Scientific Name**	**Conservation Status**	
				WPAA 2022	**IUCN 2023-1**
	MAMMALS				
1	Cervidae	Sambhar	*Cervus unicolor*	I	VU
2	Bovidae	Indian Bison	*Bos gaurus*	I	VU
3	Canidae	Indian Fox	*Vulpes bengalensis*	I	LC
4	Canidae	Wild Dog	*Cuon alpinus*	I	EN
5	Felidae	Golden Jackal	*Canis aureus*	I	LC
6	Felidae	Indian Wolf	*Canis lupus*	I	LC
7	Felidae	Common Leopard	*Panthera pardus*	I	VU

8	Felidae	Tiger	*Panthera tigris*	I	EN
9	Herpestidae	Indian Grey Mongoose	*Herpestes edwardsii*	I	LC
10	Hyaenidae	Striped hyaena	*Hyaena hyaena*	I	NT
11	Ursidae	Sloth Bear	*Melursus ursinus*	I	VU
12	Mustelidae	Honey Badger	*Mellivora capensis*	I	LC
13	Hystricidae	Indian Crested Porcupine	*Hystrix indica*	I	LC
	AVIFAUNA				
14	Accipitridae	Red-headed vulture	*Sarcogyps calvus*	I	CR
15	Phasianidae	Indian Peafowl	*Pavo cristatus*	I	LC
	HERPETOFAUNA				
16	Chamaeleonidae	Indian Chameleon	*Chamaeleo zeylanicus*	I	LC
17	Elapidae	Indian cobra	*Naja naja*	I	LC
18	Viperidae	Russell's Viper	*Daboia russelii*	I	LC
19	Varanidae	Bengal Monitor Lizard	*Varanus bengalensis*	I	NT
20	Pythonidae	Indian Python	*Python molurus*	I	NT

WPAA –Wildlife (Protection) Amendment Act, 2022; UCN Ver. 2023-1 - *International Union for Conservation of Nature; LC - Least Concern; CR: Critically Endangered; EN Endangered; VU: Vulnerable; NT: Near Threatened;*

The list of faunal species reported from the Bilaspur Forest Division are as follows:

A. Mammals

S. No.	**Order/ Family**	**Common Name**	**Scientific Name**	**Conservation Status**	
				IUCN 2023-1	**WPAA, 2022**
	ARTIODACTYLA				
1	Suidae	Wild Pig	*Sus scrofa*	LC	II
2	Cervidae	Spotted Dear	*Axis axis*	LC	II
3	Cervidae	Barking deer	*Muntiacus muntjac*	LC	-
4	Cervidae	Sambhar	*Cervus unicolor*	VU	I
5		Indian Bison	*Bos gaurus*	VU	I
	CARNIVORA				
6	Canidae	Indian Fox	*Vulpes bengalensis*	LC	I
7	Canidae	Wild Dog	*Cuon alpinus*	EN	I
8	Felidae	Golden Jackal	*Canis aureus*	LC	I
9	Felidae	Indian Wolf	*Canis lupus*	LC	I
10	Felidae	Common Leopard	*Panthera pardus*	VU	I
11	Felidae	Tiger	*Panthera tigris*	EN	I
12	Felidae	Common Jungle cat	*Felis chaus*	LC	II
13	Herpestidae	Indian Grey Mongoose	*Herpestes edwardsii*	LC	I

14	Hyaenidae	Striped hyaena	*Hyaena hyaena*	NT	I
15	Ursidae	Sloth Bear	*Melursus ursinus*	VU	I
16	Mustelidae	Honey Badger	*Mellivora capensis*	LC	I
	LAGOMORPHA				
17	Leporidae	Common Hare	*Lepus nigricollis*	LC	II
	PRIMATES				
18	Cercopithecidae	Rhesus macaque	*Macaca mulatta*	LC	II
19	Cercopithecidae	Common Langur	*Semnopithecus entellus*	LC	II
	RODENTIA				
20	Hystricidae	Indian Crested Porcupine	*Hystrix indica*	LC	I

IUCN Ver. 2023-1 - *International Union for Conservation of Nature; LC - Least Concern; VU: Vulnerable; NT: Near Threatened; En Endangered; WPAA –Wildlife (Protection) Amendment Act, 2022*

B. Avifauna

S. No.	Family	Common Name	Scientific name	Conservation Status	
				IUCN 2023-1	WPAA, 2022
	Order: Accipitriformes				
1	Accipitridae	Red-headed vulture	*Sarcogyps calvus*	CR	I
	Order: Anseriformes				
2	Anatidae	Indian Spot-billed Duck	*Anas poecilorhyncha*	LC	II
	Order: Bucerotiformes				
3	Upupidae	Common Hoopoe	*Upupa epops*	LC	II
	Order: Charadriiformes				
4	Charadriidae	Red-wattled Lapwing	*Vanellus indicus*	LC	II
5	Recurvirostridae	Black-winged Stilt	*Himantopus himantopus*	LC	II
6	Scolopacidae	Wood Sandpiper	*Tringa glareola*	LC	II
	Caprimulgiformes				
7	Caprimulgidae	*Caprimulgus asiaticus*	Indian Nightjar	LC	II
	Order: Columbiformes				
8	Columbidae	Laughing Dove	*Streptopelia senegalensis*	LC	II
9	Columbidae	Spotted Dove	*Spilopelia suratensis*	LC	II
10	Columbidae	Eurasian Collard-Dove	*Streptopelia decaocto*	LC	II
11	Columbidae	Rock Dove	*Columba livia*	LC	II
	Order: Coraciiformes				
12	Alcedinidae	Common Kingfisher	*Alcedo atthis*	LC	II
13	Alcedinidae	Pied Kingfisher	*Ceryle rudis*	LC	II
14	Alcedinidae	White-throated Kingfisher	*Halcyon gularis*	LC	II
15	Coraciidae	Indian Roller	*Coracias benghalensis*	LC	II
16	Meropidae	Asian Green Bee-eater	*Merops orientalis*	LC	II
	Order: Cuculiformes				

17	Cuculidae	Western Koel	*Eudynamys scolopaceus*	LC	II
18	Cuculidae	Greater Coucal	*Centropus sinensis*	LC	II
	Order: Passeriformes				
19	Dicruridae	Black Drongo	*Dicrurus macrocercus*	LC	II
20	Hirundinidae	Wire-tailed Swallow	*Hirundo smithii*	LC	II
21	Laniidae	Long-tailed Shrike	*Lanius schach*	LC	II
22	Leiothrichidae	Jungle Babbler	*Turdoides striata*	LC	II
23	Motacillidae	White Wagtail	*Motacilla alba*	LC	II
24	Motacillidae	Western Yellow Wagtail	*Motacilla flava*	LC	II
25	Muscicapidae	Oriental Magpie-Robin	*Copsychus saularis*	LC	II
26	Muscicapidae	Indian Robin	*Saxicoloides fulicatus*	LC	II
27	Passeridae	House Sparrow	*Passer domesticus*	LC	II
28	Ploceidae	Baya Weaver	*Ploceus philippinus*	LC	II
29	Pycnonotidae	Red-vented Bulbul	*Pycnonotus cafer*	LC	II
30	Sturnidae	Common Myna	*Acridotheres tristis*	LC	II
31	Motacillidae	White-browed Wagtail*	*Motacilla maderaspatensis*	LC	II
	Order: Pelecaniformes				
32	Ardeidae	Grey Heron	*Ardea cinerea*	LC	II
33	Ardeidae	Cattle Egret	*Bubulcus ibis*	LC	II
34	Ardeidae	Little Egret	*Egretta garzetta*	LC	II
	Order: Piciformes				
35	Ramphastidae	Coppersmith Barbet	*Psilopogon haemacephalus*	LC	II
	Order: Psittaciformes				
36	Psittaculidae	Rose-ringed Parakeet	*Psittacula krameri*	LC	II
	Order: Suliformes				
37	Phalacrocoracidae	Little Cormorant	*Microcarbo niger*	LC	II
	Order: Galliformes				
38	Phasianidae	Indian Peafowl	*Pavo cristatus*	LC	I
39	Phasianidae	Red Junglefowl	*Gallus gallus*	LC	II
40	Phasianidae	Jungle bush quail	*Perdicula asiatica*	LC	II
41	Phasianidae	Black Francolin	*Francolinus francolinus*	LC	II
	Order: Strigiformes				
42	Strigidae	Eurasian Eagle-owl	*Bubo bubo*	LC	I

IUCN Ver. 2023-1 - *International Union for Conservation of Nature; LC - Least Concern; CR: Critically Endangered; WPAA –Wildlife (Protection) Amendment Act, 2022*

C. Herpetofauna

S. No.	Family	Common Name	Species Name	Conservation Status	
				IUCN 2023-1	WPA, 2022

1	Chamaeleonidae	Indian Chameleon	*Chamaeleo zeylanicus*	LC	I
2	Agamidae	*The oriental garden lizard*	*Calotes versicolor*	LC	-
3	Colubridae	Indian Rat Snake	*Ptyas mucosa*	LC	II
4	Elapidae	Common Krait	*Bungarus caeruleus*	LC	II
5	Elapidae	Indian cobra	*Naja naja*	LC	I
6	Viperidae	Russell's Viper	*Daboia russelii*	LC	I
7	Varanidae	Bengal Monitor Lizard	*Varanus bengalensis*	NT	I
8	Pythonidae	Indian Python	*Python molurus*	NT	I
9	Bufonidae	*Duttaphrynus melanostictus*	Asian Common Toad	LC	--

IUCN- International Union for Conservation of Nature; LC- Least Concern; NT-Near Threatened; WPA 2022- The Wild Life (Protection) Amendment Act, 2022.

13.2.4 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 terms of reference to the project for Bilaspur Open Loop Pumped Storage Project (1000 MW) in an area of 274.5 Ha in Village Manjurpah & Karichhaper, District Bilaspur, Chhattisgarh by M/s Jindal Renewable Power Private Limited.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.

The total land requirement for the project is 274.50 hectares, of which 163.0 hectares are forest land and 111.50 hectares are non-forest land. The application for Stage-I forest clearance has yet to be obtained. It was also noted that the Project Proponent has signed a Memorandum of Understanding (MoU) with the State Government on 08/09/2023.

13.2.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of Standard ToR for conducting EIA study for proposed construction of the project for Bilaspur Open Loop Pumped Storage Project (1000 MW) in an area of 274.5 Ha in Village Manjurpah & Karichhaper, District Bilaspur, Chhattisgarh by M/s Jindal Renewable Power 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. Points suggested by the Sub-committee after the site visit shall be complied with.
ii. Forest Division of the Ministry and State Government while appraising Forest Clearance, shall take into account the richness of biodiversity and pristine forest area to take appropriate decision.

iii. Explore the possibilities for reducing the Forest land requirement. The application for obtaining Stage I FC for 274.5 Ha of forest land involved in the project shall be submitted.

iv. 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.

v. PP shall submit the detailed plan for filling the reservoir in 2 years for generating envisaged capacity with excess monsoon water only.

vi. No Objection Certificate from State of Jharkhand and Bihar as there may be genuine concern of downstream consumers to avoid scarcity of water to consumers. The availability of water in the river shall be submitted by Project Proponent certified by the Central Water Commission and State Water Resources Department

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

viii. 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.

ix. 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.

x. 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.

xi. 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.

xii. Conducting site specific ecological study with respect to riverine ecology focus on 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.

xiii. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ River /nala of catchment area / due to tapping of water for filling reservoir.

xiv. Action plan for survival or diversion of the rivulets/stream leading to join river shall be submitted.

xv. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard 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.

xvi. 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.

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

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

xix. The project area should not come up on any critical mineral zone to be verified by GSI/NMDC.

xx. Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI. No mineral zone on the proposed site be certified by Geological Survey of India or any other concerned Government Organization.

[B] Socio-economic Study

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

xxii. 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. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.

xxiii. 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.

xxiv. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right

to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

xxv. Budget earmarked for R&R, CSR shall not include in the cost of EMP and compliance of issues raised during Public Hearing.

[C] Muck Management/ Disaster Management

xxvi. 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.

xxvii. 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.

xxviii. 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.

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

[D] Disaster Management

xxx. 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.

xxxi. PP shall submit the proposal of EAC and seek approval of CEA/CWC for DPR, with a distance of 100 mts from HFL to avoid future damage due to flood. The data and distance of HFL shall be certified by concerned State Government and shall be submitting grant submitting the proposal of grant of EC.

[E]Miscellaneous

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

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

xxxiv. 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.

xxxv. Drone video of project site shall be recorded and to be submit.

xxxvi. Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose.

xxxvii. Detailed plan to restore wider roads and convert them into narrow upto 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.

xxxviii. 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 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.

xxxix. Detailed report on cumulative effect of multiple projects already proposed within the region on the same source.

Agenda Item No. 13.3:

MP30 Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) in an area of 402.50 ha in village Khemla Block, Tehsil Rampur, District Neemuch, Madhya Pradesh by M/s Greenko Mp01 IREP Private Limited - Amendment in Environmental Clearances Reg.

[Proposal No. IA/MP/RIV/477062/2024; F. No. J-12011/22/2019-IA-I (R)]

13.3.1: The proposal is for grant of amendment in Environmental Clearances MP30 Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) in an area of 402.50 ha by M/s Greenko MP01 IREP Private Limited in village Khemla Block, Tehsil Rampur, District Neemuch, Madhya Pradesh.

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

i. The proposal is for amendment in the Environmental Clearance granted by the Ministry Vide letter dated 02.12.2021 for the project MP30 Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) located at in village Khemla Block, Tehsil Rampur, District Neemuch, Madhya Pradesh in favour of M/s Greenko MP01 IREP Private Limited (Previously Greenko Energies Private Limited).

ii. The project proponent has requested for amendment in the EC with the details are as under;

S. No.	Para of EC issued by MoEF&CC	Detailsas per the EC	To be revised/ read as	Justification/ reasons

1	Point No. 4 (vi)	Two nos. Reversible Francis turbine each of 120 MW capacity operating under a rated head of 121.0 m in generating mode and 128.70 m in pumping mode	Two nos. Reversible Francis turbine each of 120 MW capacity operating under a rated head of 119.95 m in generating mode and 127.85 m in pumping mode	The heads have been reworked out and therefore there is minor change in rated head values.
2	Subject	MP30Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) in an area of 402.50 ha	MP30Gandhi Sagar Off Stream Open Loop Pumped Storage Project (1920 MW) in an area of 420.0272 ha	There is no change in project category except that capacity has been enhanced. However, as per new CEA guidelines such projects are categorized as Off-stream Open loop pumped storage project. There is a change in land requirement (Forest land 17.5272Ha) for the project.
3	Point No. 2	Capacity - 1440 MW	Capacity - 1920 MW	The project capacity 1440 MW (5X240 MW + 2X120 MW) has been enhanced to 1920 MW (7X240 MW + 2X120 MW) as per the requirements and demand from various State DISCOMs/STUs, to meet Off-peak hrs supply as well as peak supply for around 6 hr.
4	Point No. 4 (iii)	The project envisages non-consumptive re-utilization of 1.22 TMC of water of the Gandhi Sagar reservoir by recirculation	The project envisages non-consumptive re-utilization of 1.24 TMC of water of the Gandhi Sagar reservoir by recirculation	Without changing the project reservoir shape and levels the storage capacity reworked out to 1.24 TMC. The same shall be used for recirculation for generation & pumping

				vice versa as non-consumptive reutilization.
5	Point No. 4 (iv)	Capacity - 1440 MW	Capacity - 1920 MW	The project capacity 1440 MW (5X240 MW + 2X120 MW) has been enhanced to 1920 MW (7X240 MW + 2X120 MW) as per the requirements and demand from various State DISCOMs/STUs, to meet Off-peak hrs supply as well as peak supply for around 6 hr.
6	Point No. 4 (vi)	The project will involve construction of rock fill embankment of maximum height of 35 m for creation of MP 30 Gandhi Sagar Off-Stream PSP upper reservoir of 1.80 TMC gross storage and 1.22 TMC live storage	The project will involve construction of GFRD embankment of maximum height of 38 m for creation of MP 30 Gandhi Sagar Off-Stream PSP upper reservoir of 1.90 TMC gross storage and 1.24 TMC live storage	The type of dam changed to PVC Geomembrane Faced Rockfill Dam (GFRD) from the earlier proposed rockfill dam due to shorter construction period, less maintenance, easy connection to concrete surface, higher placing rate and resistance against wind uplift and the high drawdown rate of reservoir. In both the dams, the fill material is the rockfill and hence there is no change in the material type.
7	Point No. 4 (vi)	The upper reservoir is located at EL 491 m and the FRL and MDDL of this reservoir is at EL 523.00 m & EL. 508.00 m respectively	The upper reservoir is located at EL 491.25 m and the FRL and MDDL of this reservoir is at EL 522.20 m & EL. 508.00 m respectively	As per the latest topographical survey the reservoir levels have been optimized corresponding to the required storage capacities without changing the location.
8	Point No. 4 (vi)	6 nos. each of	8 nos. each of	The project capacity

		683.48 m long and 7.5 m dia. surface circular steel lined Penstock/ Pressure Shaft in which 5 nos.. will feed 5 units each of 240 MW and 1 will bifurcate in to 2 of 5.3 m dia to feed 2 units of each of 120 MW	280.33 m long and 7.5 m dia. surface circular steel lined Penstock/ Pressure Shaft in which 7 nos.. will feed 7 units each of 240 MW and 1 will bifurcate in to 2 of 5.3 m dia to feed 2 units of each of 120 MW	has been enhanced to 1920 MW by adding two more units of 240 MW each which requires two additional Penstock/pressure shaft. Thus, the total no of penstock/pressure shaft are 8
9	Point No. 4 (vi)	A surface powerhouse having an installation of 5 nos. of Reversible Francis turbine each of 240 MW capacity operating under a rated head of 121.70 m in generation mode and 127.70 m in pumping mode	A surface powerhouse having an installation of 7 nos. of Reversible Francis turbine each of 240 MW capacity operating under a rated head of 121.45 m in generation mode and 127.25 m in pumping mode	Enhancement of installed capacity from 1440 MW to 1920 MW requires installation of two additional pump turbines of 240 MW each i.e. number of total units has increased from 5 to 7.
10	Salient Features	Project Cost – 6991.25 Cr.	Project Cost – 11469.08 Cr.	The cost of the project has been increased due to addition of two more units, increased size of TRC, and change in power evacuation system.

iii. Detail reason for amendment in EC:

The project was designed for 7.23 hours of peak generation duration with 1440 MW installed capacity to create a storage capacity of 10411.20 MWH. As per the power grid requirement, PSPs should be designed for about 6 hours peak supply on daily basis. Keeping the grid requirement, the project operation duration has been optimized to 5.35 hours daily. Keeping the storage capacity close to earlier designed value, the installed capacity is revised to 1920 MW, which will give a storage capacity of 10272 MWH. This is achieved, without any change in the storage capacity of the upper reservoir. Lower reservoir is already existing Gandhi Sagar reservoir. Additional land requirement works out to be 17.5272 ha, which is forest land., there is no additional private land requirement. Out of 17.5272 ha, 8.3184 ha is under submergence in Gandhi Sagar and 5.55 ha is also surrendered as unused forest land from earlier diversion. Therefore, effective additional surface forest land is 3.6549 ha.

During detailed engineering design, keeping in view the further geological investigation, layout has been optimized to achieve 1920 MW installed capacity.

iv. The comparative statement with reference to earlier proposal and revised proposal is to be given in table format:

1		**FEATURS OF THE PROJECT**	**1440 MW**	**1920 MW**
2		**Location**		
	a	Country	India	India
	b	State	Madhya Pradesh	Madhya Pradesh
	c	District	Neemach	Neemuch
	d	Village near Powerhouse	Khemla Block, Rampura Taluk	Khemla Block
3		**Geographical Co-Ordinates**		
	a	**MP 30 GANDHI SAGAR PSP Upper Reservoir - (NowProposed)**		
		Latitude	24° 31' 6.89" N	24°31'6.89"N
		Longitude	75° 30' 56.12" E	75°30'56.12"E
	b	**Gandhi Sagar reservoir – Lower Reservoir (Existing)**		
		Latitude	24° 31' 5.4" N	24° 31' 5.4" N
		Longitude	75° 32' 5.28" E	75° 32' 5.28" E
4		**Access To Project Site**		
	a	Airport	Neemach, 85Km from project site	Neemach, 85Km from project site
	b	Rail head	Neemach, 67 Km from project site	Neemach, 67 Km from project site
	c	Road	SH 31A	SH 31A
	d	Port	Navlakhi	Navlakhi
5		**Project**		
	a	Type	Off-stream open loop pumped storage project	Off-stream open loop pumped storage project
	b	Storage Capacity	10411.20 MWH	10272 MWH
	c	Rating	1440 MW	1920 MW
	d	Peak operation duration	7.23 Hours daily	5.35 Hours daily
6		**MP 30 GANDHI SAGAR PSP – Upper Reservoir**		
	a	Live Storage	1.22 TMC	1.24 TMC
	b	Dead Storage	0.58 TMC	0.66 TMC
	c	Gross Storage	1.80 TMC	1.90 TMC
	d	Full Reservoir	EL +523.00 m	EL 522.2 m

		level (FRL)		
	e	Minimum Draw Down Level (MDDL)	EL +508.00m	EL 508.0 m
	f	Top Bund Level (TBL)	EL +526.00m	EL 527.8 m
	g	Foundation Level	EL +491.00 m	-
	h	Max Height of Embankment	35.00 m	38.0 m
	i	Length of Embankment	5561.131 m	5990.0 m
7		**Gandhi Sagar reservoir – Lower Reservoir – (Existing)**		
	a	Type of Dam	Masonry Gravity Dam	Masonry Gravity Dam
	b	Full Reservoir Level (FRL)	EL 400.00 m	EL 400.00 m
	c	Minimum Draw Down Level (MDDL)	EL 381.00 m	EL 381.00m
	d	Height of Dam above deepest bed level	63.70 m	63.70 m
	e	Length of Dam	514.00m	514.00 m
	f	Gross Storage Capacity	258.47 TMC	258.47 TMC
8		**RCC intake Structure**		
	a	Type	Diffuser Type	Diffuser Type
	b	Elevation of Intake center line	EL +495.50 m	EL 495.00 m
	c	Elevation of Intake bottom	EL +491.05 m	EL 491.25 m
9		**Penstock /Pressure Shafts**		
	a	Type	Finished steel lined – circular	Finished steel lined - circular
	b	Number of Penstocks	6 Nos. wherein 1 No. Independent Pressure shaft bifurcated in to 2 for smaller units.	8 Nos. wherein 1 No. Independent Pressure shaft bifurcated in to 2 for smaller units.
	c	Diameter of Penstock	7.5 m - Main Penstock 5.3 m – Branch Penstock	7.5 m - Main Penstock 5.3 m – Branch Penstock

	d	Length of penstock/Pressure Shaft	For 5 nos. – 683.48 m each (MainPenstock) for 5 larger units For 1 no. – 607.23m long (Main Penstock) and 76.25m each Branch Penstock for 2smaller units	For 7 nos. – 671.33 m each (MainPenstock) for 7 larger units For 1 no. – 631.93 m long (Main Penstock) and 75.00 m each Branch Penstock for 2smaller units
10		**Powerhouse**		
	a	Type	Surface Powerhouse	Surface Powerhouse
	b	Dimensions (Excluding Service Bay)	181.20m (L) x 25.50m (W) x 56.10m (H)	233.25 m (L) x 25.5 m (W) x 53.10 m (H)
11		**Tail Race Tunnel**		
	a	Type	Concrete Lined - Circular	Steel lined - circular
	b	Number of tunnels	7 Nos (5 individual tunnels for larger units& 2 individual tunnels for smaller units)	9 No (7 individual tunnels for larger units & 2 individual tunnels for smaller units)
	c	Diameter for larger unit	8.5 m each	8.5 m each
	d	Length for larger unit	97.318 m each	97.33 m each
12		**Tail Race Channel**		
	a	Type & Shape	Concrete lined & Trapezoidal	Concrete lined & Trapezoidal
	b	Length of the channel	860.00 m	4002 m
	c	Bed Width	85.00 m	280 m
	d	Full supply depth	6.0 m	5.0 m
	e	Bed slope	1 in 7000	1 in 4002
13		**Tailrace Outlet Structure**		
	a	Type	Diffuser Type	Diffuser Type
	b	Elevation of outlet Centre line	EL +370.71 m	EL 370.60 m for larger units EL 369.45 m for smaller units
14		**Hydro-Mechanical Equipment**		
	a	**RCC Intake Structure**		
	i	Trash Rack	Vertical with inclination of 15°	Vertical with inclination of 15°
	ii	No. of Trash	6 nos.	8 nos.

		racks		
	iii	No. of bays in each trash rack	2 nos. of 7.75m(W) x 10.97m(H) & 1 no. of 8.5m(W) x 10.97m(H) for each unit	3 No of 8.0 m(W) x 11.18 m(H) for each intake
	iv	Intake Service Gate	Size – 6.20m (W) x 7.50 m (H) – 6 Nos. with Rope Drum Hoist	8 No. - 5.9 m(W) x 7.5 m (H) withindependent rope drum hoist
	v	Intake Stop log Gate	Size – 6.20m (W) x 7.50 m (H) – 1 No. with moving Gantry	1 No. - 5.9 m (W) x 7.5 m (H) with moving gantry
	b	**Draft Tube Gates**	High pressure steel type slide gates	-
	i	No. of Service gates per unit	5 Nos. - 7.0 m (W) x 8.5 m (H) for Larger Units & 2 Nos. - 5.1 m (W) x 6.2 m (H) for Smaller Units with Independent Hydraulic Hoist	-
	ii	No. of Stoplog gates per unit	1 No. – 7.0 m (W) x 8.5 m (H) for LargerUnits & 1 No. - 5.1 m (W) x 6.2 m (H) for Smaller Units with Moving Gantry Crane	-
	c	**Tailrace Outlet Structure**		
	i	No. of Trash racks	7 nos.	9 No. (7 No. for larger units & 2 no. forsmaller units
	ii	No. of bays in each trash rack	2 nos. of 6.65m(W) x 10.87m(H) & 1 no. of 6.70m(W) x 10.87m(H) for each larger unit & 2 nos. of 5.20m(W) x 6.73m(H) + 1 no. of 6.60m(W) x 6.73m(H) for each smaller unit	3 No 6.67 m(W) x 12.0m (H) for each largerunit 3 No 5.67 m(W) x 7.87 m(H) for eachsmaller unit
15		**Coffer dam**		
		Length	-	1011 m
		Max. height	-	17.0 m
		Top level	-	EL 405.0 m
16		**Electro-Mechanical Equipment**		

	i	Pump Turbine	Francis type, vertical shaft reversible Pump-turbine	Francis type, vertical shaft reversible pump-turbine
	ii	Total No of units	7 no's (5 X 240MW & 2 X 120 MW)	9 No (7 X 240MW & 2 X 120 MW)
	iii	Total Design Discharge (Turbine Mode)	1326.75 Cumec	1798.92 Cumec
	iv	Rated Head in Turbine mode	121.70 m for larger unit & 121.00m for smaller unit	121.45 m for larger unit & 119.95m for smaller unit
	A	**240 MW Turbines**		
	i	Total No of units	5 Units (Fixed speed)	7 Units (Fixed speed)
	ii	Turbine Design Discharge	220.91 Cumec	224.04 cumec
	iii	Rated Head in Turbine Mode	121.70m	121.45 m
	iv	Pump Capacity	251 MW	249 MW
	v	Rated Pumping Head	127.90 m	127.25 m
	Vi	Rated Pump Discharge	183.86 Cumec	185.02 Cumec
	vii	Synchronous speed	136.36 rpm	187.50 rpm
	I	**Generator-Motor**		
	a	Type	Three (3) phase, alternating current synchronous generator motor semi umbrella type with vertical shaft	Three phase, alternating current synchronous, generator motor semi umbrella type with vertical shaft
	b	Number of units	5 Units	7 Units
	c	Rated Capacity	Generator – 240 MW; Pump Input – 251 MW	Generator – 240 MW Pump Input – 249 MW
	d	Rated Voltage	18 KV	18 kV
	II	**Main Power Transformer**		
	a	Type	Three Single Phase Power transformerswith Off-Circuit tap changer (OCTC)	Outdoor three-Phase transformers with on-load tap changer (OLTC)
	b	Number of units	15 Numbers (ie. 3 Nos./Unit)	7 units

	c	Rated Capacity of each unit	Single Phase, 18KV/400 KV, 100 MVA	315 MVA
	d	Rated Voltage	Primary – 18 kV; Secondary - 400 kV adjustable range of the secondary voltage: - 10% to +10%(3kV/tap)	Primary – 18 kV; Secondary - 400 kV adjustable range of the secondary voltage: -10% to +10% (in 1.25% of steps
	B	**120 MW Turbines**		
	i	Total No of units	2 Units (Variable speed)	2 Units (both are Fixed speed)
	ii	Turbine Design Discharge	111.10 Cumec	115.32 cumec
	iii	Rated Head in Turbine Mode	121.00 m	119.95 m
	iv	Pump Capacity	135 MW	134 MW
	v	Rated Pumping Head	128.70 m	127.85 m
	vi	Rated Pump Discharge	98.16 Cumec	98.78 cumec
	vii	Synchronous speed	187.50 rpm	272.73 rpm
	I	**Generator-Motor**		
	a	Type	Three (3) phase, alternating current asynchronous generator motor semi umbrella type with vertical shaft	Three (3) phase, alternating current synchronous, generator motor semi umbrella type with vertical shaft
	b	Number of units	2 Units	2 units
	c	Rated Capacity	Generator – 120 MW Pump Input – 135 MW	Generator – 120 MW Pump input – 134 MW
	d	Rated Voltage	18 KV	18 kV
	II	**Main Power Transformer**		
	a	Type	Indoor, 3-Ph transformers with Off-Circuittap changer (OCTC)	Outdoor, 3-Ph transformers with On-load tap changer (OLTC)
	b	Number of units	2 Units	2 units
	c	Rated Capacity of each unit	Each 160 MVA, 18KV/400 KV rating power transformers.	166 MVA
			Primary – 18 KV;	Primary – 18 kV;

	d	Rated Voltage	Secondary - 400 kV adjustable range of the secondary voltage: -10% to +10%(3kV/tap)	Secondary - 400 kV adjustable range of the secondary voltage:-10% to +10% (in 1.25% of steps)
17		**Gas Insulated Switchgear (GIS)**	**400 KV Gas Insulated Switchgear**	**420 kV Gas Insulated Switchgear**
	b	No. of GIS units	One No.	One No. with bus sectionaliser
	c	Location	Inside GIS Building above ground	Inside GIS building above ground
	d	Scheme	Double Busbar Arrangement with bus coupler	Double busbar arrangement with bus sectionaliser
18		**Power Evacuation**		
	a	Voltage Level (KV)	400 KV	400 kV
	b	No. of Transmission lines	One 400 KV transmission line with double circuit.	one 400 kV double circuit transmission line on lattice towers from MP30 Gandhi Sagar PSP pothead yard to 765/400 kV PGCIL Mandsaur Substation, Madhya Pradesh State.
	c	Total Length	400 KV Double Circuit Transmission Lines with Moose conductor of length 81 Kms (app) from PSP will be connected to **400 / 220 KV PGCIL substation** at **Kota of Rajasthan State** for evacuation of generated Power and for Supply of power during pumping mode	Transmission Lines are of 65 km (approx.) length for evacuation of Stored Power from MP30 Gandhisagar PSP during Generating mode and for input power to PSP during pumping mode.
19		**ESTIMATED COST**		
	a	Civil Works	2797.67 Cr.	7057.26 Cr
	b	E&M Works incl. Transmission line	1930.50 Cr.	3112.34 Cr

	c	IDC & Others	2263.08 Cr.	1299.48 Cr
		Total Project Cost with IDC	**6991.25 Cr.**	11469.08 Cr

13.3.4 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 amendment in Environmental Clearance MP30 Gandhi Sagar Off Stream Pumped Storage Project (1440 MW) in an area of 402.50 ha by M/s Greenko MP01 IREP Private Limited in village Khemla Block, Tehsil Rampur, District Neemuch, Madhya Pradesh.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry**.**

The EAC noted that the Environmental Clearance letter was issued by MoEF&CC vide letter dated 02.12.2021 and Greenko has applied for entity name change from Greenko Energies private Limited to Greenko MP01 IREP Private Limited in EC letter and amendment letter was issued by MoEF&CC vide letter dated 13.02.2023. The EAC noted that the Project Proponent (PP) has applied amendment in EC under Paragraph 7(ii) of the EIA Notification, 2006, as amended.

The EAC deliberated on the EC compliance status report of the concerned MoEF&CC Regional Office, Bhopal issued vide letter dated 10.08.2024. The Regional Office has inter-alia informed that the Project Proponent is currently complying all the applicable environment protection measures meant for the construction phase. However, some partly complied points were also observed. The Regional Office suggested to prepare time targeted action plan for the same. The EAC found the EC compliance status satisfactory.

The EAC inquired about the public consultation/hearing details for the additional land required for the proposed expansion, the PP then informed that no additional private land is required only Forest Clearance for forest land diversion for 17.52 ha forest additional forest land is applicable. The application for getting Stage-I FC has already been submitted (Proposal No. FP/MP/HYD/IRRIG/488223/2024) and the Project Screening Committee, Madhya Pradesh Forest Department has accepted the proposal in its meeting held on 19.07.2024. The Public Consultation with Public hearing has already been held at the of grant of earlier Environmental Clearance and public concerns were addressed satisfactorily. The EAC suggested to submit an undertaking in this regard and advised the Ministry to upload the same on PARIVESH portal along with EC compliance status report received from Regional office, MoEF&CC, Bhopal.

13.3.4 The EAC based on the information submitted and as presented during the meeting, recommended the proposal for grant of amendment in Environmental Clearance dated 02.12.2021 for MP30 Gandhi Sagar Off Stream Pumped Storage Project (1920 MW) in an area of 420.0272 ha by M/s Greenko MP01 IREP Private Limited in village Khemla Block, Tehsil Rampur, District Neemuch,

Madhya Pradesh, under the provisions of EIA Notification, 2006, as amended subject to the following additional conditions:

i. The requisite documents, as per the Office Memorandum dated April 11, 2022, shall be uploaded to the Parivesh portal.

ii. Stage-I Forest Clearance shall be obtained for the additional 17.5272 hectares of forest land before grant of amendment in EC.

iii. Miyawaki green plantation shall be carried out within a 10 km radius of the project area, in consultation with the Gram Panchayat.

iv. Time bound action plan for ensuring the compliance of partly complied Environmental Safeguard measures as reported by the Regional Office, MoEF&CC shall be submitted within one month to the concerned regional office.

v. All the conditions mentioned in Environmental Clearance dated 02.12.2021 and its subsequent amendment shall be complied with.

Agenda Item No. 13.4:

Shahpur Pumped Storage Project (2520 MW) in an area of 624.1702 Ha located at Kaloni, Baint and Mungawali villages, Shahabad Tehsil, District Baran, (Rajasthan) by M/s Greenko Energies Private Limited – Reconsideration for Environmental Clearance (EC) – reg.

[Proposal No. IA/RJ/RIV/416873/2023; F. No. J-12011/02/2020-IA.I]

13.4.1: The proposal is for grant of Environmental Clearance (EC) to the project for Shahpur Pumped Storage Project (2520 MW) in an area of 624.1702 Ha located at Kaloni, Baint and Mungawali villages, Shahabad Tehsil, District Baran, (Rajasthan) by M/s Greenko Energies Private Limited.

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

i. The proposal is for environmental clearance to the project for Shahpur Pumped Storage Project (1800 MW) in an area 624.1702 Ha located at near Kaloni, Baint and Mungawali Village (Near Shahpur), Shahabad Tehsil, Baran District, Rajasthan by M/s Greenko Energies Private Limited.

ii. The project proposal was considered by the Expert Appraisal Committee (River Valley and Hydropower Projects) in its 31st meeting held during 05.03.2020 and recommended for grant of Terms of References (ToRs) for the Project. The ToR has been issued by Ministry vide letter No. J-12011/02/2020-IA. l dated 13.04.2020.

The project proposal was considered by the Expert Appraisal Committee (River Valley and Hydropower Projects) for environmental clearance in its 42nd meeting held during 23.02.2023 and Proposal was deferred for want of additional information.

iii. The project is listed at S.N. 1 (C) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and is appraised at Central Level by Expert Appraisal Committee (EAC).

iv. The geographical co-ordinates of the project are Shahpur Upper reservoir is at Longitude 77°10'55.78" East and Latitude is 25°11'25.21"North and that of Lower reservoir is at Longitude 77°11'50.00" East and Latitude is 25°11'40.00"North

v. The Shahpur Standalone Pumped Storage Project envisages construction of:

- Upper & Lower reservoirs consist of Rockfill Asphalt faced embankment with average height of 24.5 m & 26.5 m for creation of reservoir.
- 6 No. of Independent Head Race Pipe / Pressure Shaft with one pressure Tunnel bifurcating into two-unit pressure tunnel each of 830 m long (includes top surface penstock of 663 m length, Vertical Pressure Shaft of length 72 m and horizontal pressure shaft of 95 m length) and 7.5 m dia. circular steel lined pressure shaft to feed each unit of 300 MW.
- A surface Powerhouse having an installation of five nos. of 300MW and two nos. of 150 MW reversible Francis turbine capacity operating under a rated head of 154.73 m & 154.41 in Turbine mode, 162.56 & 163.21 m in pumping mode.
- 5 Nos. of each 830m long 8.5 m dia. and 2 Nos. of 6.2 m dia Tail Race Tunnels lead water from powerhouse to outlet structure.
- Outlet Structure with transition followed by 140 m wide and FSD of about 6.8 m Tail race channel 717 m long connecting to the proposed lower reservoir.

vi. **Land requirement:**

Total land requirement has been worked out as 624.1702 ha. Out of which 407.8227 ha is forest land, 216.3475 ha is Non-forest.

Component wise Land Requirement of Shahpur Pumped Storage Project

S. No.	Component	Forest Land (ha.)	Non-Forest Land (ha.)
1	Road Upper Reservoir to NH-76	0.0000	8.2050
2	Upper Reservoir	110.2062	159.6100
3	Job Facilities Area	0.0000	15.0000
4	Magazine (Explosive Storage Facility)	0.0000	0.1000
5	Road From Upper Reservoir to Lower Reservoir	3.7775	0.0000
6	WCS & Power House	57.2250	0.0000

7	Lower Reservoir	230.5140	0.0000
8	Pumping Alignment	2.2800	0.0000
9	Road from Lower Reservoir to BT Road	3.8200	2.7375
10	Approach Road Lower Reservoir to Muck Disposal Area	0.0000	0.6950
11	Proposed Muck Disposal Area	0.0000	30.0000
Total		**407.8227**	**216.3475**

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

A major part of the study area of Shahpur PSP Project falls in Shahbad tehsil of Baran district in the state of Rajasthan whereas a very small part of the study area belongs to Guna and Bamori tehsils of Guna district in the state of Madhya Pradesh.

There is a total of 57 villages in the study area of 10 km radius. Out of these, there are three project-affected villages namely 'Kaloni', 'Mungawali' and 'Baint' of Baran district.

In the study area villages, about 36.37% population belongs to the Scheduled Tribes (ST) community whereas 20.19% population belongs to Scheduled Caste (SC) community. Among the ST community, 50.77% are males and 49.23% are females with a sex ratio of 970. However, among the SC community, 52.78% are males and 47.22% are females with a sex ratio of 895.

Total 7794 households with an average household size of 5 with a total population of 38465 out of which 19999 (51.99%) are male and 18466 (48.01%) are female in the study area. The sex ratio is 923 females per 1000 males. About 18.25% of the total population belongs to the 0-6 year age group, out of which 52.28% are boys and 47.72% are girl child of the same age group.
The literacy rate in the study area has been worked out to 59.13%, among males it is 74.18% while among females is 42.87% creating a gender gap of 31.31%.

About 50.46% of the population in the study area is engaged in different kinds of works. Out of the total working population, 54.32% are male and 45.68% are female, creating a gender gap in the work participation rate of 8.64%.

Of the total working population, 62.80% are 'Main Workers' and 37.20% are 'Marginal Workers'. Among 'Main Workers' the gender gap of work participation is 24.58% while among Marginal Workers it 18.26% in favour of females.

About 84.20% working population is engaged in agricultural activities, out of which 42.36% are Cultivators and 41.84% are Agricultural Labours. A small percentage of the population is engaged as household industrial workers (2.05%) while about 13.75% are in miscellaneous services.

viii. **Water requirement:** One time filling of the reservoir will be done by water from Kuno river (1.26 TMC); thereafter water will remain in-circulation and only evaporation losses will be compensated by intermittent additional filling.

ix. **Project Cost:** The estimated project cost is Rs 9721.76 Cores. Total capital cost earmarked towards environmental management plan/environmental pollution control measures is Rs 17868.55 lakh and the Recurring cost (operation and maintenance) will be Rs 3514.40 lakh i.e. about Rs 1171.47 lakh per annum for 3 years.

x. **Project Benefit:** Total Employment will be 600 persons as direct & 3000 persons indirect during construction phase and 100 Persons as direct & 200 Persons indirect during project operation. Industry proposes to allocate Rs. 15.0 Crores towards LADP/CER (as per Ministry's OM dated 30th Sep 2020).

xi. **Environmental Sensitive area:**
There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site.

Proposed project is located within newly declared Shahabad Conservation Reserve. Scoping Clearance for Shahpur Pumped Storage was accorded by MoEF&CC on April 2020, while the Shahabad Conservation Reserve was notified by Govt. of Rajasthan on 28th October, 2021. NOC from Shahabad Conservation Reserve Management Committee was issued on 20-12-2023. Wildlife Clearance for projects located in Conservation Reserves is not applicable as per MoEF&CC's OM dated 30-01-2023.

The other nearest Protected Areas to the project components are in Madhya Pradesh i.e Madhav National Park and Kuno National Park having aerial distance more than 40 km from the project site. Kuno River is flowing at a distance of 150 mts east of the Lower Reservoir from south to north direction.

xii. **MoU / any other clearance/ permission signed with State government:**

MOU signed with Govt of Rajasthan vide Order dated 08-12-2021 for 2520 MW and amendment GO for 1800 MW is under process with Govt of Rajasthan.

xiii. **Resettlement and rehabilitation:**

The entire private land identified for the project falls in two villages namely Kaloni Village and Baint Village, under Shahbad Tehsil of Baran District. The private land proposed for procurement belongs to a total of 153 landowners. All the 153 families will be losing their agricultural land only and none of the families will be losing any house or any other assets. None of them is getting displaced due to the project from the above land procurement.

The private land to be purchased is irrigated land. The R&R Plan has been prepared in line with The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCT_LARR) and The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Rajasthan) Rules notified by the Government of Rajasthan vide its Notification No P.1(3) RJ-6/2011/Part/14 Jaipur Dated 16-10-2014.

xiv. **Schedule –I species:**

Bengal Fox (*Vulpes bengalensis*), Golden Jackal (*Canis aureus*), Indian Wolf *(Canis lupus),* Common Leopard (*Panthera Pardus*), Indian Grey Mongoose (*Herpestes edwardsii*), Striped Hyena (*Hyaena hyaena*), Honey Badger (*Mellivora capensis*), Small Indian Civet (*Viverricula indicia*), Sloth Bear (*Melursus ursinus*), Sambar (*Rusa unicolor*), Indian Crested Porcupine (*Hystrix indica*), Red Headed Vulture (*Sarcogyps calvus*), Rofous-Fronted Prinia (*Prinia buchanani*), Indian Peafowl (*Pavo cristatus*), Eurasian Eagle-owl (*Bubo bubo*), Indian sand Boa (*Eryx johnii*), Indian Chameleon (*Chamaeleo zeylanicus*), Rat snake (*Ptyas mucosa*), Indian Cobra (*Naja naja*), Python (*Python molurus*), Indian Monitor Lizard (*Varanus bengalensis*) and Russell's Viper (*Vipera russelli*).

xv. **Alternative Studies:**

Three alternative layouts for this scheme were studied.

Alternative -1

The Alternative – 1 layout is proposed with surface powerhouse. The surface powerhouse involves little deeper excavation since the pumped storage project is placed much below the Minimum Draw Down Level of lower reservoir because of technical requirement during pumping operations. However, necessary slope protection measures are proposed to be provided for the cut slopes as it involves deeper excavation. Construction time for completion of this Alternative is estimated to around 36 months excluding pre-construction works.

Alternative - 2

The Alternative – 2 layout is proposed in the same alignment of Alternative -1 layout with underground power house. The underground powerhouse requires Adit tunnels viz., Main Access Tunnel to Powerhouse Service Bay and Transformer Hall, Adit to Powerhouse cavern top, Adit to Transformer cavern top, Bus duct tunnels etc. The total length of all Adits is worked out to about more than 2000m. Though construction work can be carried out for underground structures all through the season, the time required to complete the activity is more and expensive also. Excavation of these tunnels will take longer duration to reach the powerhouse and start works at powerhouse.

The total construction time for the project is estimated to around 54 months which is more compared to Alternative – 1. The construction duration of the scheme is very important which will impact the overall financial viability of the project adversely.

Alternative - 3

The Alternative – 3 layout is located nearer to the north east corner of upper reservoir with underground power house. The underground powerhouse requires Adit tunnels viz., Main Access Tunnel to Powerhouse Service Bay and Transformer Hall, Adit to Powerhouse cavern top, Adit to Transformer cavern top, Bus duct tunnels etc. also, it involves construction of downstream Surge Chamber and long Tail Race Tunnel which need adit tunnels also for executing this component. This alternative is not considered due to the following reasons:

1. High Cost of the project
2. More construction Time
3. Involves more acquisition of land
4. With respect to Geological point of view, it may not be suitable to have underground cavern structures as the area is completely comprised with Semri Series Shale rock interbedding with thin sandstone beds

Due to the above reasons, Alternative -1 layout has been selected.

xvi. **Baseline Environmental Scenario:**

<table>
<tr><th>Period</th><th colspan="4">From: March 2020 to December 2020</th></tr>
<tr><td>AAQ parameters at 6 locations (min. & Max.)</td><td colspan="4">Unit in μg/m^3
<table>
<tr><th>Core</th><th>Max</th><th>Min</th><th>Standards</th></tr>
<tr><td>PM 2.5</td><td>17.7</td><td>9.0</td><td>60</td></tr>
<tr><td>PM 10</td><td>30.2</td><td>20.0</td><td>100</td></tr>
<tr><td>SO_2</td><td>5.7</td><td>5.0</td><td>80</td></tr>
<tr><td>NO_2</td><td>9.0</td><td>5.8</td><td>80</td></tr>
<tr><th>Buffer</th><th>Max</th><th>Min</th><th></th></tr>
<tr><td>PM 2.5</td><td>40.1</td><td>9.8</td><td>60</td></tr>
<tr><td>PM 10</td><td>67.7</td><td>21.1</td><td>100</td></tr>
</table></td></tr>
</table>

SO_2	7.6	5.9	80
NO_2	16.5	6.1	80

Incremental GLC Level

Criteria Pollutant [PM_{10}, $PM_{2.5}$, SO_2, NO_x, Other parameters specific to the sector (Please specify)]	Unit [$\mu g/m^3$]	Baseline Concentration [A]	Predicted incremental value considering worst case stability class [B]	Total GLC [A]+[B]
Core				
PM10	$\mu g/m^3$	26.7	15	41.7
PM2.5	$\mu g/m^3$	14.4	6	20.4
SOx	$\mu g/m^3$	5.2	5	10.2
NOx	$\mu g/m^3$	6.5	5	11.5
Buffer				
PM10	$\mu g/m^3$	60.2	0	60.2
PM2.5	$\mu g/m^3$	37.6	0	37.6
SOx	$\mu g/m^3$	6.8	0	6.8
NOx	$\mu g/m^3$	14.1	0	14.1

River water samples (2 samples)

	Core Zone			
S. No	**Parameters**	**Min**	**Max**	**Standards**
1	pH	7.4	7.7	8.5
2	Total Dissolved Solids, mg/L	195	376	500
3	Dissolved Oxygen (mg/l)	7	8.3	6
4	Chloride (as Cl), mg/L	58.6	65.4	250
5	Total Hardness (as CaCO3), mg/L	222	292.7	300

		6	Biological Oxygen Demand (mg/l)	3.2	4.2	2
		7	Chemical Oxygen Demand (mg/l)	15.4	18	NA
		8	Total Coliform (MPN/100 ml)	90	170	500
			Buffer Zone			
		S. No	**Parameters**	**Min**	**Max**	**Standards**
		1	pH	7.3	7.5	8.5
		2	Total Dissolved Solids, mg/L	179	179	500
		3	Dissolved Oxygen (mg/l)	6.9	8.9	6
		4	Chloride (as Cl), mg/L	69.4	99.2	250
		5	Total Hardness (as CaCO3), mg/L	251.61	307.3	300
		6	Biological Oxygen Demand (mg/l)	3.3	4.1	2
		7	Chemical Oxygen Demand (mg/l)	12.3	15.3	NA
		8	Total Coliform (MPN/100 ml)	110	170	500
Pond water samples quality at -- locations						
Ground Water samples at 6 locations	**Core Zone**					

S. No.	**Parameters**	**Min**	**Max**	**Prescribed Limits**	
1	pH	7.1	7.6	6.5	8.5
2	Total Dissolved Solids (mg/l)	319	618	500	2000
3	Chloride (as Cl) (mg/l)	35	81	250	1000
4	Total Hardness (as $CaCO_3$) (mg/l)	232	368	200	600
5	Fluoride (mg/l)	0.09	0.18	1.0	1.5
Buffer Zone					
1	pH	7.5	7.9	6.5	8.5

2	Total Dissolved Solids (mg/l)	286	1112	500	2000
3	Chloride (as Cl) (mg/l)	21	68	250	1000
4	Total Hardness (as $CaCO_3$) (mg/l)	192.8	623.6	200	600
5	Fluoride (mg/l)	0.1	0.54	1	1.5

Noise levels Leq (Day & Night) at 6 locations

Noise Level	Zone	Leq Day dB(A)		Leq Night dB(A)		Prescribed Limits	
		From	To	From	To	Day	Night
Core	Commercial	46.8	61.5	35.5	46.4	65	55
Buffer	Residential	45.9	53.0	34.8	40.1	55	45

Soil Qualityat 6 Locations

Core Zone

S. No.	Parameters	Min	Max	Prescribed Limits
1	Calcium (mg/kg)	20	58	500
2	Sodium Absorption Ratio	0.2	0.47	10
3	Phosphorus (kg/ha)	29.8	58.6	50
4	Carbon (%)	0.42	0.65	1
5	Salinity (ppt)	0	0	0.01
6	Magnesium (mg/kg)	340	920	500
7	Nitrogen (kg/ha)	150	310	500
8	Potassium (kg/ha)	276	412	500
Buffer Zone				
1	Calcium (mg/kg)	30	40	500
2	Sodium Absorption Ratio	0.27	0.38	10
3	Phosphorus (kg/ha)	26.5	38.9	50
4	Carbon (%)	0.5	0.67	1
5	Salinity (ppt)	0	0	0.01
6	Magnesium (mg/kg)	465	600	500
7	Nitrogen (kg/ha)	210	254	500

	8	Potassium (kg/ha)	200	284	500

Flora & Fauna	Schedule-I species observed in the study area: Bengal Fox (*Vulpes bengalensis*), Golden Jackal (*Canis aureus*), Indian Wolf *(Canis lupus)*, Common Leopard (*Panthera Pardus*), Indian Grey Mongoose (*Herpestes edwardsii*), Striped Hyena (*Hyaena hyaena*), Honey Badger (*Mellivora capensis*), Small Indian Civet (*Viverricula indicia*), Sloth Bear (*Melursus ursinus*), Sambar (*Rusa unicolor*), Indian Crested Porcupine (*Hystrix indica*), Red Headed Vulture (*Sarcogyps calvus*), Rofous-Fronted Prinia (*Prinia buchanani*), Indian Peafowl (*Pavo cristatus*), Eurasian Eagle-owl (*Bubo bubo*), Indian sand Boa (*Eryx johnii*), Indian Chameleon (*Chamaeleo zeylanicus*), Rat snake (*Ptyas mucosa*), Indian Cobra (*Naja naja*), Python (*Python molurus*), Indian Monitor Lizard (*Varanus bengalensis*) and Russell's Viper (*Vipera russelli*).

xvii. **Details of Solid waste/ Hazardous waste generation/ Muck and its management.**

The total quantity of muck likely to be generated from excavation including construction of roads is about 13.31 Mcum. However, after the utilization of muck for different project components and considering the swell factor of 40% for excavated material, the total quantity of muck to be disposed is worked out as 6.48 Mcum.

xviii. Public Hearing for the proposed project has been conducted by the State Pollution Control Board on 22.02.2021. The main issues raised and replied by the user agency during the public hearing are;

Issues/Comments/Observations	Reply by the User Agency
We welcome the project in the area, however, for such projects, after completion of the work, local youths do not get employed.	Project construction phase requires larger workforce as compared to that of operation phase and therefore there are more work opportunities during construction phase.
On completion of the project, local youth, based on their ability, should be offered 50% permanent employment.	In the proposed project, during construction and operation phase, in line with state government's industrial policy and based on the skillset, local

Issues/Comments/Observations	Reply by the User Agency
	youths will be employed in company and contractors linked to the project.
We have purchased land on the eastern side, however, due to lower water level, irrigation cannot be done through out the year. Therefore, local youths should get permanent employment.	In the proposed project, during construction and operation phase, in line with state government's industrial policy and based on the skillset, local youths will be employed in company and contractors linked to the project.
The proposed project is named as "Shahpur Pump Storage Project", however, Shahpur village is not connected with the project. It is requested that the project should be named as "Colony Pump Storage Project". How the valuation of land to be acquired will be ascertained? Greenko should consider adopting Colony Village and people from affected villages should get higher employment opportunities.	Project is named based on larger area. Based on the name of the village in the project name, development work will not be affected and preference will be given to project affected villages. Three main affected villages are Colony, Baint and Mungawali and development work will be undertaken in these villages under local area development plan. In the proposed project, during construction and operation phase, in line with state government's industrial policy and based on the skillset, local youths will be employed in company and contractors linked to the project. It is proposed to purchase the private land as per provisions of "The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013", based on private negotiation under the supervision of administration and with full transparency.
We welcome the proposed project in the area as project will bring development in the area. Project proponents have informed that land owners, whose land is coming under acquisition, will get adequate compensation and 50% workforce will be of local youth. I propose the following on behalf of panchayat: • All the departments of the prosed project should offer job opportunities to locals. • Bright students should be offered scholarships.	In the proposed project, during construction and operation phase, in line with state government's industrial policy and based on the skillset, local youths will be employed in company and contractors linked to the project. For education and scholarships budgetary provisions have been made under Local Area Development plan.

Issues/Comments/Observations	Reply by the User Agency
• Village school should be developed as model school. • Temples in Colony village should be repaired. • Drains should be developed in village and road should be tarred. • Community toiled should be built in village. • Community welfare activities and community land should be developed.	For development of model school, administration will decide and company will provide financial support. For repair of temples, drainages and construction of community temples, in consultation with administration and panchayat, work will be initiated under Local Area Development Plan.
Proposed project is the largest project in the region. The project will mainly benefit Colony, Baint and Mungawali villages and entire area in general. Local people will get employment. For better education and better medical facilities, a hospital should be built in the village.	In consultation with administration and panchayat, work will be initiated under Local Area Development Plan for the development work in project affected area.
A large reservoir should be constructed which will lead to development and villages and facilitate irrigation.	Decision about irrigation work will be taken by administration. In consultation with district administration and gram panchayat, irrigation facilities will be developed under local area development plan.
Approach road from Colony to Baint village should be repaired. Local youths, based on the skillsets (technical/non-technical) should be employed. Company should organise skill development and training programs for locals.	Road construction and maintenance is under district administration, in consultation with administration and panchayat, this activity can be taken up under Local Area Development Plan. In the proposed project, during construction and operation phase, in line with state government's industrial policy and based on the skillset, local youths will be employed in company and contractors linked to the project. For improved self-employment opportunities for local youths, Skill Development activities are proposed under Local Area Development Plan.
Local youth should be given preference in employment.	• In the proposed project, during construction and operation phase, in line with state government's industrial policy and based on

Issues/Comments/Observations	Reply by the User Agency
To avoid waterlogging during rains, drainages should be developed. Potable Drinking water facilities should be provided in villages.	the skillset, local youths will be employed in company and contractors linked to the project. • In consultation with local administration and gram panchayat, drainage work and potable water arrangement will be done. • For betterment of basic infrastructure, budgetary provisions have been made under local area development plan.
To avoid waterlogging during rains, drainages should be developed. Local youths, based on the skillsets (technical/non-technical) should be employed. Company should organise skill development and training programs for locals. Work should be done for better medical facilities Keeping in view the water scarcity, an anicut should be constructed on Kuno river near Balharpur village. Permanent colony should be developed for Saharia community in the area.	In the proposed project, during construction and operation phase, in line with state government's industrial policy and based on the skillset, local youths will be employed in company and contractors linked to the project. For improved self-employment opportunities for local youths, Skill Development activities are proposed under Local Area Development Plan. For improved medical facilities, provisions have been made under two schemes. Under Local Area Development Plan, work will be done to improve medical facilities. Also under Community health Distribution System, budgetary provisions have been made for local medical facilities improvement. To address water scarcity in the area, Government of Rajasthan has proposed Eastern Rajasthan Canal project on Kuno river. Where a barrage will be constructed on Kuno river and reservoir will be in proximity to project area, therefore, a separate anicut is not required. State government will resolve the water scarcity issue with the above project. Basic facilities such as rainwater drainage and also for skill development of local youth, provisions have been made under local area development. Work will be initiated in consultation with local administration and gram panchayat.

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

- **Project details:**

Name of the Proposal	Shahpur Pumped Storage Project
Proposal No.	Proposal No. IA/RJ/RIV/416873/2023; F. No. J-12011/02/2020-IA.I
Location (Including Coordinates)	Kaloni, Baint and Mungawali Village (Near Shahpur), Shahabad Tehsil, Baran District, Rajasthan
Company's Name	Greenko Energies Pvt. Ltd.
CIN no. of Company/user agency	U40109TG2000FTC034990
Accredited Consultant and certificate no.	NABET/EIA/2225/RA 0274
Project location (Coordinates /River/ Reservoir)	Shahpur Upper reservoir is at Longitude 77°10'55.78" East and Latitude is 25°11'25.21"North and that of Lower reservoir is at longitude 77°11'50.00" East and latitude is 25°11'40.00" North
Inter- state issue involved	No
Proposed on River/ Reservoir	Not across any river
Type of Hydro-electric project	Pumped Storage Project
Seismic zone	I

- **Category details:**

Category of the project	River Valley and Hydro Electric Project
Capacity / Cultural command area (CCA)	1800 MW (10800 MWH)
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

- **ToR/EC Details:**

ToR Proposal No.	IA/RJ/RIV/142374/2020
EAC meeting date	05.03.2020
ToR Letter No.	J-12011/02/2020-IA. l
ToR grant Date	13.04.2020
Cost of project	9721.76 Cr
Total area of Project	624.1702 Ha
Height of Dam from River Bed (EL)	Upper reservoir-Height of Embankment max-

	30 m & avg ht-24.5 m Lower Reservoir- Height of Embankment max-34 m & min-26.5 m
Details of submergence area	500.33 Ha for Upper & Lower reservoirs
District to provide irrigation facility (if applicable)	NA
Details of tunnels on upper level & lower level and length of canal (if applicable)	717 m
No. of affected Village	3, Kaloni, Mungawali and Baint of Baran district.
No. of Affected Families	153
Project Benefits	The Project is a renewable energy storage project and helps to reduce carbon footprint. It will create direct and in-direct economic opportunities like employment opportunities petty work contracts, machinery hiring, business opportunity etc., Infrastructure development contracts (roads, retaining walls etc.), Local area development and community development activities like education, health, drinking water, basic amenities, livelihood enhancement, transportation, road network and other infrastructure will improve etc.
R&R details	All the private land identified for the project falls in three revenue villages viz. Kaloni, Mungawali and Baint. Total affected families 153. The R&R Plan has been prepared in line with The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (RFCTLARR), 2013. An amount of Rs 891.50 Lakhs has been earmarked towards R&R plan.
Catchment area/ Command area	NA
Types of Waste and quantity of generation during construction/Operation	Major waste generation is muck from excavation. Total quantity of excavated material is worked out as 6.48 Mcum
Material used for blasting and its composition as per DGMS standards.	NA
E-Flows for the Project	NA
Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity	NA

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.	
Details on provision of fish pass	NA
Project benefit including employment details (no of employee)	During the 3.0 years construction period – 3600 persons (2600-Labour, 1000-Skilled) During project operation about 300 persons
Area of Compensatory Afforestation (CA) with tentative no of plantation.	Area of Compensatory Afforestation (CA)- 1023.85 Ha 6.14 lakh tentative no. of plantation
Previous EC details	Nil
EC Compliance Report by R.O, MOEF&CC	Nil

- **Electricity generation capacity:**

Powerhouse Installed Capacity	1800 MW
Generation of Electricity Annually	10800 MWH
No. of Units	5 nos. (5 X 300MW) + 2 nos. (2 X 150MW)

- **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt land)	One (non-forest)
Cross section of proposed muck area, Height of muck with slope.	Muck an area 30 Ha, Capacity of 5.61 Mcum Ht- 8.0 m
Distance of muck disposal area (location), from muck generation sources (project area)/River, HFL of proposed muck disposal area.	Muck disposal area 30 ha is 1.86 Km – N side from Lower Reservoir
Total Muck Disposal Area	30 Ha
Estimate Muck to be generated	6.48 MCM
Transportation	By road
Monitoring mechanism for Muck Disposal Transportation	Properly covered Dumper trucks will be used

- **Land Area Breakup:**

Private land	Non- Forest land-216.3475 Ha
Government land/Forest Land	Forest Land-407.8227 Ha
Submergence area/Reservoir area	500.33 Ha-Upper & Lower reservoirs
Land required for project components	624.1702 Ha

- **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	Yes	Stage I Forest Clearance granted for diversion of 407.8227 Ha, vide letter dated 15.03.2024
National Park	No	There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. Proposed project is located within newly declared Shahbad Conservation Reserve. Scoping Clearance for Shahpur Pumped Storage was accorded by MoEF&CC on April 2020, while the Shahabad Conservation Reserve was notified by Govt. of Rajasthan on 28th October, 2021. Wildlife Clearance for projects located in Conservation Reserves is not applicable as MoEFCC's OM dated 30-01-2023. The other nearest Protected Areas to the project components are in Madhya Pradesh i.e Madhav National Park and Kuno National Park having aerial distance more than 40 km from the project site.
Wildlife Sanctuary	No	
Archaeological sites monuments/historical temples etc	**No**	

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter/Remarks
Additional information (if any)	-	NA

Availability of Schedule-I species in study area:

Bengal Fox (*Vulpes bengalensis*), Golden Jackal (*Canis aureus*), Indian Wolf *(Canis lupus),* Common Leopard (*Panthera Pardus*), Indian Grey Mongoose (*Herpestes edwardsii*), Striped Hyena (*Hyaena hyaena*), Honey Badger (*Mellivora capensis*), Small Indian Civet (*Viverricula indicia*), Sloth Bear (*Melursus ursinus*), Sambar (*Rusa unicolor*), Indian Crested Porcupine (*Hystrix indica*), Red Headed Vulture (*Sarcogyps calvus*), Rofous-Fronted Prinia (*Prinia buchanani*), Indian Peafowl (*Pavo cristatus*), Eurasian Eagle-owl (*Bubo bubo*), Indian sand Boa (*Eryx johnii*), Indian Chameleon (*Chamaeleo zeylanicus*), Rat snake (*Ptyas mucosa*), Indian Cobra (*Naja naja*), Python (*Python molurus*), Indian Monitor Lizard (*Varanus bengalensis*) and Russell's Viper (*Daboia russeliii).*

- **Public Hearing (PH) Details**

Advertisement for PH with date	20.01.2020 in English (Times of India) & Hindi (Rajasthan Patrika, Baran Bhaskar, Dainik Paintra and Dainik Bhaskar)
Date of PH	22.02.2020
Venue	Anganbadi School Grounds, Kaloni Village, Tehsil Shahabad, District Baran, Rajasthan
Chaired by	Addl. District Collector
Main issues raised during PH	Water Availability for Agriculture, Compensation of land, Approach Road and Jobs
No. of people attended	395

- **Brief of base line Environment:**

Particulars	Details
Period of baseline data collection/Sampling period.	Summer season (March, 2020) Monsoon season (July & August, 2020) Winter season (November & December 2020)
(Air, noise, water, land)	
flora and fauna of the project area,	

Particulars	Details
aquatic ecology, etc.	
Brief description on hydrology and water assessment as per the approved Pre-DPR:	The Project envisages non-consumptive re- utilization of 1.26 TMC from Kuno river. The water from the Kuno river will be pumped up and stored in the proposed Pumped Storage Lower Reservoir and will be utilized for power generation by recirculation between the Lower and Upper reservoirs. Therefore, there is no intendent catchment of this project and hydrological assessment is not required.
Additional detail (If any)	Nil

12.4.3 The Proposal was earlier considered by the EAC in its 42nd meeting held on 23.02.2023 wherein the EAC deferred the proposal and sought additional information. Accordingly, the PP vide its reply dated 19.02.2024 submitted its reply but the proposal was again deffered on the request of PP, Accordingly, PP relisted for considering the proposal vide its dated 25.07.2024. The information submitted by the PP are follows:

S. No	Condition	Reply
1	Pre-DPR Chapters viz., Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.	• Layout Plan and PPS have been approved by CEA/CWC vide letter dated 17.07.2023. Copy of the approval letters has been submitted.
2	Revised Plan for providing Mobile Clinic Facility to the nearby villages particularly for project affected families **throughout the project life shall be submitted.**	• In the EIA report, budgetary provision of Rs 25 lakh was made for Mobile clinic under local area development plan (LADP). Plan has been prepared in detail keeping in view the "Operational Guidelines for the Mobile Medical Units" of Ministry of Health and Family welfare, Government of India. • Revised plan has been prepared at a total budget of Rs. 1,27,60,000.00 which covers capital cost aswell as operational cost for 3 years. Copy of the revised plan is enclosed as **Annexure II**.
3	The revised Wildlife Conservation Plan submitted before State Forest and Wildlife Department shall be submitted for deliberations by the EAC.	• Wildlife Conservation Plan has been updated as per the instructions of Chief Wildlife Warden and the final draft has been re-submitted for approval. • All the observations of Chief Wildlife Warden were incorporated for final approval. The final draft copy of Wildlife Conservation Plan is enclosed herewith (**Annexure III**).

4	**Detailed plan shall be submitted for**	
a	10m width plantation around the periphery of project boundary with native plant species.	• Plantation with native plant species is proposed along the periphery of project boundary viz. Road side plantation, Project colony, Power house and Office complex. A detailed plan is enclosed as **Annexure IV**.
b	Worst case Scenario in the event of any catastrophic event and its impact like Loss of land, farmers to be affected and crop destruction etc.	• Dam Break Study is carried out for the worst-case scenario and various possible failure scenarios have been considered to predict the outcome in the event of failure. Modelling study has been carried out using Mike 11, one dimensional flow model of DHI. • It being a PSP, a peculiar conditions exists where turbines can keep running during the embankment failure and thus water could drain out of the reservoir to lower reservoir which has capacity to store and thus upper reservoir level would fall to MDDL. Hence, most realistic and probable case in the present scenario would be to simulate dam break failure when reservoir is at MDDL. Vulnerability assessment has been carried out for both cases i.e. FRL (scenario 1) as well as MDDL (Scenario 2). • From the result of Dam Break Modeling, it is • evident that in worst case scenario 1, up to about 10,000 m d/s of the Dam and in Scenario 2 up to about 6,625 m d/s of the Dam, flood wave elevation to the maximum reaches in about an hour from start of breach. Thus, having very little time for rescue, hence Disaster Management Plan is proposed to concentrate on preventive actions and emergency preparedness, rescue action planning and implementation of same. • Further, in case of Dam break scenarios, only one village Shahabad is likely to be affected in Scenario 1 and no village is likely to be affected in Scenario 2. • The area doesn't witness catastrophic events like cloud bursts and flash floods and hence, only above considered cases constitute critical scenarios for the dam break study. • Further, in the event of any adverse catastrophic event and its impact like Loss of land, farmers to be affected and crop destruction etc. will be compensated in actuals

		as per the directions of State Govt. •
c	To build school recognized by concerned authority along with Maintenance of school, facilities for water and free school services for PAF.	• A provision of new English medium school has been made under LADP at a cost of Rs. 1 cr in theproject area. Further, it is proposed to take up regular maintenance of schools in the Project affected villages including facilities for water and free school services for children of PAF.
d	Approach road maintenance connecting to surrounding villages i.e., Kaloni, Baint and Mungawali.	• Maintenance of approach roads connecting to surrounding villages i.e., Kaloni, Baint and Mungawali is proposed under local area development plan. • Construction and strengthening of approach roads have been proposed at a budget of Rs. 80.00 lakhs and that of village internal roads at abudget of Rs. 50.00 lakhs.
e	Plan to install solar borewell pump to 1 such pump per 100 households.	• Upgradation of the existing borewell with solar borewell pumps and installation of new solar borewell pumps shall be taken up under LADP as per the requirements of local communities, a budgetary provision in this regard has been earmarked in LADP. • Solar borewell pumps will be installed at three project affected villages i.e. Kaloni, Baint and Mungawali. Household in these villages are 388, 57 and 87 respectively i.e. a total of 532 households. Therefore, 6 solar pumps are proposed to installed – 4 in Kaloni and 1 each in Baint and Mungawali.

13.4.4 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 Shahpur Pumped Storage Project (2520 MW) in an area of 624.1702 Ha located at Kaloni, Baint and Mungawali villages, Shahabad Tehsil, District Baran, (Rajasthan) by M/s Greenko Energies Private Limited.

- The project is listed at S.N.1(c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).

- The EAC, constituted under the provision of the EIA Notification, 2006 comprising Expert Members/domain experts in various fields, examined the proposal submitted by the Project

Proponent in desired format along with EIA/EMP reports prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the Project Proponent.

- The EAC noted that the Project Proponent has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.

- The Committee noted that the EIA reports are in compliance of the ToR issued for the project, reflecting the present environmental status and the projected scenario for all the environmental components. The Committee deliberated on the proposed mitigation measure towards Air, Water, Noise and Soil pollutions. The Committee suggested that the storage of toxic/explosive raw materials/products shall be undertaken with utmost precautions and following the safety norms and best practices.

- The Terms of References (ToRs) has been issued by Ministry vide letter No. J-12011/02/2020-IA. l dated 13.04.2020. The EAC noted that total land area required for the project is 624.1702 ha. Out of which 407.8227 ha is forest land, 216.3475 ha is Non-forest. Further, it is noted that an application for diversion of forest land was submitted on 03.02.2021 and Stage I Forest Clearance was issued on 15.03.2024. The estimated project cost is Rs 9721.76 Cores. Total capital cost earmarked towards environmental management plan/environmental pollution control measures is Rs 17868.55 lakh and the Recurring cost (operation and maintenance) will be Rs 3514.40 lakh i.e. about Rs 1171.47 lakh per annum for 3 years.

- The EAC reviewed and deliberated on the issues raised during the Public Hearing (PH) and evaluated the action plan submitted by the Project Proponent to address these concerns. The Committee found the action plan satisfactory and advised the Project Proponent to implement it in a time-bound manner. Given the presence of a tribal population in the study area, the EAC emphasized the need to establish Skill Development Centres for the local community and to promote local tribal products through proper marketing, with the Project Proponent overseeing these efforts.

- Furthermore, the Committee recommended that the Project Proponent take responsibility for providing essential amenities to the local tribal population, including the establishment of schools, installation of solar panels, provision of computers with internet access in schools, and ensuring the availability of clean drinking water, all aimed at the overall upliftment of the tribal community.

13.4.5 The EAC after examining the information submitted and detailed deliberations **recommended** the proposal for grant of Environmental Clearance by the Ministry to Shahpur Pumped Storage Project (2520 MW) in an area of 624.1702 Ha located at Kaloni, Baint and Mungawali villages, Shahabad Tehsil, District Baran, (Rajasthan) by M/s Greenko Energies Private 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 water of rainfall yield of self-catchment of the reservoir shall be released to downstream through body of dam/ barrage/ embankment etc.
ii. The water for filling of reservoir/ recoupment of evaporation and recirculation losses shall be met from a source other than the rainfall yield of catchment of non-perennial stream/ nallah.
iii. 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.
iv. The contract clause limiting the No. of vehicles used during excavation and transportation shall followed scrupulously and the same shall informed to the ministry.
v. 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.
vi. 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.
vii. 10000 plants shall be planted around the muck disposal area and the survival of plants shall be submitted with the 6 monthly compliance report.
viii. Watershed development plan prepared in consultation with ICAR/expert Govt. institute be implemented within 10 km radius of the project. Implementation status be submitted in the 6 monthly compliance report to the concerned regional office of the Ministry.

[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.
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. RO plant shall be installed in the nearby 5 villages and the maintenance shall be done by the project Authorities.
iii. Solar panel be provided to the families living in rural areas within 10 km radius of project.
iv. School up to 12th Standard shall be established to provide quality education for children from project affected villages/Tribal villages.
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. 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.
vii. 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.
viii. The area is ecologically fragile therefore Project Proponent shall ensure that safety measures as mentioned in the EMP shall be fully implemented.

[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. 13.5 Directions of the Hon'ble National Green Tribunal, Southern Bench at Chennai in MA No 3 of 2024 in OA No 71 of 2020 in the matter of Gavinolla Srinivas and others vs Union of India and others.

13.5.1 The Member Secretary informed that the Hon'ble National Green Tribunal (South Zone), Chennai vide order dated 17.12.2021 passed directions for constituting the Joint Committee comprising of Senior Officer from MoEF&CC, Regional Office, Vijayawada, a Senior Officer from Geological Survey of India and Senior Officer from Design and Planning of Irrigation and Multipurpose Projects, Centre Water Commission, New Delhi to investigate whether the work done in the project is beyond the scope of preparation of DPR related to construction of Rayalaseema Lift Irrigation Scheme of State of Andhra Pradesh..

The Hon'ble Tribunal also inter-alia directed to take a call in cases where for preparation of DPR any extensive study regarding the feasibility and its impact on soil features has to be conducted in respect of project where prior environmental clearance is required this may be made clear by amending the EIA Notification that no DPR can be prepared for with extensive study for that purpose without obtaining prior environmental clearance and that will not cover the exemption granted for preparation as provided under the EIA Notification, 2006 so, that the misconception regarding this can be avoided.

In compliance of the said order, the Joint Committee inspected the project site on 13th and 14th March, 2024. The said report was submitted to the MoEF&CC vide letter dated 22nd March, 2024 with the following observations:

a) The Project Proponent has commenced excavation works and completed around 14.14% for approach channel and around 87.03% for pump house and its appurtenant works which in total around 18.18% proposed excavation.
b) The Project Proponent has conducted excess work beyond the purpose of preparation of DPR, amounting to be the part of execution of the construction work and it can be concluded as violation of the EIA Notification, 2006.
c) Further, the Environmental Compensation of Rs. 2, 65, 31,250/- was also assessed as per the Central Pollution Control Board (CPCB) Guidelines.

Subsequently, a Show Cause Notice dated 24th April, 2024 was issued under Section 5 of the EP Act, 1986 to the Project Proponent. In response, the Project Proponent has communicated its reply vide letter dated 21st May, 2024 stating that the Project Proponent has not performed anything in excess beyond required for the purpose of preparation of DPR in execution of the construction work of Rayalaseema Lift Irrigation Scheme.

In light of the aforesaid observations made in the Joint Committee Report and Show Cause reply submitted by the project proponent, the Ministry decided to examine the matter in consultation with EAC so as to ensure the compliance of the directions passed by the Hon'ble NGT.

13.5.2 The EAC then perused the directions passed by the Hon'ble Tribunal and Show Cause Reply submitted by the Project Proponent in detail and after thorough deliberation, made the following observations:

a) The Joint Committee has already established that the Project Proponent has commenced excavation works and completed a considerable amount of construction work. It was also concluded that the work done for the purpose of preparation of DPR amounts to violation of

the EIA Notification, 2006, as amended. The EAC also viewed that the said amount of construction work of the project has been done to an extent which violates the provisions of the Office Memorandum dated 29th March, 2022 leading to violation of the EIA Notification, 2006.

b) The Expert Member of the EAC from the Central Water Commission (CWC) informed the EAC that CWC has issued guidelines in 2010 for preparation of Detailed Project Report (DPR) for irrigation and multipurpose projects. The guidelines cover the aspects viz. availability of water for the benefits envisaged, determination of design flood for the various structures (spillway, weir, barrage etc.), sediments storage, soil investigation for deciding the foundation stability of barrage, energy dissipation arrangements, likely desirable and undesirable changes in the hydrologic regime due to the project, damage areas in pre-project & post project situations, flood intensities and finalization of rehabilitation measures, amenities and facilities to be provided to the Project Affected Persons etc.

c) The EAC was of the view that the aspects mentioned in the DPR guidelines of the CWC are critical for examining the environmental sustainability of the irrigation project; hence needs detailed deliberation at the time of appraisal of project for grant of Environmental Clearance by the Expert Appraisal committee. Moreover, the MoEF&CC has issued an Office Memorandum dated 29th March, 2022 which explicitly clarifies that the following activities can be undertaken at project site prior to grant of Environmental Clearance:

    (ii) Fencing of the project site by boundary wall using civil construction, barbed wire or precast/prefabricated components.
    (iii) Construction of temporary sheds using pre-fabricated /modular structure, for site office/guards and storing material and machinery.
    (iv) Provision of temporary electricity and water supply for site office/guards only

d) Further, it is also worthwhile to note that vide Order dated 20th August, 2024, the MoEF&CC has extended the provisions of clause (2) of the Notification No. 5075(E) dated 29th November, 2023 relating to surveys in the forest areas for mining projects to other development projects including Hydel/Pump Storage Projects subject to the condition that the sample collected from the site after drilling shall be used exclusively for research purpose and in no way it shall be used for any commercial purpose.

In light of the above, the Committee unanimously recommended that the finalized DPR is an essential document for assessment of the anticipatory environmental impacts of irrigation projects at the time of appraisal of proposal for grant of Environmental Clearance.

Agenda item No. 13.6 Harmonization and Optimization of Environmental Clearance Conditions

The Member Secretary informed the EAC that the Ministry has decided for harmonization and optimization of Environmental Clearance Conditions for River Valley and Hydro-electric Projects in

consultation with the sectoral EAC. In this regard a document showing harmonized and optimised Environmental Clearance conditions was presented before the EAC. After perusal of the document the EAC observed that many conditioned mentioned in the document are not applicable to the River Valley and Hydro-electric Sector. Accordingly, it was recommended that Member Secretary may prepare a comparative chart showing existing environmental conditions and the conditions which have been optimised for the River Valley and Hydro-electric sector. The comparative chart may be shared with the EAC members so that after thorough examination, the same can be finalised in the next meeting of the EAC.

The meeting ended with vote of thanks to the Chair.

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ANNEXURE

ATTENDANCE

13th MEETING OF EXPERT APPRAISAL COMMITTEE (EAC)
RIVER VALLEY AND HYDROELECTRIC PROJECTS

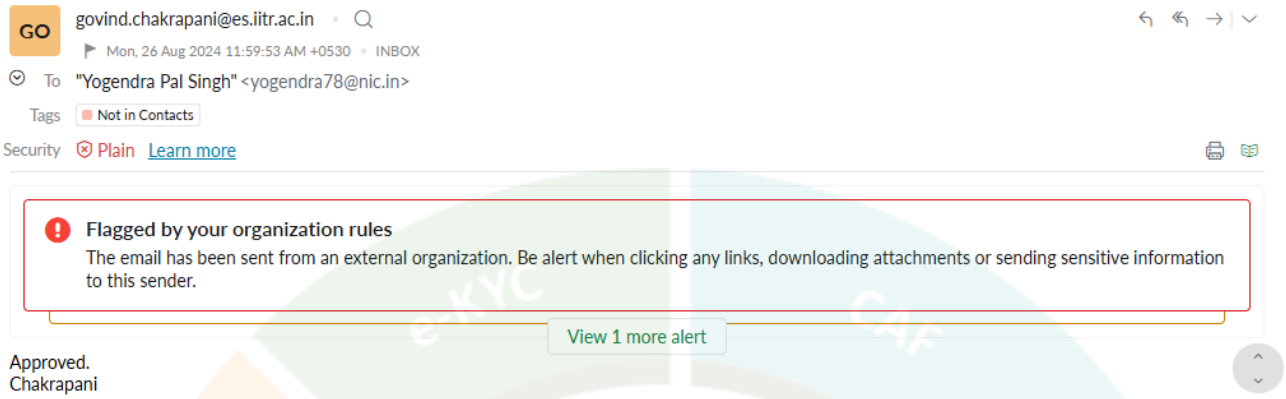
DATE : **13th August 2024**

TIME : **10.30 AM onwards**

VENUE : **Narmada Hall, Jal Block, Indira Paryavaran Bhawan, New Delhi.**

Sl.No.	Name of Member	Role	Signature
1.	**Prof. G. J. Chakrapani**	**Chairman**	GJC
2.	**Dr. Udaykumar R. Y.**	Member	-VC-
3.	**Dr. Mukesh Sharma**	Member	-VC-
4.	**Dr. J V Tyagi**	Member	13/8/24
5.	**Shri Kartik Sapre**	Member	
6.	**Shri Ajay Kumar Lal**	Member	
7.	**Shri Rajeev Varshney**	Member Representative of Central Electricity Authority (CEA)	
8.	**Shri Piyush Ranjan**	Member Representative of Central Water Commission (CWC)	
9.	**Dr. J.A. Johnson**	Member Representative of Wildlife Institute of India (WII)	
10.	**Dr. A.K. Sahoo**	Member Representative of Central Inland Fisheries Research Institute (CIFRI)	-VC-
11.	**Shri Yogendra Pal Singh**	Member Secretary (River Valley and Hydroelectric Projects), MoEF&CC	
12.	**Dr Krishnendu Mondal**	Scientist – D (River Valley and Hydroelectric Projects), MoEF&CC	

APPROVAL OF THE CHAIRMAN



GO govind.chakrapani@es.iitr.ac.in

Mon, 26 Aug 2024 11:59:53 AM +0530 INBOX

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

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Approved.
Chakrapani

On 26-Aug-2024 11:16, Yogendra Pal Singh <yogendra78@nic.in> wrote: