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Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(River Valley and Hydroelectric Projects)
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Minutes of 8TH meeting River Valley and Hydroelectric Projects held from 28/02/2024 to 28/02/2024

Date: 04/03/2024

MoM ID: EC/MOM/EAC/456901/2/2024

Agenda ID: EC/AGENDA/EAC/456901/2/2024

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

28/02/2024	10:30 AM	01:30 PM

1. Opening remarks

The 8th meeting of the EAC for River Valley & Hydro-electric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 28th February, 2024 through online mode, under the Chairmanship of Prof. G. J. Chakrapani.

2. Confirmation of the minutes of previous meeting

Confirmation of Minutes of 7th EAC meeting held on 9th February, 2024.

3. Details of proposals considered by the committee

Day 1 -28/02/2024

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Proposed Kandhaura Pumped Storage Project (1680 MW) at Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh by M/s. JSW Energy PSP Six Limited. by **JSW ENERGY PSP SIX LIMITED** located at **SONBHADRA,UTTAR PRADESH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/UP/RIV/453372/2023	J-12011/62/2023-IA.I (R)	27/11/2023	River Valley/Irrigation project

			s (1(c))

3.1.2. Project Salient Features

The proposal is for grant of Terms of Reference (ToR) to the project for setting up of Kandhaura Closed Loop Pumped Storage Project (1680 MW) in an area of 756.89 Ha at Village Sashnai, Markuri & Cherue, Taluka Obra and Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited.

8.2.2 The EAC during deliberations noted the following:

"……It was observed that there are multiple projects sometimes in closed proximities, and hence CEA and CWC observations on the consequences and impacts on such projects on the stability, feasibility, disaster and financial risks and environment impacts be considered.

During discussion the EAC noted that the project lay out of the present proposal is overlapping with other PSP namely Sonbhadra Pumped Storage Project envisaged as Off-Stream Closed Loop Pumped Storage Project (OCPSP) of 1200 MW / 7236 MWH storage capacity, located in Bahera Village of Robertsganj Tehsil in Sonbhadra District, Uttar Pradesh by M/s Sri Siddharth Infratech & Services (I) Private Limited. It was also noted that Sonbhadra Pumped Storage Project has already been granted TOR by the MoEF&CC vide letter no. J-12011/15/2013-IA.I (R) dated 07.06.2023 for conducting EIA study as per recommendations of the Expert Appraisal Committee (River Valley & Hydro-electric). The PP thereafter informed that they have signed Memorandum of Understanding (MoU on 25th Day of November, 2022 with State Government of Uttar Pradesh for development of project. The in principle approval has also been obtained for withdrawl of water from Son River for one time filling of the reservoir. The PP also submitted that their project components are at safe distance from other PSPs being established in the region.

In view of the aforesaid, the EAC recommended that establishment of two pumped storage project in such close proximity where project components are overlapping may lead to ecological disaster so from ecological and social sustainability point of view development of such projects is not advisable in such manner. The EAC was of the view that concerned authorities should pass instructions regarding safe distance to be maintained by the project developers between two projects and its components while preparing Project Feasibility Report (PFR). The project developers should also submit certificate from the concerned authority in this regard.

The EAC unanimously decided to seek comments of Central Electricity Authority (CEA) about observed overlapping of project components of Kandhaura Closed Loop Pumped Storage Project (1680 MW) and Sonbhadra Pumped Storage Project.it was also recommended to seek details about necessary consent/MoU signed by the project developers for both projects, so that the EAC can take appropriate decision on the present proposal.……"

- In response to the above, the PP vide letter dated 6.02.2024 informed that the Central Electricity Authority (CEA) convened a meeting on 24th January 2024 with representatives of CWC, UP State Government and project developers of Kandhaura, Sonbhadra & Sashnai PSPs to discuss the issue of overlapping, wherein, the matter was thoroughly discussed and addressed.
- Accordingly, the CEA vide letter no. CEA- HY-12-12/4/2023-HPA Division- I/33494/2024 dated 2nd February 2024 officially confirmed the resolution of the overlapping issue. During the said meeting, the representative of Sri Siddharth Infratech & Services (1) Private Limited conveyed that the layout of the pipeline for their Sonbhadra PSP has been modified to mitigate any overlap with the Kandhaura PSP and Sashnai PSP.
- Consequently, the concern regarding overlapping with the Sonbhadra PSP has been effectively resolved. A Google image displaying the layouts of all three developers was displayed during the aforesaid meeting.
- It was also informed that the matter of overlapping was discussed in the meeting conducted by Department of Infrastructure and Industrial Development, UP under the Chairmanship of IID Commissioner on 3rd January 2024. During the meeting, M/s. Sidhartha Infra and Services Pvt. Ltd. has been instructed to reroute their intake point and pipeline with immediate effect. Accordingly, they have revised the project layout w.r.t. reroute the intake point and pipeline and submitted to CEA. The project proponent has provided a copy of said MOM.

8.2.3 The Project Proponent M/s. JSW Energy PSP Six Limited and the accredited Consultant M/s. J.M. Enviro Net Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. The proposal is for ToR to the Proposed Kandhaura Pumped Storage Project (1680 MW) located at Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh by M/s. JSW Energy PSP Six Limited.

ii. Proposed Pumped Storage Project (PSP) is Off-Stream Closed Loop Pumped Storage Project

proposed with a capacity of 1680 MW (5 units of 280 MW and 2 units of 140 MW) .

iii. The Project comprises of upper & lower reservoirs with a gross storage capacity of 13.30 MCM (0.47 TMC) & 16.91 MCM (0.56 TMC) respectively. The upper reservoir of the project is to be constructed on the hill top with a maximum dam height of 38.5 m to create the desired storage capacity while the lower reservoir will have a maximum dam height of 40 m constructed in a natural depression downhill. The scheme of operation for the project is with 6.24 Hours of peak power per day and 6.93 Hours for pumping back of the water to the upper reservoir.

iv. **Water availability:** The Project will utilize 1860 MW to pump 12.62 MCM (0.42 TMC) of water to the upper reservoir in 6.93 hours. Being a closed loop project, the proposed one time filling of the reservoir will be taken from Sone River and water will then be used cyclically for energy storage and discharge.

v. Evacuation of power from the pumped storage project via 400kV grid substation shall be through a double circuit transmission line to PGCIL GIS substation at Vihana or at Sarnath, Uttar Pradesh.

vi. As per EIA Notification dated 14th September, 2006 as amended on date, the project falls under Category “A”, Project or Activity 1 (c); (i) for River Valley Project (c) Standalone Pump Storage Projects.

vii. **Land requirement**: Total project Area: 756.89 Ha (including Forest land 713.72 ha, 36.48 ha Govt. Land & 7.69 ha Pvt. Ltd.) Out of the total plant area i.e., 756.89 ha, 14.53 ha will be covered under greenbelt / plantation area.

viii. **Project Cost:** The estimated project cost is Rs 7949.26 Cr.

ix. Total Employment will be 250 persons (permanent) and 70 persons (Temporary) after construction phase. The funds towards local area development will be allocated after Public Hearing.

x. **Environmental Sensitivity**: There are No national parks, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. Kaimoor Wildlife Sanctuary is present within 10 km distance from the project. The sanctuary is about 1.5 km in SW direction from project site and its ESZ boundary is at 0.5 km from project site. A water body i.e., Amwa Nala (Non-Perennial) is flowing inside the lower reservoir.

xi. **Muck Managament**: The total quantity of muck likely to be generated from excavation including construction of roads will be 14.54 million cum. The total quantity of muck after swell factor will be 20.64 million cum. Out of the total muck generated 50% will be used and remaining 50% will be disposed at designated Place. Total quantity of C&D Waste to be generated will be disposed through authorized dealers.

xii. **Alternative Studies**: Two alternative site studies were carried out. Alternative-2 has been selected as there shall be no impact on Wildlife Sanctuary and the Eco Sensitive Zone.

xiii. There is no litigation pending against the proposal.

xiv. The salient features of the project are:

- **Location**

Location (Including coordinates)	At Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh Latitude: 24°28'44.22" N to 24°31'53.92" N Longitude: 83° 8'2.81" E to 83°11'49.31" E
Inter- state issue involved	No
Seismic zone	The project area falls under Zone III, i.e., Moderate Risk Zone as per IS-1893 (Part 1) 2002, Seismic Zoning Map of India
Category of the project	A

Provisions	As per EIA Notification, 2006 as amended from time to time
Capacity / Cultural command area (CCA)	1680 MW
Attracts the General Conditions (Yes/No)	No
Powerhouse Installed Capacity	1680MW
Generation of Electricity Annually	3636.99 MU Energy generation
No. of Units	7 no's (5 units of 280 MW each and 2 units of 140 MW each)
Additional information (if any)	NA

	Cost of project	7949.26 crores				
	Total area of Project	756.89 Ha				
	Height of Dam from River Bed (EL)	Upper Reservoir:38.5 m Lower Reservoir:40 m				
	Length of Tunnel/ Channel	1569.96 m				
	Details of Submergence area	**Total Submergence Area: 209.1 Ha**				
			S.No	Area submerged (e.g. Forest land, Agriculture land, Protected area, etc.)	Area (Ha)	
			1.	Forest Land	201.44	
			2.	Private land	6.7	
			3.	Government Land	0.96	
				Total	**209.1**	
during construction/ Operation		**1.**	MSW	labour camp	110 TPA	

		2.	Electronic equipment	labour camp	0.28 TPA	
		3.	Biomedical	Dispensary	1.1 TPA	
		4.	Used Oil & grease	Construction equipment	6.6 TPA	
		6.	Plastic Waste	labour camp	22 TPA	
E-Flows for the Project	Water from Sone River will be abstracted only during flooded/ monsoon season. Further Details will be incorporated in EIA/EMP Report.					
Is Projects earlier studies in Cumulative impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then i. E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. ii. If not the E-Flows maintain criteria for sustaining river ecosystem.	No					

No. of proposed disposal area/(type of land- Forest/Pvt. Land)	Two Muck disposal sites has been proposed of about 133.23 Ha area.
Muck Management Plan	The total quantity of muck likely to be generated from excavation including construction of roads will be 14.54 million cum. The total quantity of muck after swell factor will be 20.64 million cum. Out of the total muck generated 50% will be used and remaining 50% will be disposed at designated Place. The area identified for Muck disposal sites is about 133.23 Ha.
Monitoring mechanism for Muck Disposal	Monitoring mechanism for muck disposal will be submitted along with EIA/EMP Report.

Private land	36.48 ha
Government land/Forest Land	Forest Land: 713.72 ha Government Land: 7.69 ha
Submergence area/Reservoir area	**Submergence area: 209.1 Ha** **Reservoir Area: 397.2 Ha**

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate/letter/Remarks**
Reserve Forest/Protected Forest Land	Yes	Total of 713.72 Ha forest land (Reserved forest, Protected Forest and Forest land given for agricultural purpose) present in project site will be diverted and Application for Stage 1 clearance will be submitted after grant of ToR. Apart from that, there are Open Jungle Mainly Salai, Fairly dense jungle mainly bamboo, Open jungle mainly bamboo, Open mixed jungle within the study area of the project.
National Park	No	
Wildlife Sanctuary	Yes	Kaimoor Wildlife Sanctuary (~1.5 km in SW direction from project site). Project Site does not fall under eco sensitive zone of Kaimoor Wildlife Sanctuary, as ESZ boundary is at 0.5 km from project site vide MOEF&CC notification dated 23rd Sep., 2016.

8.2.4 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 for conducting EIA study for proposed construction of the project Kandhaura Closed Loop Pumped Storage Project (1680 MW) in an area of 756.89 ha at Village Sashnai, Markuri & Cherue, Taluka Obra and Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited.

- The transportation route is being proposed inside ESZ area which is stated to be normal road route.
- Archaeological site i.e. Vijaygarh Fort is within buffer area of the project i.e. 6 km from the project site as stated by PP.
- The project involves diversion of forest land of 713.72 ha for non-forestry activity of which 200 ha comes under submergence and 133 ha muck disposal area etc.
- Project Site does not fall under Eco Sensitive Zone of Kaimoor Wildlife Sanctuary, as ESZ boundary is at 0.5 km from project site vide MOEF&CC notification dated 23rd Sep., 2016.

3.1.3. Deliberations by the committee in previous meetings

Date of EAC 1 :19/12/2023

Deliberations of EAC 1 :

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 for conducting EIA study for proposed construction of the project Kandhaura Closed Loop Pumped Storage Project (1680 MW) in an area of 756.89 ha at Village Sashnai, Markuri & Cherue, Taluka Obra and Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited after MoU with Government of Uttar Pradesh be submitted. It was observed that there are multiple projects sometimes in closed proximities, and hence CEA and CWC observations on the consequences and impacts on such projects on the stability, feasibility, disaster and financial risks and environment impacts be considered.

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

During discussion the EAC noted that the project lay out of the present proposal is overlapping with other PSP namely Sonbhadra Pumped Storage Project envisaged as Off-Stream Closed Loop Pumped Storage Project (OCPSP) of 1200 MW / 7236 MWH storage capacity, located in Bahera Village of Robertsganj Tehsil in Sonbhadra District, Uttar Pradesh by M/s Sri Siddharth Infratech & Services (I) Private Limited. It was also noted that Sonbhadra Pumped Storage Project has already been granted TOR by the MoEF&CC vide letter no. J-12011/15/2013-IA.I (R) dated 07.05.2023 for conducting EIA study as per recommendations of the Expert Appraisal Committee (River Valley & Hydro-electric). The PP thereafter informed that they have signed Memorandum of Understanding (MoU on 25th Day of November, 2022 with State Government of Uttar Pradesh for development of project. The in principle approval has also been obtained for withdrawl of water from Son River for one time filling of the reservoir. The PP also submitted that their project components are at safe distance from other PSPs being established in the region.

In view of the aforesaid, the EAC recommended that establishment of two pumped storage project in such close proximity where project components are overlapping may lead to ecological disaster so from ecological and social sustainability point of view development of such projects is not advisable in such manner. The EAC was of the view that concerned authorities should pass instructions regarding safe distance to be maintained by the project developers between two projects and its components while preparing Project Feasibility Report (PFR). The project develpers should also submit certificate from the concerned authority in this regard.

The EAC unanimously decided to seek comments of Central Electricity Authority (CEA) about observed overlapping of project components of Kandhaura Closed Loop Pumped Storage Project (1680 MW) and Sonbhadra Pumped Storage Project.it was also recommended to seek details about necessary consent/MoU signed by the project developers for both projects, so that the EAC can take appropriate decision on the present proposal.

3.1.4. Deliberations by the EAC in current meetings

The EAC after detailed deliberation observed the submission of Project Proponent in line with submission of CEA, Ministry of Power. The overlapping factors has been addressed, but desired that M/s Sri Siddharth Infratech & Services (1) Private Limited shall be conveyed by PP to obtain amendment in ToR for any changes of Sonbhadra PSP. Source of water is River Sone for this instant project, which is interstate river thus EAC desired that No objection certificate from other states (Bihar and Jharkhand) must be obtained by project proponents or by the State Government being the allotter of the project to avoid scarcity of water to consumers.

The proposed site is at 0.5 km of ESZ boundary from project site, notified vide MOEF&CC notification dated 23rd Sep., 2016 as informed by project proponent and does not fall under Eco Sensitive Zone of Kaimoor Wildlife Sanctuary. The committee suggested to submit the Certificate and certified map from Chief Wildlife Warden that the project area is outside the ESZ boundary. Further, it was observed that the project proponent has proposed to use road which is passing through ESZ area, for which PP must obtain permission from concerned regulatory authority and Chief Wildlife Warden prior for using road passing through ESZ area.

It was observed that the project authorities have proposed to construct the rock-filled dam, hence, the committee suggested to conduct the geological study in respect to earthen dam and rock filled dam for dam safety. With regard to diversion of large forest area for this instant project, it was desired that PP shall reassess the required area for muck disposal (132.31 ha) and ensure that it is deposited in non-forest areas and explore the possibility to increase the height of muck dump with adequate bench width.

The committee noted that as the three projects of pumped storage projects are in close proximity, it will be appropriate to conduct a cumulative impact study of all three projects for evaluation of impact of

forest, wildlife and river.
Accordingly, based on the information submitted and as presented during the meeting, the EAC **recommended for grant of Standard ToR for conducting EIA study with Public consultation to the project for Kandhaura Closed Loop Pumped Storage Project (1680 MW) in an area of 756.89 Ha at Village Sashnai, Markuri & Cherue, Taluka Obra and Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited**, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

3.1.5. Recommendation of EAC

Recommended

3.1.6. Details of Terms of Reference

3.1.6.1. Specific

(A) Environmental Management and Biodiversity Conservation	
1.	Explore the possibilities for reducing the Forest land requirement The application for obtaining Stage I FC for 713.72 of forest land (after rationalising the requirement of forest land) involved in the project shall be submitted.
2.	The project area should not come up on any critical mineral zone to be verified by GSI/NMDC.
3.	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
4.	Calculation and values of GHGs (CO_2, CH_4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted
5.	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.
6.	PP shall reassess the required area for muck disposal (132.31 ha) and ensure that it is deposited in non-forest areas and explore the possibility to increase the height of muck dump with adequate bench width. Alternative sites for various components shall be identified in terms of loss of forest area and other environmental aspects.
7.	Conducting site specific ecological study with respect to riverine ecology focus on fishes diversity, fish migration, habitat and aquatic biota due to construction PSP
8.	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
9.	Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources Sone River shall be studied.
10.	Action plan for survival or diversion of the rivulets/stream leading to join Sone river shall be submitted

11.	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.
12.	Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ Sone River /nala of catchment area / due to tapping of water for filling reservoir.
13.	A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report
14.	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.
15.	Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP
16.	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.
17.	MoU for water uses for the project shall be signed and approved by concerned authority.
18.	Geological study shall be conducted in respect to earthen dam and rock filled dam for dam safety.
19.	There should be any archaeological sites in the vicinity of the project, which is to be certified by ASI.
20.	Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located around 0.5 km from outside the Eco- sensitive Zone (ESZ) of Kaimoor Wildlife Sanctuary and also project site not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.
(B) Socio-economic Study	
1.	
2.	
3.	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.
4.	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.
5.	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	
1.	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.
2.	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.
3.	Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc.
4.	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.
(D) 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.
(E) Miscellaneous	
1.	Both capital and recurring expenditure under EMP shall be submitted.
2.	Pre-DPR Chapters viz., Hydrology, 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.	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.
5.	Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.
6.	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.	PP must obtain permission from concerned regulatory authority and Chief Wildlife Warden prior for using road passing through ESZ area.
9.	Drone video of project site shall be recorded and to be submit.
10.	PP shall obtain No Objection Certificate from Archaeological Survey of India since Archaeological site i.e. Vijaygarh Fort is within buffer area of the project i.e. 6 km from the project site as stated by PP

3.1.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as follow s:	
1.	Cropping pattern and Horticultural Practices in the study area.
1.	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.
1.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
1.	Information (authenticated) on Avi-fauna and wildlife in the study area.
1.	Status of avifauna their resident/ migratory/ passage migrants etc.
1.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
1.	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.
1.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
1.	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.
1.	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.
1.	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.

1.	Conservation status of aquatic fauna.
1.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
1.	Fish and fisheries, their migration and breeding grounds.
1.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
1.	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.
1.	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.
1.	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.
1.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
1.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
1.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.
1.	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.
1.	Existence of barriers and corridors, if any, for wild animals.
1.	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.
1.	Documentation of butterflies, if any, found in the area.
1.	null
1.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
1.	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.
1.	Landslide zone or area prone to landslide existing in the study area should be examined.
1.	Presence of important economic mineral deposit, if any.
1.	Justification for location & execution of the project in relation to structural components (dam /barrage height).
1.	Impact of project on geological environment.
1.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD

	station.
1.	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.
1.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
1.	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.
1.	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.
1.	History of the ground water table fluctuation in the study area.
1.	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).
1.	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
1.	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.
1.	Run off, discharge, water availability for the project, sedimentation rate, etc.
1.	Basin characteristics
1.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.
1.	For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1.
1.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
1.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
1.	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.
1.	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.
1.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
1.	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.
1.	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.
1.	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.
1.	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.
1.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
1.	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A species wise list may be provided.
1.	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.
1.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
1.	Economically important species like medicinal plants, timber, fuel wood etc.
1.	Details of endemic species found in the project area.
1.	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.
Description of Environment and Baseline Data	
1.	(ii) Submergence Area.
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:
1.	(i) Catchment area up to the dam/barrage site.
1.	(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.
1.	(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.
Details of the Project and Site	
1.	General introduction about the proposed project.
1.	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.
1.	A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location.
1.	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.
1.	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
1.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
1.	Land details including forests, private and other land.
1.	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.
1.	Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
1.	Soil characteristics and map of the project area.
1.	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.
1.	Drainage pattern and map of the river catchment up to the proposed project site.
1.	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.
1.	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.
Environmental Management Plan	
1.	Water, Air and Noise Management Plans to be implemented during construction and post-construction periods.
1.	null
1.	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.

1.	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.
1.	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.
1.	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.
1.	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.
1.	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.
1.	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.
1.	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.
1.	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.
1.	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.
1.	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.

1.	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.
1.	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.
1.	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.
1.	Labour Management Plan for their Health and Safety.
1.	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.
1.	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.
1.	Environmental safeguards during construction activities including Road Construction.
1.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
Impact Prediction and Mitigation Measures	
1.	River bank and their stability
1.	Impact due to submergence.
1.	Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
1.	Pressure on existing natural resources
1.	Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors
1.	Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
1.	Impact on fish migration and habitat degradation due to decreased flow of water
1.	Impact on breeding and nesting grounds of animals and fish.
1.	Impact on local community including demographic profile.
1.	Impact on socio-economic status
1.	Impact on economic status.
1.	Impact on human health due to water / vector borne disease
1.	Impact on increase traffic

1.	Impact on Holy Places and Tourism
1.	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.
1.	Positive and negative impacts likely to be accrued due to the project are listed.
1.	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.
1.	Changes in land use / land cover and drainage pattern
1.	Immigration of labour population
1.	Quarrying operation and muck disposal
1.	Changes in land quality including effects of waste disposal
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
1.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.
1.	Effect on soil, material, vegetation and human health.
1.	Impact of emissions from DG set used for power during the construction, if any, on air environment.
1.	Pollution due to fuel combustion in equipments and vehicles
1.	Fugitive emissions from various sources
1.	Changes in surface and ground water quality
1.	Steps to develop pisci-culture and recreational facilities
1.	Changes in hydraulic regime and downstream flow.
1.	Water pollution due to disposal of sewage
1.	Water pollution from labour colonies/ camps and washing equipment.
Methodology for Collection of Biodiversity Data	
1.	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).
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).
1.	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.
1.	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.
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.

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	Present
2	Dr N Lakshman	Member (EAC)	lna**@rocketmail.com	Present
3	Dr Uday Kumar R Y	Member (EAC)	uda********@yahoo.com	Present

4	Dr J A Johnson	Member (EAC)	jaj@wii.gov.in	Absent
5	Dr J V Tyagi	Member (EAC)	jvt******@gmail.com	Present
6	Shri Kartik Sapre	Member (EAC)	kar********@gmail.com	Present
7	Shri Ajay Kumar Lal	Member (EAC)	akl****@gmail.com	Present
8	Shri Sharvan Kumar	Member (EAC)	krs******@nic.in	Present
9	Shri Alok Paul Kalsi	Member (EAC)	emo***@nic.in	Present
10	Dr A K Sahoo	Member (EAC)	ami***@gmail.com	Present
11	Mr Munna Kumar Shah	Scientist E	mun*******@gov.in	Present

MINUTES OF THE 8TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 28TH FEBRUARY, 2024 ON ONLINE MODE.

The 8th meeting of the EAC for River Valley & Hydro-electric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 28th February, 2024 through online mode, under the Chairmanship of Prof. G. J. Chakrapani. The Members present in the meeting are listed in **Annexure**.

Agenda No. 8.1

Confirmation of Minutes of 7th EAC meeting held on 9th February, 2024.

Agenda No. 8.2

Kandhaura Closed Loop Pumped Storage Project (1680 MW) in an area of 756.89 Ha at Village Sashnai, Markuri & Cherue, Taluka Obra and Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited – Reconsideration for Terms of References (TOR) – reg.

[Proposal No. IA/UP/RIV/453372/2023; F. No. J-12011/62/2023-IA.I (R)]

8.2.1 The proposal is for grant of Terms of Reference (ToR) to the project for setting up of Kandhaura Closed Loop Pumped Storage Project (1680 MW) in an area of 756.89 Ha at Village Sashnai, Markuri & Cherue, Taluka Obra and Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited.

8.2.2 The EAC during deliberations noted the following:

- Earlier, the proposal was considered by EAC in its 5th meeting held on 23.01.2024 wherein the EAC deferred the proposal citing various observations including the following:

"……*It was observed that there are multiple projects sometimes in closed proximities, and hence CEA and CWC observations on the consequences and impacts on such projects on the stability, feasibility, disaster and financial risks and environment impacts be considered.*

During discussion the EAC noted that the project lay out of the present proposal is overlapping with other PSP namely Sonbhadra Pumped Storage Project envisaged as Off-Stream Closed Loop Pumped Storage Project (OCPSP) of 1200 MW / 7236 MWH storage capacity, located in Bahera Village of Robertsganj Tehsil in Sonbhadra District, Uttar Pradesh by M/s Sri Siddharth Infratech & Services (I) Private Limited. It was also noted that Sonbhadra Pumped Storage Project has already been granted TOR by the MoEF&CC vide letter no. J-12011/15/2013-IA.I

(R) dated 07.06.2023 for conducting EIA study as per recommendations of the Expert Appraisal Committee (River Valley & Hydro-electric). The PP thereafter informed that they have signed Memorandum of Understanding (MoU on 25th Day of November, 2022 with State Government of Uttar Pradesh for development of project. The in principle approval has also been obtained for withdrawl of water from Son River for one time filling of the reservoir. The PP also submitted that their project components are at safe distance from other PSPs being established in the region.

In view of the aforesaid, the EAC recommended that establishment of two pumped storage project in such close proximity where project components are overlapping may lead to ecological disaster so from ecological and social sustainability point of view development of such projects is not advisable in such manner. The EAC was of the view that concerned authorities should pass instructions regarding safe distance to be maintained by the project developers between two projects and its components while preparing Project Feasibility Report (PFR). The project developers should also submit certificate from the concerned authority in this regard.

The EAC unanimously decided to seek comments of Central Electricity Authority (CEA) about observed overlapping of project components of Kandhaura Closed Loop Pumped Storage Project (1680 MW) and Sonbhadra Pumped Storage Project.it was also recommended to seek details about necessary consent/MoU signed by the project developers for both projects, so that the EAC can take appropriate decision on the present proposal……"

- In response to the above, the PP vide letter dated 6.02.2024 informed that the Central Electricity Authority (CEA) convened a meeting on 24th January 2024 with representatives of CWC, UP State Government and project developers of Kandhaura, Sonbhadra & Sashnai PSPs to discuss the issue of overlapping, wherein, the matter was thoroughly discussed and addressed.
- Accordingly, the CEA vide letter no. CEA- HY-12-12/4/2023-HPA Division- I/33494/2024 dated 2nd February 2024 officially confirmed the resolution of the overlapping issue. During the said meeting, the representative of Sri Siddharth Infratech & Services (1) Private Limited conveyed that the layout of the pipeline for their Sonbhadra PSP has been modified to mitigate any overlap with the Kandhaura PSP and Sashnai PSP.
- Consequently, the concern regarding overlapping with the Sonbhadra PSP has been effectively resolved. A Google image displaying the layouts of all three developers was displayed during the aforesaid meeting.
- It was also informed that the matter of overlapping was discussed in the meeting conducted by Department of Infrastructure and Industrial Development, UP under the Chairmanship of IID Commissioner on 3rd January 2024. During the meeting, M/s. Sidhartha Infra and Services Pvt. Ltd. has been instructed to reroute their intake point and pipeline with immediate effect. Accordingly, they have revised the project layout w.r.t. reroute the intake point and pipeline and submitted to CEA. The project proponent has provided a copy of said MOM.

8.2.3 The Project Proponent M/s. JSW Energy PSP Six Limited and the accredited Consultant M/s. J.M. Enviro Net Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. The proposal is for ToR to the Proposed Kandhaura Pumped Storage Project (1680 MW) located at Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh by M/s. JSW Energy PSP Six Limited.

ii. Proposed Pumped Storage Project (PSP) is Off-Stream Closed Loop Pumped Storage Project proposed with a capacity of 1680 MW (5 units of 280 MW and 2 units of 140 MW) .

iii. The Project comprises of upper & lower reservoirs with a gross storage capacity of 13.30 MCM (0.47 TMC) & 16.91 MCM (0.56 TMC) respectively. The upper reservoir of the project is to be constructed on the hill top with a maximum dam height of 38.5 m to create the desired storage capacity while the lower reservoir will have a maximum dam height of 40 m constructed in a natural depression downhill. The scheme of operation for the project is with 6.24 Hours of peak power per day and 6.93 Hours for pumping back of the water to the upper reservoir.

iv. **Water availability:** The Project will utilize 1860 MW to pump 12.62 MCM (0.42 TMC) of water to the upper reservoir in 6.93 hours. Being a closed loop project, the proposed one time filling of the reservoir will be taken from Sone River and water will then be used cyclically for energy storage and discharge.

v. Evacuation of power from the pumped storage project via 400kV grid substation shall be through a double circuit transmission line to PGCIL GIS substation at Vihana or at Sarnath, Uttar Pradesh.

vi. As per EIA Notification dated 14th September, 2006 as amended on date, the project falls under Category "A", Project or Activity 1 (c); (i) for River Valley Project (c) Standalone Pump Storage Projects.

vii. **Land requirement**: Total project Area: 756.89 Ha (including Forest land 713.72 ha, 36.48 ha Govt. Land & 7.69 ha Pvt. Ltd.) Out of the total plant area i.e., 756.89 ha, 14.53 ha will be covered under greenbelt / plantation area.

viii. **Project Cost:** The estimated project cost is Rs 7949.26 Cr.

ix. Total Employment will be 250 persons (permanent) and 70 persons (Temporary) after construction phase. The funds towards local area development will be allocated after Public Hearing.

x. **Environmental Sensitivity**: There are No national parks, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. Kaimoor Wildlife

Sanctuary is present within 10 km distance from the project. The sanctuary is about 1.5 km in SW direction from project site and its ESZ boundary is at 0.5 km from project site. A water body i.e., Amwa Nala (Non-Perennial) is flowing inside the lower reservoir.

xi. **Muck Managament**: The total quantity of muck likely to be generated from excavation including construction of roads will be 14.54 million cum. The total quantity of muck after swell factor will be 20.64 million cum. Out of the total muck generated 50% will be used and remaining 50% will be disposed at designated Place. Total quantity of C&D Waste to be generated will be disposed through authorized dealers.

xii. **Alternative Studies**: Two alternative site studies were carried out. Alternative-2 has been selected as there shall be no impact on Wildlife Sanctuary and the Eco Sensitive Zone.

xiii. There is no litigation pending against the proposal.

xiv. The salient features of the project are:

- **Location**

Location (Including coordinates)	At Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh Latitude: 24°28'44.22" N to 24°31'53.92" N Longitude: 83° 8'2.81" E to 83°11'49.31" E
Inter- state issue involved	No
Seismic zone	The project area falls under Zone III, i.e., Moderate Risk Zone as per IS-1893 (Part 1) 2002, Seismic Zoning Map of India

- **Category details:**

Category of the project	A
Provisions	As per EIA Notification, 2006 as amended from time to time
Capacity / Cultural command area (CCA)	1680 MW
Attracts the General Conditions (Yes/No)	No

- **Electricity generation capacity:**

Powerhouse Installed Capacity	1680MW
Generation of Electricity Annually	3636.99 MU Energy generation

No. of Units	7 no's (5 units of 280 MW each and 2 units of 140 MW each)
Additional information (if any)	NA

- **ToR/EC Details:**

Cost of project	7949.26 crores
Total area of Project	756.89 Ha
Height of Dam from River Bed (EL)	Upper Reservoir:38.5 m Lower Reservoir:40 m
Length of Tunnel/Channel	1569.96 m
Details of Submergence area	**Total Submergence Area: 209.1 Ha**

S.No	Area submerged (e.g. Forest land, Agriculture land, Protected area, etc.)	Area (Ha)
1.	Forest Land	201.44
2.	Private land	6.7
3.	Government Land	0.96
	Total	**209.1**

during construction/ Operation	**1.** MSW	labour camp	110 TPA
	2. Electronic equipment	labour camp	0.28 TPA
	3. Biomedical	Dispensary	1.1 TPA
	4. Used Oil & grease	Construction equipment	6.6 TPA
	6. Plastic Waste	labour camp	22 TPA

E-Flows for the Project	Water from Sone River will be abstracted only during flooded/ monsoon season. Further Details will be incorporated in EIA/EMP Report.
Is Projects earlier studies in Cumulative impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then i. E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin.	No

ii. If not the E-Flows maintain criteria for sustaining river ecosystem.	

- **Muck Management Details:**

No. of proposed disposal area/(type of land- Forest/Pvt. Land)	Two Muck disposal sites has been proposed of about 133.23 Ha area.
Muck Management Plan	The total quantity of muck likely to be generated from excavation including construction of roads will be 14.54 million cum. The total quantity of muck after swell factor will be 20.64 million cum. Out of the total muck generated 50% will be used and remaining 50% will be disposed at designated Place. The area identified for Muck disposal sites is about 133.23 Ha.
Monitoring mechanism for Muck Disposal	Monitoring mechanism for muck disposal will be submitted along with EIA/EMP Report.

- **Land Area Breakup:**

Private land	36.48 ha
Government land/Forest Land	Forest Land: 713.72 ha Government Land: 7.69 ha
Submergence area/Reservoir area	**Submergence area: 209.1 Ha** **Reservoir Area: 397.2 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	Total of 713.72 Ha forest land (Reserved forest, Protected Forest and Forest land given for agricultural purpose) present in project site will be diverted and Application for Stage 1 clearance will be submitted after grant of ToR. Apart from that, there are Open Jungle Mainly Salai, Fairly dense jungle mainly bamboo, Open jungle mainly bamboo, Open mixed jungle within the study

		area of the project.
National Park	No	
Wildlife Sanctuary	Yes	Kaimoor Wildlife Sanctuary (~1.5 km in SW direction from project site). Project Site does not fall under eco sensitive zone of Kaimoor Wildlife Sanctuary, as ESZ boundary is at 0.5 km from project site vide MOEF&CC notification dated 23rd Sep., 2016.

- **Court Case Details: Nil**

8.2.4 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 for conducting EIA study for proposed construction of the project Kandhaura Closed Loop Pumped Storage Project (1680 MW) in an area of 756.89 ha at Village Sashnai, Markuri & Cherue, Taluka Obra and Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited.

- The transportation route is being proposed inside ESZ area which is stated to be normal road route.
- Archaeological site i.e. Vijaygarh Fort is within buffer area of the project i.e. 6 km from the project site as stated by PP.
- The project involves diversion of forest land of 713.72 ha for non-forestry activity of which 200 ha comes under submergence and 133 ha muck disposal area etc.
- Project Site does not fall under Eco Sensitive Zone of Kaimoor Wildlife Sanctuary, as ESZ boundary is at 0.5 km from project site vide MOEF&CC notification dated 23rd Sep., 2016.

8.2.5 The EAC after detailed deliberation observed the submission of Project Proponent in line with submission of CEA, Ministry of Power. The overlapping factors has been addressed, but desired that M/s Sri Siddharth Infratech & Services (1) Private Limited shall be conveyed by PP to obtain amendment in ToR for any changes of Sonbhadra PSP. Source of water is River Sone for this instant project, which is interstate river thus EAC desired that No objection certificate from other states (Bihar and Jharkhand) must be obtained by project proponents or by the State Government being the allotter of the project to avoid scarcity of water to consumers.

The proposed site is at 0.5 km of ESZ boundary from project site, notified vide MOEF&CC notification dated 23rd Sep., 2016 as informed by project proponent and does not fall under Eco Sensitive Zone of Kaimoor Wildlife Sanctuary. The committee suggested to submit the Certificate and certified map from Chief Wildlife Warden that the project area is outside the ESZ boundary. Further, it was observed that the project proponent has proposed to use road which is passing through ESZ area, for which PP must obtain permission from concerned regulatory authority and Chief Wildlife Warden prior for using road passing through ESZ area.

It was observed that the project authorities have proposed to construct the rock-filled dam, hence, the committee suggested to conduct the geological study in respect to earthen dam and rock filled dam for dam safety. With regard to diversion of large forest area for this instant project, it was desired that PP shall reassess the required area for muck disposal (132.31 ha) and ensure that it is deposited in non-forest areas and explore the possibility to increase the height of muck dump with adequate bench width.

The committee noted that as the three projects of pumped storage projects are in close proximity, it will be appropriate to conduct a cumulative impact study of all three projects for evaluation of impact of forest, wildlife and river.

Accordingly, based on the information submitted and as presented during the meeting, the EAC **recommended for grant of Standard ToR for conducting EIA study with Public consultation to the project for Kandhaura Closed Loop Pumped Storage Project (1680 MW) in an area of 756.89 Ha at Village Sashnai, Markuri & Cherue, Taluka Obra and Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited**, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

(A) Environmental Management and Biodiversity Conservation

i. Explore the possibilities for reducing the Forest land requirement The application for obtaining Stage I FC for 713.72 of forest land (after rationalising the requirement of forest land) involved in the project shall be submitted.
ii. PP shall reassess the required area for muck disposal (132.31 ha) and ensure that it is deposited in non-forest areas and explore the possibility to increase the height of muck dump with adequate bench width. Alternative sites for various components shall be identified in terms of loss of forest area and other environmental aspects.
iii. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located around 0.5 km from outside the Eco- sensitive Zone (ESZ) of Kaimoor Wildlife Sanctuary and also project site not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.
iv. 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.
v. Calculation and values of GHGs (CO_2, CH_4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.
vi. 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.
vii. 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.
viii. Conducting site specific ecological study with respect to riverine ecology focus on fishes diversity, fish migration, habitat and aquatic biota due to construction PSP

ix. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources Sone River shall be studied.

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

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

xii. 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.

xiii. 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.

xiv. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.

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

xvi. 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.

xvii. MoU for water uses for the project shall be signed and approved by concerned authority.

xviii. Geological study shall be conducted in respect to earthen dam and rock filled dam for dam safety.

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

xx. There should be any archaeological sites in the vicinity of the project, which is to be certified by ASI.

(B) Socio-economic Study

i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project. Accordingly, No objection certificate from other states (Bihar and Jharkhand) must be obtained by project proponents or by the State Government being the allotter of the project to avoid scarcity of water to consumers.

ii. All the tasks including conducting Public Hearing and consultation 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 with allocated fund and timeline to complete within three years of construction of project.

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

iv. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

v. 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

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

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

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

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

(D) Disaster Management

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

(E) Miscellaneous

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

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

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

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

v 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.

vi 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.

viii As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in 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.

ix PP must obtain permission from concerned regulatory authority and Chief Wildlife Warden prior for using road passing through ESZ area.

x PP shall obtain No Objection Certificate from Archaeological Survey of India since Archaeological site i.e. Vijaygarh Fort is within buffer area of the project i.e. 6 km from the project site as stated by PP

Any other item
Agenda No. 8.3

Site visit of proposed Sirkari-Bhyol Rupsiabagar Hydro Electric Project of 120 MW as Run of River scheme in an area of 30 ha in Tehsil Munsiyari, Pithoragarh District (Uttarakhand) by M/s UJVN LTD during 17th - 21st April, 2023.

8.3.1 The Member Secretary informed the EAC that the proposal for grant of Environmental Clearance of Sirkari-Bhyol Rupsiabagar Hydro Electric Project of 168 MW as Run of River scheme in an area of 30 ha in Tehsil Munsiyari, Pithoragarh District (Uttarakhand) by M/s UJVN LTD was submitted by the M/s UJVN Ltd on 19.01.2021. The proposal was considered by the EAC (RV&HEP) in its 7th, 10th and 33rd meeting held on 25.02.2021, 15.04.2021 and 29.08.2022 subsequently. The EAC (River valley and Hydro-electric) in its meeting held on 29.08.2022 and after deliberations the EAC noted the following:

"The EAC was not in agreement with data generated during the study regarding non-occurrence of fish species in the study area. There are numerous studies which reported presence of various cold water fishes in the region. The EAC opined that the fishes are the best bio indicator for illustrating the ecological health of any aquatic ecosystem including rivers. It was noted that as per previous recommendations of the EAC fish occurrence and requirement of fish pass had to be examined in consultation with CIFRI. But it was conducted through some other institute during October 2021.

It was also noted that a representation has been received mentioning the issues regarding eco-vulnerability of the region viz. frequent occurrence of extreme climate events resulting in flooding, landslides and then related life and property losses in Gori River Basin as the basin already exists 7 large Hydro Power Projects (HPP's) in Gori Ganga River basin and 1 medium scale HPP (proposed). It is also mentioned in the representation that Forest Advisory Committee (FAC) in 2012 has denied the Forest Clearance for 261 MW NTPC Rupsiyabagar - Khasiyabara HydroPower Project on the grounds of severe ecological impacts due the site being of high ecological and wildlife

value. Sirkari Bhyol Rupsiabagar HEP (120 MW) project not only lies in the same ecological region but is immediately upstream of the cancelled project and shares the same geographical zone of Rupsiabagar."

After detailed deliberation the EAC decided to conduct site visit before making any recommendation on the proposal.

8.3.2 A site visit was carried out by the EAC (Sub-Committee) during 17th – 21st April, 2023. Following expert members of the EAC have visited the Sirkari-Bhyol Rupsiabagar Hydro Electric Project site:

i. Dr. A.K. Malhotra
ii. Dr. Amiya Kumar Sahoo,
iii. Shri Ashok Kumar Kharya
iv. Shri Yogendra Pal Singh- MoEF&CC representative

The Observation of the Sub-Committee area as follows:
"……After site visit and discussion with project proponent and locals the EAC (Sub-Committee) is of the view that the proposed project site is located in ecologically and geologically fragile zone. The Ascot Wildlife Sanctuary is located 11 KM (approx.) and the boundary of the Nanda Devi National Park is located at approx. 12 km aerial distance from the project site. As per the available scientific surveys, presence of various important endangered wildlife species have been reported in the region. It was also noted that the present proposal of UJVNL is also proposed to be in the same ecological and geological region, where NTPC Ltd. proposal namely "261 MW Rupsiyabagar - Khasiyabara Hydro-Power Project ("RKHPP" for short) in Pithoragarh district of Uttarakhand", was denied Forest Clearance by the MoEF&CC in view of the Forest Advisory Committee (FAC) observations regarding ecological and geological fragility of the region. On interaction with project officials, it was observed that there are total 7-8 hydro-electric projects proposed in the Goriganga river basin; so, it is quite essential to have cumulative impact assessment study of the river basin by the MoEF&CC, to assess the carrying capacity of the river basin in terms of cumulative impacts of these projects on the flora and fauna and wilderness of the forests in the region, river sustainability, landslide vulnerability etc., before making any recommendation on the proposal……."

Site visit report is attached at Appendix A.

8.3.3 The EAC highlighted the region's high sensitivity and geological fragility, coupled with the proposed construction of 7-8 hydro-electric projects in the Goriganga river basin. Consequently, to conduct a comprehensive cumulative impact assessment study of the river basin by the MoEF&CC is imperative. This assessment aims to evaluate the basin's capacity to withstand the cumulative impacts of these projects on flora, fauna, forest wilderness, river sustainability, landslide vulnerability, and other relevant factors before any recommendations are made regarding the proposal. The proposal was therefore **deferred** for Cumulative Impact Assessment and Carrying Capacity study of the river basin

for further consideration. EAC desired that Ministry may expedite the conduct of Cumulative Impact Assessment and Carrying Capacity study of the river basin of other rivers including Goriganga river.

The meeting ended with vote of thanks to and from the Chair.

***

Annexure

Attendance

S. No.	Name	Role	Attendance
1.	Prof. G. J. Chakrapani	**Chairman**	P
2.	Dr. Udaykumar R. Y.	Member	P
3.	Dr. Mukesh Sharma	Member	P
4.	Dr. J V Tyagi	Member	P
5.	Shri Kartik Sapre	Member	P
6.	Shri Ajay Kumar Lal	Member	P
7.	Shri Sharvan Kumar	Representative of CEA	P
8.	Shri Alok Paul Kalsi	Representative of CWC	P
9.	Dr. J.A. Johnson	Representative of WII	A
10.	Dr. A.K. Sahoo	Representative of CIFRI	P
11.	Shri Munna Kumar Shah	Member Secretary	P
12.	Dr Saurabh Upadhyay	Scientist C, MoEF&CC	P

***

Approval of the Chairman

Munna Kumar Shah <munna.shah@gov.in> Mon, Mar 4, 2024 at 3:45 PM
To: gautam munesh94 <gautam.munesh94@gmail.com>

From: "chakrapani govind" <chakrapani.govind@gmail.com>
To: "Munna Kumar Shah" <munna.shah@gov.in>
Sent: Monday, March 4, 2024 11:59:14 AM
Subject: Re: Draft MoM of 8th meeting held on 28th February, 2024

Approved.

On Mon, Mar 4, 2024 at 11:57 AM Munna Kumar Shah <munna.shah@gov.in> wrote:

> Dear sir
>
> The corrected Draft MoM of 8th meeting held on 28th February, 2024 is hereby enclosed. No further comments has been received. It is requested to kindly approve the MoM for further uploading on PARIVESH Portal.
>
> Submitted for consideration please
>
> Thank you
>
> Regards
>
> Munna Kumar Shah
> Scientist E

Report of the EAC (Sub-Committee), River Valley & Hydro-electric projects, MoEF&CC site visit of proposed Sirkari-Bhyol Rupsiabagar Hydro Electric Project of 120 MW as Run of River scheme in an area of 30 ha in Tehsil Munsiyari, Pithoragarh District (Uttarakhand) by M/s UJVN LTD during 17th – 21st April, 2023.

1. The proposal for grant of Environmental Clearance to Sirkari-Bhyol Rupsiabagar Hydro Electric Project of 168 MW as Run of River scheme in an area of 30 ha in Tehsil Munsiyari, Pithoragarh District (Uttarakhand) by M/s UJVN LTD was submitted by the M/s UJVN Ltd on 19.01.2021. Accordingly, the proposal was considered by the EAC (RV&HEP) in its 7th, 10th and 33rd meeting held on 25.02.2021, 15.04.2021 and 29.08.2022 subsequently.

2. The project is proposed on River Goriganga, a tributary of Sarda River, in District Pithoragarh, Uttarakhand. The project envisages construction of a 12m high and 80m long barrage across Goriganga River near Rargiri Tok of village Sai Polo in Tehsil Munsiyari and an underground powerhouse (120 MW) on the right bank with annual design energy generation of 529.12 GWh in a 90% dependable year. The catchment area is 957sq. km. The cost of project is Rs. 879.43 Crores, at January 2020 price level, and is proposed to be completed in 54 months.

3. The MoEF&CC vide letter no. J-12011/12/2015-IA-1, dated 20-1-2016 granted Terms of Reference (TOR) for under taking EIA study and preparation of EIA/EMP report for the project with installed capacity 168MW (4x42 MW). Further, Ministry vide letter no. J-12011/12/2015-IA-I (R), dated 17.04.2020, granted extension of validity of ToR upto 19.01.2021. Due to change in configuration of the project amendment in TOR was accorded by MoEF&CC on 13.10.2020 for change in capacity from 168 MW to 120 MW.

4. The EAC (River valley and Hydro-electric) considered the proposal for grant of Environmental Clearance to Sirkari-Bhyol Rupsiabagar Hydro Electric Project of 120 MW as Run of River scheme in an area of 30 ha in Tehsil Munsiyari, Pithoragarh District (Uttarakhand) by M/s UJVN LTD in its meeting held on 29.08.2022 and after deliberations the EAC noted the following:

"The EAC was not in agreement with data generated during the study regarding non-occurrence of fish species in the study area. There are numerous studies which reported presence of various cold water fishes in the region. The EAC opined that the fishes are the best bio indicator for illustrating the ecological health of any aquatic ecosystem including rivers. It was noted that as per previous recommendations of the EAC fish occurrence and requirement of fish pass had to be examined in consultation with CIFRI. But it was conducted through some other institute during October 2021.

It was also noted that a representation has been received mentioning the issues regarding eco-vulnerability of the region viz. frequent occurrence of extreme climate events resulting in flooding, landslides and then related life and property losses in Gori River Basin as the basin already exists 7 large Hydro Power Projects (HPP's) in Gori Ganga River basin and 1 medium scale HPP (proposed). It is also mentioned in the representation that Forest Advisory Committee (FAC) in 2012 has denied the Forest Clearance for 261 MW NTPC Rupsiyabagar - Khasiyabara HydroPower Project on the grounds of severe ecological impacts due the site being of high ecological and wildlife value. Sirkari Bhyol Rupsiabagar HEP (120 MW) project not only lies in the same ecological region but is immediately upstream of the cancelled project and shares the same geographical zone of Rupsiabagar."

5. After detailed deliberation the EAC decided to conduct site visit before making any recommendations on proposal. Accordingly, the site visit was carried out by the EAC (Sub-Committee) during 17th – 21st April, 2023. Following expert members of the EAC have visited the Sirkari-Bhyol Rupsiabagar Hydro Electric Project site:

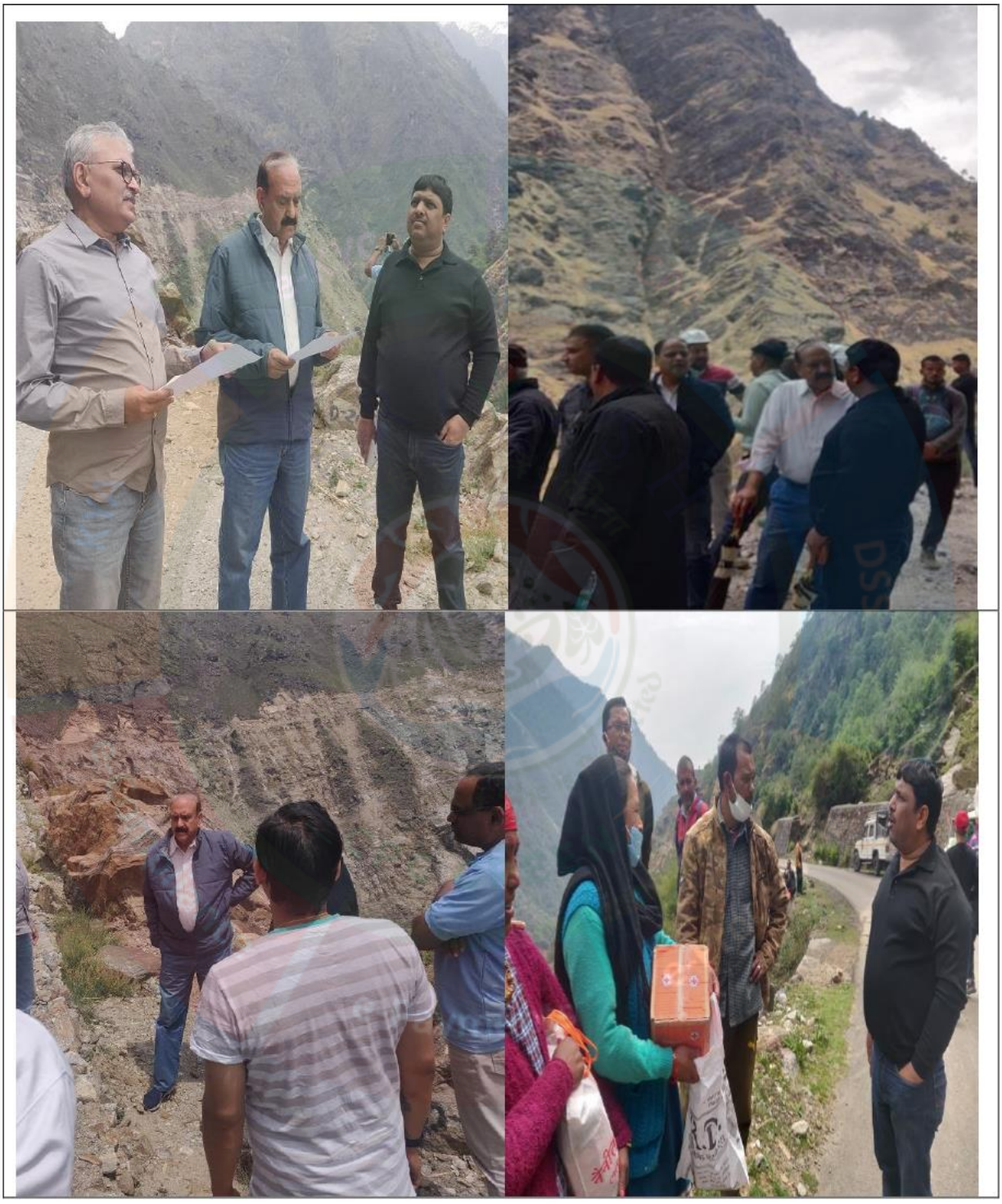
i. Dr. A.K. Malhotra
ii. Dr. Amiya Kumar Sahoo,
iii. Shri Ashok Kumar Kharya
iv. Shri Yogendra Pal Singh- MoEF&CC representative

5. After site visit and discussion with project proponent and locals the EAC (Sub-Committee) is of the view that the proposed project site is located in ecologically & geologically fragile zone. The Ascot Wildlife Sanctuary is located 11 KM (approx.) and the boundary of the Nanda Devi National Park is located at *approx*. 12 km aerial distance from the project site. As per the available scientific surveys, presence of various important endangered wildlife species have been reported in the region. It was also noted that the present proposal of UJVNL is also proposed to be in the

same ecological and geological region, where NTPC Ltd. proposal namely "261 MW Rupsiyabagar - Khasiyabara Hydro-Power Project ("RKHPP" for short) in Pithoragarh district of Uttarakhand", was denied Forest Clearance by the MoEF&CC in view of the Forest Advisory Committee (FAC) observations regarding ecological and geological fragileness of the region. On interaction with project officials, it was observed that there are total 7-8 hydro-electric projects proposed in the Goriganga river basin; so, it is quite essential to have cumulative impact assessment study of the river basin by the MoEF&CC, to assess the carrying capacity of the river basin in terms of cumulative impacts of these projects on the flora and fauna and wilderness of the forests in the region, river sustainability, landslide vulnerability etc., before making any recommendation on the proposal.

*****

Photographs of the propose project site visit



Email **Sarvesh Narwal**

Fwd: Draft report of the EAC (Sub-Committee), River Valley & Hydro-electric projects, MoEF&CC site visit of proposed Sirkari-Bhyol Rupsiabagar Hydro Electric Project of 120 MW as Run of River scheme in an area of 30 ha in Tehsil Munsiyari, Pithoragarh District (Uttarakhand) by M/s UJVN LTD

From : Saurabh Upadhyay <saurabh.upadhyay85@gov.in> Tue, Feb 06, 2024 03:03 PM

Subject : Fwd: Draft report of the EAC (Sub-Committee), River Valley & Hydro-electric projects, MoEF&CC site visit of proposed Sirkari-Bhyol Rupsiabagar Hydro Electric Project of 120 MW as Run of River scheme in an area of 30 ha in Tehsil Munsiyari, Pithoragarh District (Uttarakhand) by M/s UJVN LTD

To : Munna Kumar Shah <munna.shah@gov.in>

Cc : Sourabh Kumar <sourabh.9@govcontractor.in>, Sarvesh Narwal <sarvesh.narwal@gov.in>

From: ajitkumarmalhotra463@gmail.com
To: "Saurabh Upadhyay" <saurabh.upadhyay85@gov.in>
Sent: Tuesday, February 6, 2024 12:58:45 PM
Subject: Re: Draft report of the EAC (Sub-Committee), River Valley & Hydro-electric projects, MoEF&CC site visit of proposed Sirkari-Bhyol Rupsiabagar Hydro Electric Project of 120 MW as Run of River scheme in an area of 30 ha in Tehsil Munsiyari, Pithoragarh District (Uttarakhand) by M/s UJVN LTD

yes I agree with the field visit report.

A.K.Malhotra

On Thu, Feb 1, 2024 at 5:34 PM Saurabh Upadhyay <saurabh.upadhyay85@gov.in> wrote:

Dear Sir,

I am directed to enclose herewith the draft site visit report on the subject matter for comments/inputs and approval pls.
With Regards

(Dr Saurabh Upadhyay)
Dy. Director/ Scientist C
Ministry of Environment, Forest & Climate Change,
2nd floor, Vayu Wing,
Cabin no. V-234,
Indira Paryavaran Bhawan,
Jor bagh Road, Aliganj, New Delhi - 3
Email: saurabh.upadhyay85@gov.in

Approval of the Chairman