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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 18TH MEETING OF THE EXPERT APPRAISAL COMMITTEE meeting River Valley and Hydroelectric Projects held from 05/11/2024 to 05/11/2024 **Date:** 16/11/2024

MoM ID: EC/MOM/EAC/145876/10/2024

Agenda ID: EC/AGENDA/EAC/145876/10/2024

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

05/11/2024	10:30 AM	05:30 PM

1. Opening remarks

The 18th meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on through Virtual mode, under the Chairmanship of Prof. G. J. Chakrapani.

2. Confirmation of the minutes of previous meeting

The Minutes of the Meeting held on 17th EAC meeting on 17th October, 2024 were confirmed.

3. Details of proposals considered by the committee

Day 1 -05/11/2024

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Khadakwasala Fursungi Tunnel Project Substitute to New Mutha Right Bank Canal KM 1 to Km 34 by **EXECUTIVE ENGINEER IPI DIVISION BSB PUNE** located at **PUNE,MAHARASHTRA**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/459818/2024	J-12011/16/2024-IA-I(R)	27/05/2024	River Valley/Irrigation projects (1(c))

3.1.2. Project Salient Features

18.1.1: The proposal is for grant of Terms of References (ToR) to the project for Khadakwasala Fursungi Tunnel Project substitute to New Mutha Right Bank Canal KM 1 to Km 34 in an area of 23.8364 Ha located at village Akole, Rui etc, Sub-district Indapur, Haveli, Pune City, etc, District Pune, Maharashtra by M/s Executive Engineer IPI Division Bsb Pune.

18.1.2: The Project Proponent and the accredited Consultant M/s. MITCON Consultancy & Engineering Services Ltd, made a detailed presentation on the salient features of the project and informed that:

18.1.3 Earlier, the proposal was considered by the Expert Appraisal Committee (River Valley and Hydro-electric Sector) in its 11th meeting held on 27.06.2024. The EAC deferred the proposal seeking additional information. The PP submitted the replies of observations of EAC on PARIVESH portal on 22.10.2024. The replies of observations are:

<table>
<tr><th>S. No</th><th>Points raised by EAC</th><th>Compliance</th></tr>
<tr><td>i.</td><td>PP shall submit technical analysis along with cost of newtunnel and old tunnel modification shall be submitted.</td><td>

A tunnel between Khadakwasala to Fursungi is proposed substitute to existing new mutha right bank canal km 1 to 34.
Three options have been studied for this as new tunnel, Box Culvert in existing canal and Closed Pipe System canal.
Cost:
<table>
<tr><td>Description</td><td>Cost Rs. (Crore)</td></tr>
<tr><td>Tunnel</td><td>Rs. 2190.47 Cr.</td></tr>
<tr><td>Box Culvert</td><td>Rs. 4245.56 Cr.</td></tr>
<tr><td>Closed Conduit</td><td>Rs. 4424.84 Cr.</td></tr>
</table>
Main limitation for construction at existing New mutha right bank canal is canal closure period. As due to Drinking & Irrigation beyond Km 34 in Haveli, Daund & Indapur Talukas is about 62150 Ha; so canal is running about 9 to 10 months in a year. If canalis closed for 1 year there will be financial losses of crops of farmers about 3000 Cr.
Time required:
<table>
<tr><td>Description</td><td>Time Required(years)</td></tr>
<tr><td>Tunnel</td><td>4 to 5 years</td></tr>
<tr><td>Box Culvert</td><td>15 to 20 years</td></tr>
<tr><td>Closed Conduit</td><td>10 to 12 years</td></tr>
</table>
Life Span:
<table>
<tr><td>Description</td><td>Life Span</td></tr>
<tr><td>Tunnel</td><td>more than 100 years</td></tr>
</table>

</td></tr>
</table>

		<table><tr><td>Box Culvert</td><td>50 to 60 years</td></tr><tr><td>Closed Conduit</td><td>50 to 60 years</td></tr></table> • Considering Cost, time required, life span of structure, construction limitations and benefits, tunnel is most feasible option.
ii.	Detailed plan along with time bound, budget wise shall be summited for green plantation or park development in the old channel.	• Accordingly, Detailed plan for green plantation or park development along with time bound budget can only be submitted once the canal operation is permanently closed after completion of Tunnel Project. • Following recreational activities can beplanned in this area. • Forest garden • Botanical garden • Zoo • Bird habitat • Cycle track, walking/ jogging track • Social spaces • Breathing spaces • Sports area • Artist centres • Heritage walk • Kids play area • Old age people seating • Skate park, yoga centre, adventurepark etc. • Public Amenities.
iii.	Ground water level studies analysis shall be carried out to quantify the changes will occurafter underground pipelines installation.	• Ground water study to quantify thechanges occurs after underground pipelines installation will take more time. Hence it is requested to kindly include the Ground water study in EIA & EMP report.
iv.	Necessary permission from government shall be taken for change in land use pattern.	• Regarding the Land Use Pattern Change Permission from Government the existing canal land is currently used for canal operations & canal is fully functional providing water for irrigation for 62150 Ha. Land & drinking water for villages in Daund & Indapur Taluka. • For the proposed work of Khadakwasala- Fursungi Tunnel Project a time period of about 4 to 5 years is expected for total completion.

		• Considering the time period for completion of project it is not possible to close the existing canal till then. • Hence Land Use Pattern cannot be changed at this moment of time, and shall be needed to change when the Tunnel Project work is about to be completed.
v.	Approved DPR of the project to be submitted.	• Khadakwasala- Fursungi Tunnel Project is administratively approved by Govt of Maharashtra vide resolution dated 05/09/2024. Copy of GR is attached herewith.
vi.	Option analysis to be carried out.	• Total Six no. of alignments are studied for option analysis while preparing DPR. • The options are analysed considering parameters like length of tunnel, rock cover, seepage etc. Details of this analysis are attached herewith in **Annexure-I.**

3.1.3. Deliberations by the committee in previous meetings

Date of EAC 1 :27/06/2024

Deliberations of EAC 1 :

11.5.3 The EAC during deliberations noted the following:

- The project/activity is covered under Category B of item 1 (c) 'River Valley & Hydroelectric projects' but due to applicability of general condition (3.6 km from ESA boundary of Western Ghats) the project appraised at Central level by the sectoral EAC in the Ministry.
- The EAC noted that the proposed project is to construct a Tunnel which is substitute to New Mutha Right Bank Canal Km. 1 to 34 which is more than 60 years old and proposed in upstream of Khadakwasla dam in Pune district of Maharashtra.
- During the presentation, the EAC inquired about the constraints due to which new canal is proposed and why the existing canal cannot be repaired or restructured, accordingly, PP replied that the 35km of pipeline passes through city which has been encroached form both side of the canal and people around the canal are dumping garbage into it. Also it was noted that due to large amount of seepage lossesit affects the water availability in the downstream. Additionally, the committee inquired about the decommissioned plan of the canal to which PP replies that it will be handed over to Pune municipal cooperation for the development of the city.
- The EAC inquired that people residing near to the canal, they must be dependent on the water from the canal to which PP replied that all the people in Pune city receives water from Municipal Corporation limited.
- The EAC insisted PP to restructure or modification can be done in the canal so as to avoid construction of new tunnel which seems to be more environmental friendly, also it was suggested that lining of the canal can be done which can further reduce the seepage losses, afterwards PP defended their proposal and submitted that if they opt for modifying the existing they need to shutdown canal for at least 2-3 years due to which irrigation facilities will get disrupted and it will not become economical viable.

The committee observed that the total muck generation will be generated 1670000 cu.m out of which 375000 cum shall be used for backfilling of open channel portion, 600000 cum stone & aggregates shall be utilised for construction and Balance 695000 cum material shall be utilised for lo lying area and adjoining Quarry area.

11.5.4 The EAC after detailed deliberation on the information submitted and as presented **deferred** the proposal for want of following additional information:

i. PP shall submit technical analysis along with cost of new tunnel and old tunnel modification shall be submitted.
ii. Detailed plan along with time bound, budget wise shall be summited for green plantation or park development in the old channel.
iii. Ground water level studies analysis shall be carried out to quantify the changes will occur after underground pipelines installation.
iv. Necessary permission from government shall be taken for change in land use pattern.
v. Approved DPR of the project to be submitted.
vi. Option analysis to be carried out.

3.1.4. Deliberations by the EAC in current meetings

The EAC during deliberations noted the following:

The EAC deliberated on the additional information submitted and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for Khadakwasala Fursungi Tunnel Project Substitute to New Mutha Right Bank Canal KM 1 to Km 34 in an area of 23.8364 Ha located at Village Akole, Rui etc, Sub-district Indapur, Haveli, Pune City, etc, District Pune, Maharashtra by M/s Executive Engineer IPI Division Bsb Pune.

The project/activity is covered under Category B of item 1 (c) 'River Valley & Hydroelectric projects' but due to applicability of general condition (3.6 km from ESA boundary of Western Ghats) the project appraised at Central level by the sectoral EAC in the Ministry.

The EAC after detailed deliberation on the information submitted and as presented during the meeting recommended for grant of Standard ToR for conducting EIA for proposed Khadakwasala Fursungi Tunnel Project Substitute to New Mutha Right Bank Canal KM 1 to Km 34 in an area of 23.8364 Ha located at Village Akole, Rui etc, Sub-district Indapur, Haveli, Pune City, etc, District Pune, Maharashtra by M/s Executive Engineer IPI Division Bsb Pune, 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

Environmental Management and Biodiversity Conservation:	
1.	Application for Stage-I FC for 0.8064 ha of forest land involved in the project shall be submitted prior to submission of EIA/EMP and credible proof shall be submitted along with EIA/EMP report
2.	In view of project location within 3.6 km from ESA boundary of Western Ghats necessary clearance from competent authority be obtained and submitted along with EIA/EMP report
3.	Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located outside the Eco-Sensitive Zone (ESZ) / Wild Life Sanctuary and no Tiger/elephant corridor/Critically polluted area falls within 10 km of Project site
4.	The water of rainfall yield of self-catchment of the reservoir shall be released to downstream through body of dam/ barrage/ embankment etc
5.	Prepare Wildlife conservation plan specifically for avi-fauna with mitigation measures for minimizing the human–animal conflict and be suitably incorporated in the wildlife conservation plan in consultation with reputed government expert institute and State Forest Department
6.	Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nallahs of catchment area / due to lifting of water from river
7.	Prepare Environmental Cost Benefit Analysis in terms of ecological damage due to diversion of Forest land/ loss of biodiversity and its impacts on ecosystem, water availability, water uses for generation of hydro power in study area 10 km from periphery of Project components
8.	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 and thermal stratification. Accordingly, Environment Management plan shall be prepared
9.	Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/EMP report
10.	Source of construction material and its distance from the project site along with detailed transportation plan for construction material be elaborated in the EIA EMP report. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report

11.	A detailed wildlife conservation plan for Schedule –I species, duly approved by the Chief Wildlife Warden, be submitted
12.	In case any wildlife corridor is located within 10 km radius of the project site a detailed study shall be conducted to assess the impact of project on safe movement of wild animals
13.	Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP
14.	Detail of rivulets around the project area and action plan for their survival shall be incorporated in EIA/EMP
Socio-economic Study	
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 population
2.	Declaration by the Project Proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project
3.	All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter
4.	Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F. No. 22-65/2017-IA.III dated 30th September, 2020 shall be submitted
5.	Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared
6.	Details of settlement in 10 km area shall be submitted
7.	Statement on the commitments (activity-wise) made during public hearing to facilitate thediscussion on the CER in compliance of the Ministry's OM F. No. 22- 65/2017- IA.III dated 30th September, 2020 shall be submitted
Muck Management/ Disaster Management	
1.	Details of quantity of muck generation component wise and disposal site along with transportation plan and its monitoring to be provided
2.	Details of Muck Management plan prepared along with estimated cost incorporated in EIA/ EMP report
3.	Techno-economic viability of the project must be recommended from CEA/ CWC
4.	Arial view video of project site shall be recorded and to be submitted
Miscellaneous	
1.	Pre-DPR Chapters viz. Hydrology, Layout Map and Power Potential Studies duly approved by

	CWC/CEA shall be submitted
2.	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 otherpurpose
3.	Both capital and recurring expenditure under EMP shall be submitted
4.	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 analyse the samples

3.1.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Scope of EIA Study	
1.	The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study.
Details of the Project and Site	
1.	General introduction about the proposed project.
2.	Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of Dam/Barrage into the main river.
3.	A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location.
4.	Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map.
5.	Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity.
6.	Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components.
7.	Drainage pattern and map of the river catchment up to the proposed project site.
8.	Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India.
9.	Soil characteristics and map of the project area.
10.	Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
1	Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification

1.	shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
12.	Land details including forests, private and other land.
13.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
14.	Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study
Description of Environment and Baseline Data	
1.	To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:
2.	(i) Catchment area up to the dam/barrage site.
3.	(ii) Submergence Area.
4.	(iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.
5.	(iv) Downstream upto 10 km from the tip of the reservoir.
Details of the Methology	
1.	The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed.
Methodology for Collection of Biodiversity Data	
1.	The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).
2.	The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number.

3.	The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.
4.	The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN).
Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as follow s:	
1.	null
2.	null
3.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
4.	Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams.
5.	Landslide zone or area prone to landslide existing in the study area should be examined.
6.	Presence of important economic mineral deposit, if any.
7.	Justification for location & execution of the project in relation to structural components (dam /barrage height).
8.	Impact of project on geological environment.
9.	null
10.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.

11.	Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO2) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations.
12.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
13.	null
14.	Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area.
15.	null
16.	(i) Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared.
17.	null
18.	History of the ground water table fluctuation in the study area.
19.	Water quality for both surface water and ground water for (i) Physical parameters (pH, temperature, electrical conductivity, TSS); (ii) Chemical parameters (Alkalinity, Hardness, BOD, COD, NO2, PO4, CI, SO4, Na, K, Ca, Mg, Silica, Oil & Grease, phenolic compounds, residual sodium carbonate); (iii) Bacteriological parameter (MPN, Total coliform) and (iv) Heavy Metals (Pb, As, Hg, Cd, Cr-6, total Cr, Cu, Zn, Fe) (6 locations).
20.	Delineation of sub and micro-watersheds, their locations and extent based on the All India Soil and Land Use Survey of India (AISLUS), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through silt yield index (SYI) method of AISLUS
21.	Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring.
22.	Run off, discharge, water availability for the project, sedimentation rate, etc.
23.	Basin characteristics
24.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.
25.	For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1.
26.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
27.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.

28.	Information on the 10-daily flow basis for the 90 per cent dependable year the flow intercepted at the dam, the flow diverted to the power house and the spill comprising the environmental flow and additional flow towards downstream of the dam for the project may be given.
29.	The minimum environmental flow shall be 20% of the flow of four consecutive lean months of 90% dependable year, 30% of the average monsoon flow. The flow for remaining months shall be in between 20-30%, depending on the site specific requirements. A site specific study shall be carried out by an expert organization.
30.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
31.	Hydrological studies/data as approved by CWC shall be utilized in the preparation of EIA/EMP report. Actual hydrological annual yield may also be given in the report. Sedimentation data available with CWC may be used to find out the loss in storage over the years.
32.	A minimum of 1 km distance from the tip of the reservoir to the tail race tunnel should be maintained between upstream and downstream projects.
33.	Besides primary studies, review of secondary data/literature published for project area on flora & fauna including RET species shall be reported in EIA/EMP report.
34.	null
35.	Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan.
36.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
37.	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A species wise list may be provided.
38.	Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index (IVI) , Shannon Weiner index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems.
39.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
40.	Economically important species like medicinal plants, timber, fuel wood etc.
41.	Details of endemic species found in the project area.
42.	Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along-with economic significance. Species diversity curve for RET species should be given.
43.	Cropping pattern and Horticultural Practices in the study area.
44.	null

45.	Fauna study and inventorisation should be carried out for all groups of animals in the study area. Their present status alongwith Schedule of the species.
46.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
47.	Information (authenticated) on Avi-fauna and wildlife in the study area.
48.	Status of avifauna their resident/ migratory/ passage migrants etc.
49.	Documentation of butterflies, if any, found in the area.
50.	Details of endemic species found in the project area.
51.	RET species-voucher specimens should be collected along-with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972.
52.	Existence of barriers and corridors, if any, for wild animals.
53.	Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity.
54.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.
55.	For categorization of sub-catchment into various erosion classes and for the consequent CAT plan, the entire catchment (Indian Portion) is to be considered and not only the directly the draining catchment.
56.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
57.	Fish and fisheries, their migration and breeding grounds.
58.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
59.	Conservation status of aquatic fauna.
60.	Sampling for aquatic ecology and fisheries and fisheries must be conducted during three seasons Pre-monsoon (summer), monsoon and winter. Sizes (length & weight) of important fish species need to be collected and breeding and feeding grounds should also be identified along the project site or in vicinity.
61.	Collection of baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surroundings population.
62.	Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent.

63.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
64.	The socio-economic survey/ profile within 10 km of the study area for demographic profile; Economic Structure; Developmental Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc.
65.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
66.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
67.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
68.	List of all the Project Affected Families with their name, age, educational qualification, family size, sex, religion, caste, sources of income, land & house holdings, other properties, occupation, source of income, house/land to be acquired for the project and house/land left with the family, any other property, possession of cattle, type of house etc.
69.	Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project.
Impact Prediction and Mitigation Measures	
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
2.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.
3.	Effect on soil, material, vegetation and human health.
4.	Impact of emissions from DG set used for power during the construction, if any, on air environment.
5.	Pollution due to fuel combustion in equipments and vehicles
6.	Fugitive emissions from various sources
7.	Changes in surface and ground water quality
8.	Steps to develop pisci-culture and recreational facilities
9.	Changes in hydraulic regime and downstream flow.
10.	Water pollution due to disposal of sewage
11.	Water pollution from labour colonies/ camps and washing equipment.
12.	Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting for commissioning of HRT, TRT and some other structures.
1	Changes in land use / land cover and drainage pattern

3.	
14.	Immigration of labour population
15.	Quarrying operation and muck disposal
16.	Changes in land quality including effects of waste disposal
17.	River bank and their stability
18.	Impact due to submergence.
19.	Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
20.	Pressure on existing natural resources
21.	Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors
22.	Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
23.	Impact on fish migration and habitat degradation due to decreased flow of water
24.	Impact on breeding and nesting grounds of animals and fish.
25.	Impact on local community including demographic profile.
26.	Impact on socio-economic status
27.	Impact on economic status.
28.	Impact on human health due to water / vector borne disease
29.	Impact on increase traffic
30.	Impact on Holy Places and Tourism
31.	Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.

32.	Positive and negative impacts likely to be accrued due to the project are listed.
Environmental Management Plan	
1.	null
2.	Biodiversity and Wildlife Conservation and Management Plan for the conservation and preservation of rare, endangered or endemic floral/faunal species or some National Park/Sanctuary/ Biosphere Reserve or other protected area is going to get affected directly or indirectly by construction of the project, then suitable conservation measures should be prepared in consultation with the State Forest Department and with the physical and financial details. Suitable conservation techniques (in-situ/ ex-situ) will be proposed under the plan and the areas where such conservation is proposed will be marked on a project layout map.
3.	Compensatory Afforestation shall be prepared by the State Forest Department in lieu of the forest land proposed to be diverted for construction of the project as per the Forest (Conservation) Act, 1980. Choice of plants for afforestation should include native and RET species, if any. This will be a part of the forest clearance proposal.
4.	Fisheries Conservation and Management Plan - a specific fisheries management measures should be prepared for river and reservoir. If the construction of fish ladder/ fish-way etc. is not feasible then measures for reservoir fisheries will be proposed. The plan will detail out the number of hatcheries, nurseries, rearing ponds etc. proposed under the plan with proper drawings. If any migratory fish species is getting affected then the migratory routes, time/season of upstream and downstream migration, spawning grounds etc will be discussed in details.
5.	Green Belt Development Plan along the periphery of the reservoir, approach roads around the colonies and other project components, local plant species must be suggested with physical and financial details. A layout map showing the proposed sites for developing the green belt should be prepared.
6.	Environmental Monitoring Programme to monitor the mitigatory measures implemented at the project site is required will be prepared. Provision for Environment Management Cell should be made. The plan will spell out the aspects required to be monitored, monitoring indicators/parameters with respect to each aspect and the agency responsible for the monitoring of that particular aspect throughout the project implementation.
7.	Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of free draining/ directly draining catchment based upon Remote Sensing and Geographical Information System (GIS) methodology and Sediment Yield Index (SYI) method of AISLUS, Deptt. of Agriculture, Govt. of India coupled with ground survey. Areas or watersheds falling under 'very severe' and 'severe' erosion categories should be provided and required to be treated. Both biological as well as engineering measures should be proposed in consultation with State Forest Department for areas requiring treatment. Year-wise schedule of work and monetary allocation should be provided. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included.
8.	Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. Results of the site specific earthquake design parameters should be approved by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi.
9.	Dam Break Analysis and Disaster Management Plan The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario. To identify inundation areas, population and structures likely to be affected due to catastrophic floods in the event of dam failure. DMP will be prepared with the help of Dam Break Analysis. Maximum water level that would be attained at various points on the downstream in case of dam break will be marked on a detailed contour map of the downstream area, to show the extent of inundation. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities.
10.	Reservoir Rim Treatment Plan for stabilization of land slide / land slip zones, if any, around the reservoir periphery is to be prepared based on detailed survey of geology of the reservoir rim area. Suitable engineering and biological measures for treatment of identified slip zones to be suggested with physical and financial schedule. Layout map showing the landslide/landslip zones shall be prepared and appended in the chapter.

11.	Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately. Deatailed muck transportation plan delinating the path ways, number of trucks, quantity of muck to be transportated along with monitoring mechanism using latest technology, shall be prepared.
12.	Restoration Plan for Quarry Sites and landscaping of colony areas, working areas, roads etc. Details of the coarse/fine aggregate/clay etc. required for construction of the project and the rock/clay quarries/river shoal sites identified for the project should be discussed along-with the Engineering and Biological measures proposed for their restoration with physical and financial details. Layout map showing quarry sites vis-à-vis other project components, should be prepared.
13.	Resettlement and Rehabilitation Plan needed to be prepared on the basis of findings of the socio- economic survey coupled with the outcome of public consultation held. The R&R package shall be prepared after consultation with the representatives of the project affected families and the State Government. Detailed budgetary estimates are to be provided. Resettlements site should be identified. The plan will also incorporate community development strategies.
14.	Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace.
15.	Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Pancahayats. Appropriate schemes shall be prepared under EMP for the Local Area Development Plan with sufficient financial provisions.
16.	Labour Management Plan for their Health and Safety.
17.	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.
18.	Energy Conservation Measures for the work force during construction with physical and financial details. Alternatives will be proposed for the labour force so that the exploitation of the natural resource (wood) for the domestic and commercial use is curbed.
19.	Environmental safeguards during construction activities including Road Construction.
20.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
21.	Water, Air and Noise Management Plans to be implemented during construction and post-construction periods.

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Proposed Pachnad Major Irrigation Scheme by **Office of the Chief Engineer (Ramganga)** located at **AURAIYA,UTTAR PRADESH**	
Proposal For	Fresh ToR

Proposal No	File No	Submission Date	Activity (Schedule Item)
IA/UP/RIV/499183/2024	J-12011/27/2024-IA-I(R)	23/10/2024	River Valley/Irrigation projects (1(c))

3.2.2. Project Salient Features

The proposal is for grant of Terms of Reference (TOR) for conducting EIA study for proposed Panchnad Major Irrigation Scheme (CCA : 24,328 Ha) in an area of 24328 Ha located at village Sadhrapur, Sub-District and District Auraiya, Uttar Pradesh by M/s Irrigation and Water Resource Department, Kanpur, Uttar Pradesh.

18.2.2 The Project Proponent made a detailed presentation on the salient features of the project and informed that:

i. The word 'Pachnad' got mentioned incorrectly in the application for TOR, the same may be read as 'Panchnad'. Panchnad Major Irrigation Scheme aims the stabilization of command area of Kuthond branch canal, which is part of Betwa canal system. The command area of the branch canal considered to be stabilized is assessed to be 24,328 Ha.

ii. The stored water behind the barrage will be used for irrigating the command area of Kuthond branch canal to the extent of 57,170 Ha consisting of 24,327 Ha, 22,382 Ha and 10,461 Ha during Kharif, Rabi and Zaid seasons respectively. With provision for supply drinking water and reservoir fisheries development at Near Sadrapur Village, Ajitmal Tehsil, Auraiya District, Uttar Pradesh State.

iii. It also aims to provide 50 MCM of water from the reservoir for meeting the future drinking water needs of the area and develop reservoir fisheries.

iv. The project consists of construction of a Barrage, Pump House on the right side of barrage and a pressure main to drop water into Kuthond branch canal. Further the construction of barrage is planned in between Prayagraj and Delhi inland waterway. To facilitate the easy movement of vessels in this route navigation locks along with other necessary structures are contemplated to be incorporated in the layout of the Barrage. Since the command area considered for stabilization is already developed with necessary canal network and land development, no command area development is planned under the project.

v. The geographical co-ordinate of the project are 79^0 22' 9.30" E to 79^0 22' 19.90" E and 26^0 24' 48.60" N to 26^0 24' 23.90" N

vi. **Land requirement:** Land requirement for the project is approx. about 3 ha. for pump house and pressure main, approx. about 15 ha. for head works. Hence total actual land requirement for the project is about 18 ha.

vii. **Water requirement:** The total quantity of water required during construction period for the construction activities and colonies is estimated 205878.725 KL. The source of water will be used from the Yamuna Basin.The water consumption during operation phase is estimated to be 5.0 KLD for about 6 employees along with their families and the same would be provided by the local authorities.

viii. **Project Cost:** The estimated project cost is **Rs. 3201.70 Crore.**

ix. **Environmental Sensitive area:** There is one wildlife sanctuary i.e., National Chambal Wildlife Sanctuary within 15 km radius from the project site. River Yamuna is flowing within the project site.

x. **Alternative Studies:**

Reconnaissance survey through boat was conducted during 8^{th} to 10^{th} September 2022 in a stretch of 40 km of river from the confluence of River Yamuna and Chambal to Auraiya Ghat. On the basis of straight reach, low river width and suitability of River banks following three alternate locations were identified as barrage sites.

- Alternative-I: 1 km upstream of Bijalpur village site;
- Alternative-II: Bijalpur Village site; and
- Alternative-III: Sadrapur village site

A joint visit by a team of experts from Geological Survey of India (GSI), Central Water Commission (CWC), and IWRD of Go UP was conducted during 28^{th} and 29^{th} October 2022. During the visit it was found that the banks of river at Alternative-I location are not stable. Height

of both the banks are lower than the HFL value and width of river is more compared to other two alternatives Hence, Alternative-I location was dropped.

Another joint visit by Design experts from CWC, Faridabad and IWRD of GoUP was undertaken during between 9th and 11th November 2022. During this visit Sadrapur (26^0 24' 45.24" N and 79^0 22' 11.10" E) i.e. Alternate-III site was finalized as the best feasible site for construction of proposed Panchnad Irrigation Scheme. The deepest bed level of river at proposed barrage axis is about 99.67 m. The pond level of barrage at this site is about 109.00 m

A joint visit by Hydrology expert from CWC and IWRD of GoUP was carried out during 19th to 21st December 2022. During this visit feasibility of lifting point on right bank at just upstream of proposed barrage was also explored and it was found that suitable site is available for construction of Pump House in the right bank instead of about 20 km upstream of barrage.

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

The excavated muck/soil/spoil is about1.7 Lakh Cum will be tested for suitability for formation of approach road. The spoil (stone) will be used for the purpose of concrete and revetment to approach roads laid from nearest habitation to the project site.

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

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

1. Project Details:

Name of the Proposal	**Proposed Panchnad Major Irrigation Scheme**
Location (Including coordinates)	Near Sadrapur village, Ajitmal Tehsil, Auraiya district, U.P. within the Geo coordinates of 79° 22' 9.30" E to 79° 22' 19.90" E and 26° 24' 48.60" N to 26° 24' 23.90" N in Yamuna basin
Inter- state issue involved	Yes
Seismic zone	Zone- III
Category of the project	Category - A
Provisions	Panchnad Irrigation Scheme (PIS)is mainly an irrigation project. The stored water behind the barrage will be used for irrigating the command area of Kuthond branch canal to the extent of 57,170 Ha consisting of 24,327 Ha, 22,382 Ha and 10,461 Ha during Kharif, Rabi and Zaid seasons respectively. With provision for supply drinking water and reservoir fisheries development
Capacity / Cultural command area (CCA)	24,328 Ha
Attracts the General Conditions (Yes/No)	Yes
Additional information (if any)	---

3. ToR/EC Details:

Cost of project	Rs. 3201.70 Crore
Total area of Project	Catchments area - 2,49,852 sq. km at Barrage sit

	e Submergence area - 72.18 Sqkm (within river co urse and No submergence in other state at pond l evel) Culturable Command Area - 24328 Ha Gross command Area - 44403 Ha Gross Irrigated area (GIA) - 57170 Ha
Height of Dam from River Bed (EL)	28 m
Length of Tunnel/Channel	764.2 m (Total water way)
Details of Submergence area	7218 ha is submergence area and belongs to the Government, as the total submergence area is wit hin the river and area upto FTL on both banks of the river belongs to Government
Types of Waste and quantity of generation during construction/ Operation	The excavated muck/soil/spoil is about1.7 Lakh Cum will be tested for suitability for formation o f approach road.
E-Flows for the Project	---
Is Projects earlier studies in Cumulative Im pact assessment & Carrying Capacity studie s (CIA&CC) for River in which project loc ated. If yes, then a) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. b) If not the E-Flows maintain criteria for s ustaining river ecosystem.	No, (As per downstream requirement E-flow will be maintained.)

4. Muck Management Details:

No. of proposed disposal area/ (type of land F orest/Pvt. land)	No disposal is envisaged. The spoil (stone) wil l be used for the purpose of concrete and revet ment to approach roads, guide bunds and afflu x bunds laid from nearest habitation to the proj ect site.
Muck Management Plan	The spoil (stone) will be used for the purpose of concrete and revetment to approach roads, g uide bunds and afflux bunds laid from nearest habitation to the project site.
Monitoring mechanism for Muck Disposal	The spoil (stone) will be used for the purpose of concrete and revetment to approach roads, g uide bunds and afflux bunds laid from nearest habitation to the project site.

5. Land Area Breakup:

Private land	18 ha.

Government land/Forest Land	Forest Land – 1900 ha (National Chambal Wildlife Sanctuary)
Submergence area/Reservoir area	Submergence area -7218 ha (Govt. Land)
Land required for project components	Land requirement for the project is approx. about 3 ha. for pump house and pressure main, approx. about 15 ha for head works. Hence total actual land requirement for the project is about 18 ha.
Additional information (if any)	---

6. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/ No**	**Details of Certificate/Letter/Remarks**
Reserve Forest/Protected Forest Land	No	
National Park	No	
Wildlife Sanctuary	Yes	About 1900 ha of National Chambal Wildlife Sanctuary is coming under submergence area for which application for NOC/ Permission from NBWL is already submitted to MoEF&CC.
Court Case	Nil	
Additional information (if any)	---	

8. Affidavit/Undertaking details:

Affidavit/Undertaking	Undertaking enclosed as Annexure-VI
Additional information (if any)	---

Particulars	**Letter no. and date**
Details of consultant	**Rightsource Industrial Solutions Pvt. Ltd., Hyderabad**
Project Benefits	The importance of irrigation is to increase agricultural output and employment. The proposed project is expected to provide employment in different activities such as construction, transportation and plantation activities during construction phase and subsequently in agriculture and agro and other industries. The total man power requirement for the construction period is 1000members. The area irrigated by the project is inhabited by Rural families and thus the project helps to improve the economic condition of Rural families in t

	he command area of the project. The implementation of the project will improve the economic condition of about 50000 household members and majority of this population is dependent on agriculture.
Status of other statutory clearances	About 1900 ha of National Chambal Wildlife Sanctua ry is coming under submergence area for which appli cation for NOC/ Permission from NBWL is already s ubmitted to MoEF&CC.
R&R details	Not applicable
Additional detail (If any)	---

3.2.3. Deliberations by the committee in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

18.2.3 The EAC during deliberations noted the following:
The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Panchnad Major Irrigation Scheme (CCA : 24,328 Ha) in an area of 24328 Ha located at village Sadhrapur, Sub-District and District Auraiya, Uttar Pradesh by M/s Irrigation and Water Resource Department, Kanpur, Uttar Pradesh.
The EAC noted that the all irrigation projects falls under Category B as per EIA Notification 2006 as amended. The command area of the project is 24,328 Ha, however, the project attracts the General Condition of EIA Notification 2006 as amended, as the proposed project cover area is falling within 10 km of inter-state Boundary and National Chambal Wildlife Sanctuary; hence, the project has to be appraised at Central Level as Category "A" project of item 1 (c) 'River Valley projects' of the Schedule to the EIA Notification, 2006.
The EAC raised concerned about the total land area is approx. about 3 ha. for pump house and pressure main, approx. about 15 ha for head works. So, total actual land requirement for the project is about 18 ha; whereas submergence area of 7218 ha is a government land and about 1900 ha of National Chambal Gharial Wildlife Sanctuary is coming under submergence area. The Sanctuary houses various endangered wildlife species specially Ghariyals. PP informed that an application for NOC/ Permission from NBWL is already submitted to MoEF&CC.
The EAC further noted that the inter-state boundaries of Uttar Pradesh - Madhya Pradesh - Rajasthan States are falling within the submergence area in Chambal River.
18.2.4 The EAC after detailed deliberations, deferred the proposal for want of following additional information:

i. PP shall submit land use /land type pattern.
ii. In view of ecological sensitivity of the proposed project site the Sub-committee of EAC members shall conduct a site visit before making any recommendations to the project site.

*The proposal was therefore **deferred** on the above lines.*

3.2.5. Recommendation of EAC

Deferred for ADS

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

Proposed Pane Pumped Storage Project with the capacity of 1500 MW at Villages: Pane and Vagheri, Taluka: Mahad, District: Raigad, and Village: Khanu, Taluka: Velhe, District: Pune, Maharashtra by JSW Energy PSP Seven Limited. by **JSW ENERGY PSP SEVEN LIMITED** located at **RAIGAD,MAHARASHTRA**			
Proposal For		Amendment in ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/498608/2024	J-12011/63/2023-IA.I (R)	17/10/2024	River Valley/Irrigation projects (1(c))

3.3.2. Project Salient Features

18.3.1 The proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Pane Open Loop Pumped Storage Project of capacity 1500 MW in an area of 290.87 ha at Villages Khanu, Pane and Vagheri, Taluka Mahad and Velhe, District Raigad and Pune Maharashtra by M/s JSW Energy PSP Seven Limited.

18.3.2 The Project Proponent and the accredited Consultant M/s. JM EnviroNet Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. Pane Pumped Storage Project (PSP) is Off-Stream open Loop pumped storage development project proposed with an installed capacity of 1500 MW/9480 MWH. The Project comprises of upper & lower reservoirs with a gross storage capacity of 8.026 MCM (0.283 TMC) & 13.588 MCM (0.480 TMC) respectively To create the desired storage capacity, the upper reservoir is to be constructed on the hill top with maximum dam height of 73.00 m (from deepest bed level) while the lower reservoir will have maximum height of 72.00 m (from deepest bed level) constructed at the downhill.

ii. The scheme of operation for the project is with 6.32 Hours of peak hour generation per day and 6.95 Hours for pumping back the water to the upper reservoir. Being an off-stream open loop project, one time filling of the PSP reservoir will be carried out from the self-catchment inflows of the Lower Reservoir.

iii. The proposal is for amendment in the Terms of Reference granted by the Ministry vide letter dated 30.01.2024 for the project Proposed Pane Open Loop Pumped Storage Project of capacity 1500 MW at Villages: Pane and Vagheri, Tehsil: Mahad, District: Raigad, and Village: Khanu, Tehsil: Velhe, District: Pune, Maharashtra in favor of M/s. JSW Energy PSP Seven Limited.

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

S. No.				
	(Subject, Page No. 1; Para 1, Page 1; Point No. 3 & 4 (iii), Page no. 2; Point No. 4 (xvii), Page no. 3 & 4;Point No. 6 & 7, Page no. 5)			
	(Point No. 4 (v), Page no. 2; Point no. 4 (xvi			

S. No.				
	i), Page no. 4)			
		Latitude: 18° 16'53.08" N to 18°15'36.61" N	Latitude: 18°14' 7.266" N to 18° 17'31.675" N	
	Total Submergence Area: (Point No. xiv, Page no. 22; Point No. xiv, Page no. 24;)	Total Submergence Area: 77 Ha	Total Submergence Area: 74.22 Ha	

3.3.3. Deliberations by the committee in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

18.3.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Pane Open Loop Pumped Storage Project of capacity 1500 MW in an area of 290.87 ha at Villages Khanu, Pane and Vagheri, Taluka Mahad and Velhe, District Raigad and Pune Maharashtra by M/s JSW Energy PSP Seven Limited.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry. The Ministry granted Terms of Reference vide letter dated 30.01.2024 for the proposed project and PP has submitted the proposal for amendment in ToR for change in the coordinates of the project and land area requirement alongside specific Terms of Reference for PSP projects.

18.3.4 The EAC after examining the information submitted and detailed deliberations recommended the proposal grant of amendment in Terms of References as proposed by the PP to Pane Open Loop Pumped Storage Project of capacity 1500 MW in an area of 293.50 ha at Villages Khanu, Pane and Vagheri, Taluka Mahad and Velhe, District Raigad and Pune Maharashtra by M/s JSW Energy PSP Seven Limited under the provisions of EIA Notification, 2006 and as amended with subject to the following additional conditions:

3.3.5. Recommendation of EAC

Recommended

3.3.6. Details of Terms of Reference

3.3.6.1. Specific

Additional conditions	
1.	All ToR points mentioned in the ToR letter dated 30.01.2024 shall remain unchanged
2.	EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Construction of SUKHPURA OFF-STREAM CLOSED LOOP PUMPED STORAGE PROJECT (OCPSP) -2560 MW by M/s Greenko Energies Private Limited, in District -Chittorgarh, Rajasthan. by **GREENKO ENERGIES PRIVATE LIMITED** located at **CHITTORGARH,RAJASTHAN**			
Proposal For		Amendment in ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/RJ/RIV/498320/2024	J-12011/20/2019-IA.I (R)	15/10/2024	River Valley/Irrigation projects (1(c))

3.4.2. Project Salient Features

18.4.1 The proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc., Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited.

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

i. Sukhpura Off-Stream Closed Loop Pumped Storage Project 2560 MW (15539 MWH) and envisages non-consumptive utilisation of 1.195 TMC of water from Brahmani Nadi by recirculation. As such, the proposed project involves creation of upper reservoir (75°24'13.15"E, 24°59'51.34"N), reservoir near Sukhpura village and lower reservoir (75°22'53.28"E , 25°0'37.02"N) Water will be taken up from nearby Brahmani Nadi in Chittorgarh District.

ii. The proposed scheme involves construction of Geomembrane Faced Rockfill Embankment (GFRD) for the weighted average height of around 31m (with maximum height of 37m) for the length of 5894 m. Similarly, the lower reservoir is proposed to be located in the gorge portion which is suitable for creating the desired gross storage capacity of 1.23 TMC by doing excavation up to the desired level. Out of 1.23 TMC, the live storage capacity is 1.201 TMC and dead storage capacity is 0.03 TMC by keeping FRL and MDDL at EL 410.00m & EL 393.00m respectively. For creating this storage, it is proposed to construct Geomembrane Faced Rockfill Embankment (GFRD) for the weighted average height of 15m (with maximum height of 25m) for the length of 1999m.

iii. Intake structure and trash rack for Eight number of independent pressure shafts will be taking off from Power block of Sukhpura OCPSP upper reservoir. Surface Power house will be located at about 716m from the intake structure and shall be equipped with Seven vertical-axis reversible Francis type units composed each of a generator/motor and a pump/turbine having generating/pumping capacity of 320MW / 350MW respectively and two vertical-axis reversible Francis type units composed each of a generator/motor and a pump/turbine having generating/pumping capacity of 160MW / 175MW respectively.

iv. The proposal is for amendment in the Terms of Reference granted by the Ministry vide letter dated

03.08.2022 for the project Sukhpura Off-Stream Closed Loop Pumped storage project (OCPSP) located at Sukhpura, Gorakiya, Nahargarh, Patappura, Borav, Laxmikhera Villages; Tehsil-Rawatbhata, Chittorgarh District, Rajasthan. in favour of M/s Greenko Energies Private. Ltd.

S. No.	Para of ToR amendment issued by MoEF&CC	Details as per the ToR amendment	To be revised/ read as	Justification/ reasons
1	Para 3 Point 3	Project envisages non-consumptive re-utilization of 1.176 TMC of water for recirculation between two proposed reservoirs.	project envisages non-consumptive re-utilization of 1.195 TMC of water for recirculation between two reservoirs	Increase in MWH
2	Para 3 Point 3	Upper reservoir are at longitude 75°23'43.98" E and latitude is 24° 59' 56.09" N and that of lower reservoir are at longitude 75° 23' 6.47" E and latitude 25° 0' 18.18" N.	upper reservoir are at longitude 75°24'13.15"E and latitude is 24°59'51.34" N and that of lower reservoir are at longitude 75°22'53.28"E and latitude 25°0'37.02"N.	Layout Modification
3	Para 3 Point 4	Upper reservoir gross storage capacity of 1.57. Out of 1.57 TMC, the live storage capacity is 1.23 TMC and the dead storage capacity is 0.34 TMC.	Upper reservoir gross storage capacity of 1.61 TMC. Out of 1.61 TMC, the live storage capacity is 1.195 TMC and the dead storage capacity is 0.42 TMC.	Layout Modification
4	Para 3 Point 4	Upper Reservoir FRL & MDDL at EL 607.00 m and EL 587.00 m	Upper Reservoir FRL & MDDL at EL 605.00m & EL 586.00m	Layout Modification
5	Para 3 point 4	Upper Reservoir proposed to construct Rockfill embankment for the average height of around 32 m (with maximum height of 39 m) for the length of 5,746 m.	Upper Reservoir proposed to construct Geomembrane Faced Rockfill Embankment (GFRD) for the weighted average height of around 31m (with maximum height of 37m) for the length of 5894m.	Layout Modification
6.	Para 3 Point 5	Lower Reservoir gross storage capacity of 1.45 TMC in which the live storage capacity is 1.176 TMC and dead storage capacity is 0.27 TMC.	Lower Reservoir gross storage capacity of 1.23 TMC. Out of 1.23 TMC, the live storage capacity is 1.201 TMC and dead storage capacity is 0.03 TMC.	Layout Modification

7	Para 3 Point 5	Lower reservoir keeping FRL and MDDL at EL 415.00 m and EL 397.00 m.	Lower reservoir FRL and MDDL at EL 410.00m & EL 393.00m.	Layout Modification
8	Para 3 Point 5	Lower Reservoir is proposed to construct Rockfill embankment for the average height of 18 m (with maximum height of 28 m) for the length of 1,926 m.	Lower Reservoir is proposed to construct Geomembrane Faced Rockfill Embankment (GFRD) for the weighted average height of 15m (with maximum height of 25m) for the length of 1999m.	Layout Modification
9	Para 3 Point 6	Length of Penstock 817.07 m Length of surface penstock from Intake to Vertical Pressure Shaft – 517.94m Length of Vertical Pressure Shaft – 133.51m Length of Horizontal Pressure Shaft – 115.61m	Length of Penstock 826.21 m Length of surface penstock from Intake to Vertical Pressure Shaft – 571.69m Length of Vertical Pressure Shaft – 142.95m Length of Horizontal Pressure Shaft – 111.57 m	Layout Modification
10	Para 3 point 6	Rated head of 187 m in generating mode and 196 m in pumping mode.	Rated head of 189.79 m in generating mode and 197.26 min pumping mode.	Layout Modification
11	Para 3 point 7	Total Land: 815.0771 ha, involving 678.5318 ha of forestland and 136.5453 ha of non- forest land.	788.6762 ha (610.8428 ha of forestland and 177.8334 ha of non- forest land)	A site visit was conducted by the Divisional Forest Officer (DFO) following the submission of the forest diversion proposal to the MoEF& CC. During this verification, it was identified that certain areas originally classified as forest land were, in fact, non-forest land. Consequently, the total land area requirement has now been updated to 788.6761 Ha, wit

				h 610.8427 Ha designated as f orest land and 1 77.8334 Ha as non-forest land.

3.4.3. Deliberations by the committee in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

18.3.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc., Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited.

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

The Ministry granted Terms of Reference vide letter dated 03.08.2022 for the proposed project and PP has submitted the proposal for amendment in ToR for change in the coordinates of the project, water requirement, and land area requirement alongside design parameters. The EAC noted that the total land requirement for the project has been decreased from 815.0771 ha (678.5318 ha of forest land and 136.5453 ha of non- forest land) to 788.6762 ha (610.8428 ha of forestland and 177.8334 ha of non-forest land).

3.4.5. Recommendation of EAC

Recommended

3.4.6. Details of Terms of Reference

3.4.6.1. Specific

Additional conditions	
1.	All ToR points mentioned in the ToR letter dated 03.08.2022 shall remain unchanged
2.	EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout

4. Any Other Item(s)

N/A

5. List of Attendees

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

MINUTES OF THE 18TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 05TH NOVEMBER, 2024 THROUGH VIDEO CONFERENCE (ONLINE)

The 18th meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on through Virtual mode, under the Chairmanship of Prof. G. J. Chakrapani. The list of Members present in the meeting is at **Annexure I**.

Confirmation of the Minutes of the 17th EAC meeting:

The Minutes of the Meeting held on 17th EAC meeting on 17th October, 2024 were confirmed.

Agenda Item No. 18.1

Khadakwasala Fursungi Tunnel Project substitute to New Mutha Right Bank Canal KM 1 to Km 34 in an area of 23.8364 Ha located at Village Akole, Rui etc, Sub-district Indapur, Haveli, Pune City, etc. District Pune, Maharashtra by M/s Executive Engineer IPI Division Bsb Pune – Terms of References (TOR) - reg.

[Proposal No. IA/MH/RIV/459818/2024; F. No. J-12011/16/2024-IA-I(R)]

18.1.1: The proposal is for grant of Terms of References (ToR) to the project for Khadakwasala Fursungi Tunnel Project substitute to New Mutha Right Bank Canal KM 1 to Km 34 in an area of 23.8364 Ha located at village Akole, Rui etc, Sub-district Indapur, Haveli, Pune City, etc, District Pune, Maharashtra by M/s Executive Engineer IPI Division Bsb Pune.

18.1.2: The Project Proponent and the accredited Consultant M/s. MITCON Consultancy & Engineering Services Ltd, made a detailed presentation on the salient features of the project and informed that:

i. The Khadakwasla Irrigation Project comprises 4 Dams the Panset dam (10.65 TMC) (Ambi River), the Varasgaon Dam (12.82TMC) (Mose River), & Temghar Dam (3.71 TMC) (Mutha River) the Khadakwasla Dam (1.97 TMC) (Mutha river). The main canal - New Mutha Right Bank Canal (NMRBC) is a 202 km long contour canal, serving a projected irrigation area of about 62150 Hectares. Storage capacity of four reservoirs is 29.15 TMC.

ii. The Tunnel is substitute to New Mutha Right Bank Canal Km. 1 to 34 and proposed in upstream of Khadakwasla dam in Pune district of Maharashtra. The proposed intake site is in upstream of Kadakwasla Dam and outlet at in Canal CH-34/00. The outlet site is located at Fursungi village, which is about 20 km from Pune city.

iii. Khadakwasla dam on the Mutha River situated 21 km from the City of Pune. This dam is one of the main sources of water for Pune city as well as for irrigation in Daund,

Indapur, Haveli, Baramati Taluka.

iv. New Mutha Right Bank Canal: - Khadakwasla Project having canal namely New Mutha Right Bank Canal (NMRBC) is 202 KM. along counter with proper distribution system and Old Mutha Right Bank Canal is 109 KM. At the head of canal is designed for flowing 2050 Cusecs of water. The first 30 Km. length of canal is flowing through densely populated area of Pune City. Due to numerous difficulties faced during operation of the canal, a tunnel is proposed in upstream of Khadakwasla dam and outlet at Mutha Right Bank Canal Km. 1 to 34 in Pune district of Maharashtra.

18.1.3 Earlier, the proposal was considered by the Expert Appraisal Committee (River Valley and Hydro-electric Sector) in its 11th meeting held on 27.06.2024. The EAC deferred the proposal seeking additional information. The PP submitted the replies of observations of EAC on PARIVESH portal on 22.10.2024. The replies of observations are:

<table>
<tr><th>S. No</th><th>Points raised by EAC</th><th>Compliance</th></tr>
<tr><td>i.</td><td>PP shall submit technical analysis along with cost of new tunnel and old tunnel modification shall be submitted.</td><td>

A tunnel between Khadakwasala to Fursungi is proposed substitute to existing new mutha right bank canal km 1 to 34.
Three options have been studied for this as new tunnel, Box Culvert in existing canal and Closed Pipe System canal.
Cost:

<table>
<tr><td>Description</td><td>Cost Rs. (Crore)</td></tr>
<tr><td>Tunnel</td><td>Rs. 2190.47 Cr.</td></tr>
<tr><td>Box Culvert</td><td>Rs. 4245.56 Cr.</td></tr>
<tr><td>Closed Conduit</td><td>Rs. 4424.84 Cr.</td></tr>
</table>

Main limitation for construction at existing New mutha right bank canal is canal closure period. As due to Drinking & Irrigation beyond Km 34 in Haveli, Daund & Indapur Talukas is about 62150 Ha; so canal is running about 9 to 10 months in a year. If canal is closed for 1 year there will be financial losses of crops of farmers about 3000 Cr.
Time required:

<table>
<tr><td>Description</td><td>Time Required</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td>(years)</td></tr>
<tr><td>Tunnel</td><td>4 to 5 years</td></tr>
<tr><td>Box Culvert</td><td>15 to 20 years</td></tr>
<tr><td>Closed Conduit</td><td>10 to 12 years</td></tr>
</table>
Life Span:
<table>
<tr><td>Description</td><td>Life Span</td></tr>
<tr><td>Tunnel</td><td>more than 100 years</td></tr>
<tr><td>Box Culvert</td><td>50 to 60 years</td></tr>
<tr><td>Closed Conduit</td><td>50 to 60 years</td></tr>
</table>
• Considering Cost, time required, life span of structure, construction limitations and benefits, tunnel is most feasible option.
</td></tr>
<tr><td>ii.</td><td>Detailed plan along with time bound, budget wise shall be summited for green plantation or park development in the old channel.</td><td>

Accordingly, Detailed plan for green plantation or park development along with time bound budget can only be submitted once the canal operation is permanently closed after completion of Tunnel Project.
Following recreational activities can be planned in this area.

Forest garden
Botanical garden
Zoo
Bird habitat
Cycle track, walking/ jogging track
Social spaces
Breathing spaces
Sports area
Artist centres
Heritage walk
Kids play area
Old age people seating
Skate park, yoga centre, adventure park etc.
Public Amenities.

</td></tr>
<tr><td>iii.</td><td>Ground water level studies analysis shall be carried out to quantify the</td><td>
Ground water study to quantify the changes occurs after underground
</td></tr>
</table>

	changes will occur after underground pipelines installation.	pipelines installation will take more time. Hence it is requested to kindly include the Ground water study in EIA & EMP report.
iv.	Necessary permission from government shall be taken for change in land use pattern.	• Regarding the Land Use Pattern Change Permission from Government the existing canal land is currently used for canal operations & canal is fully functional providing water for irrigation for 62150 Ha. Land & drinking water for villages in Daund & Indapur Taluka. • For the proposed work of Khadakwasala- Fursungi Tunnel Project a time period of about 4 to 5 years is expected for total completion. • Considering the time period for completion of project it is not possible to close the existing canal till then. • Hence Land Use Pattern cannot be changed at this moment of time, and shall be needed to change when the Tunnel Project work is about to be completed.
v.	Approved DPR of the project to be submitted.	● Khadakwasala- Fursungi Tunnel Project is administratively approved by Govt of Maharashtra vide resolution dated 05/09/2024. Copy of GR is attached herewith.
vi.	Option analysis to be carried out.	● Total Six no. of alignments are studied for option analysis while preparing DPR. ● The options are analysed considering parameters like length of tunnel, rock cover, seepage etc. Details of this analysis are attached herewith in **Annexure-I.**

18.1.4 The EAC during deliberations noted the following:

The EAC deliberated on the additional information submitted and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for Khadakwasala Fursungi Tunnel Project Substitute to New Mutha Right

Bank Canal KM 1 to Km 34 in an area of 23.8364 Ha located at Village Akole, Rui etc, Sub-district Indapur, Haveli, Pune City, etc, District Pune, Maharashtra by M/s Executive Engineer IPI Division Bsb Pune.

The project/activity is covered under Category B of item 1 (c) 'River Valley & Hydroelectric projects' but due to applicability of general condition (3.6 km from ESA boundary of Western Ghats) the project appraised at Central level by the sectoral EAC in the Ministry.

18.1.5: The EAC after detailed deliberation on the information submitted and as presented during the meeting recommended for grant of Standard ToR for conducting EIA for proposed Khadakwasala Fursungi Tunnel Project Substitute to New Mutha Right Bank Canal KM 1 to Km 34 in an area of 23.8364 Ha located at Village Akole, Rui etc, Sub-district Indapur, Haveli, Pune City, etc, District Pune, Maharashtra by M/s Executive Engineer IPI Division Bsb Pune, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

[A] Environmental Management and Biodiversity Conservation:

i. Application for Stage-I FC for 0.8064 ha of forest land involved in the project shall be submitted prior to submission of EIA/EMP and credible proof shall be submitted along with EIA/EMP report.
ii. In view of project location within 3.6 km from ESA boundary of Western Ghats necessary clearance from competent authority be obtained and submitted along with EIA/EMP report.
iii. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located outside the Eco-Sensitive Zone (ESZ) / Wild Life Sanctuary and no Tiger/elephant corridor/Critically polluted area falls within 10 km of Project site.
iv. The water of rainfall yield of self-catchment of the reservoir shall be released to downstream through body of dam/ barrage/ embankment etc.
v. Prepare Wildlife conservation plan specifically for avi-fauna with mitigation measures for minimizing the human–animal conflict and be suitably incorporated in the wildlife conservation plan in consultation with reputed government expert institute and State Forest Department.
vi. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nallahs of catchment area / due to lifting of water from river.
vii. Prepare Environmental Cost Benefit Analysis in terms of ecological damage due to diversion of Forest land/ loss of biodiversity and its impacts on ecosystem, water availability, water uses for generation of hydro power in study area 10 km from periphery of Project components.
viii. 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 and thermal stratification. Accordingly, Environment Management plan shall be prepared.

ix. Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/EMP report.

x. Source of construction material and its distance from the project site along with detailed transportation plan for construction material be elaborated in the EIA EMP report. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.

xi. A detailed wildlife conservation plan for Schedule –I species, duly approved by the Chief Wildlife Warden, be submitted.

xii. In case any wildlife corridor is located within 10 km radius of the project site a detailed study shall be conducted to assess the impact of project on safe movement of wild animals.

xiii. Reservoir/ River banks protection plan all along the submergence need to be prepared andincorporated in EIA/ EMP.

xiv. Detail of rivulets around the project area and action plan for their survival shall be incorporated in EIA/EMP.

[B] Socio-economic Study

xviii. 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 population.

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

xx. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.

xxi. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F. No. 22-65/2017-IA.III dated 30th September, 2020 shall be submitted.

xxii. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.

xxiii. Details of settlement in 10 km area shall be submitted.

xxiv. Statement on the commitments (activity-wise) made during public hearing to facilitate thediscussion on the CER in compliance of the Ministry's OM F. No. 22-65/2017- IA.III dated 30th September, 2020 shall be submitted.

[C] Muck Management/ Disaster Management

xxv. Details of quantity of muck generation component wise and disposal site along withtransportation plan and its monitoring to be provided.

xxvi. Details of Muck Management plan prepared along with estimated cost incorporated in EIA/EMP report.

xxvii. Techno-economic viability of the project must be recommended from CEA/ CWC.

[D] Miscellaneous.

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

xxix. 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 otherpurpose.

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

xxxi. 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 analyse the samples.

xxxii. Arial view video of project site shall be recorded and to be submitted.

Agenda Item No. 18.2:

Panchnad Major Irrigation Scheme (CCA : 24,328 Ha) in an area of 24328 Ha located at village Sadhrapur, Sub-District and District Auraiya, Uttar Pradesh by M/s Irrigation and Water Resource Department, Kanpur, Uttar Pradesh – Terms of References (TOR) - reg.

[Proposal No. IA/UP/RIV/499183/2024; F. No. J-12011/27/2024-IA-I(R)]

18.2.1 The proposal is for grant of Terms of Reference (TOR) for conducting EIA study for proposed Panchnad Major Irrigation Scheme (CCA : 24,328 Ha) in an area of 24328 Ha located at village Sadhrapur, Sub-District and District Auraiya, Uttar Pradesh by M/s Irrigation and Water Resource Department, Kanpur, Uttar Pradesh.

18.2.2 The Project Proponent made a detailed presentation on the salient features of the project and informed that:

i. The word ‘Pachnad’ got mentioned incorrectly in the application for TOR, the same may be read as ‘Panchnad’. Panchnad Major Irrigation Scheme aims the stabilization of command area of Kuthond branch canal, which is part of Betwa canal system. The command area of the branch canal considered to be stabilized is assessed to be 24,328 Ha.

ii. The stored water behind the barrage will be used for irrigating the command area of Kuthond branch canal to the extent of 57,170 Ha consisting of 24,327 Ha, 22,382 Ha and 10,461 Ha during Kharif, Rabi and Zaid seasons respectively. With provision for supply drinking water and reservoir fisheries development at Near Sadrapur Village, Ajitmal Tehsil, Auraiya District, Uttar Pradesh State.

iii. It also aims to provide 50 MCM of water from the reservoir for meeting the future drinking water needs of the area and develop reservoir fisheries.

iv. The project consists of construction of a Barrage, Pump House on the right side of barrage and a pressure main to drop water into Kuthond branch canal. Further the construction of barrage is planned in between Prayagraj and Delhi inland waterway. To facilitate the easy movement of vessels in this route navigation locks along with other necessary structures are contemplated to be incorporated in the layout of the Barrage. Since the command area considered for stabilization is already developed with necessary canal network and land development, no command area development is planned under the project.

v. The geographical co-ordinate of the project are 79º 22' 9.30" E to 79º 22' 19.90" E and 26º 24' 48.60" N to 26º 24' 23.90" N

vi. **Land requirement:** Land requirement for the project is approx. about 3 ha. for pump house and pressure main, approx. about 15 ha. for head works. Hence total actual land requirement for the project is about 18 ha.

vii. **Water requirement:** The total quantity of water required during construction period for the construction activities and colonies is estimated 205878.725 KL. The source of water will be used from the Yamuna Basin.The water consumption during operation phase is estimated to be 5.0 KLD for about 6 employees along with their families and the same would be provided by the local authorities.

viii. **Project Cost:** The estimated project cost is **Rs. 3201.70 Crore.**

ix. **Environmental Sensitive area:** There is one wildlife sanctuary i.e., National Chambal Wildlife Sanctuary within 15 km radius from the project site. River Yamuna is flowing within the project site.

x. **Alternative Studies:**

Reconnaissance survey through boat was conducted during 8th to 10th September 2022 in a stretch of 40 km of river from the confluence of River Yamuna and Chambal to Auraiya Ghat. On the basis of straight reach, low river width and suitability of River banks following three alternate locations were identified as barrage sites.

- Alternative-I: 1 km upstream of Bijalpur village site;
- Alternative-II: Bijalpur Village site; and
- Alternative-III: Sadrapur village site

A joint visit by a team of experts from Geological Survey of India (GSI), Central Water Commission (CWC), and IWRD of Go UP was conducted during 28th and 29th October 2022. During the visit it was found that the banks of river at Alternative-I location are not stable. Height of both the banks are lower than the HFL value and width of river is more compared to other two alternatives Hence, Alternative-I location was dropped.

Another joint visit by Design experts from CWC, Faridabad and IWRD of GoUP was undertaken during between 9th and 11th November 2022. During this visit Sadrapur (26^0 24’ 45.24” N and 79^0 22’ 11.10” E) i.e. Alternate-III site was finalized as the best feasible site for construction of proposed Panchnad Irrigation Scheme. The deepest bed

level of river at proposed barrage axis is about 99.67 m. The pond level of barrage at this site is about 109.00 m

A joint visit by Hydrology expert from CWC and IWRD of GoUP was carried out during 19th to 21st December 2022. During this visit feasibility of lifting point on right bank at just upstream of proposed barrage was also explored and it was found that suitable site is available for construction of Pump House in the right bank instead of about 20 km upstream of barrage.

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

The excavated muck/soil/spoil is about1.7 Lakh Cum will be tested for suitability for formation of approach road. The spoil (stone) will be used for the purpose of concrete and revetment to approach roads laid from nearest habitation to the project site.

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

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

1. Project Details:

Name of the Proposal	**Proposed Panchnad Major Irrigation Scheme**
Location (Including coordinates)	Near Sadrapur village, Ajitmal Tehsil, Auraiya district, U.P. within the Geo coordinates of 79º 22' 9.30" E to 79º 22' 19.90" E and 26º 24' 48.60" N to 26º 24' 23.90" N in Yamuna basin
Inter- state issue involved	Yes
Seismic zone	Zone- III

2. Category Details:

Category of the project	Category - A
Provisions	Panchnad Irrigation Scheme (PIS)is mainly an irrigation project. The stored water behind the barrage will be used for irrigating the command area of Kuthond branch canal to the extent of 57,170 Ha consisting of 24,327 Ha, 22,382 Ha and 10,461 Ha during Kharif, Rabi and Zaid seasons respectively. With provision for supply drinking water and reservoir fisheries development
Capacity / Cultural command area (CCA)	24,328 Ha
Attracts the General Conditions (Yes/No)	Yes
Additional information (if any)	---

3. ToR/EC Details:

Cost of project	Rs. 3201.70 Crore
Total area of Project	Catchments area - 2,49,852 sq. km at Barrage site Submergence area - 72.18 Sqkm (within river course and No submergence in other state at pond level) Culturable Command Area - 24328 Ha Gross command Area - 44403 Ha Gross Irrigated area (GIA) - 57170 Ha
Height of Dam from River Bed (EL)	28 m
Length of Tunnel/Channel	764.2 m (Total water way)
Details of Submergence area	7218 ha is submergence area and belongs to the Government, as the total submergence area is within the river and area upto FTL on both banks of the river belongs to Government
Types of Waste and quantity of generation during construction/ Operation	The excavated muck/soil/spoil is about1.7 Lakh Cum will be tested for suitability for formation of approach road.
E-Flows for the Project	---
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then a) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. b) If not the E-Flows maintain criteria for sustaining river ecosystem.	No, (As per downstream requirement E-flow will be maintained.)

4. Muck Management Details:

No. of proposed disposal area/ (type of land Forest/Pvt. land)	No disposal is envisaged. The spoil (stone) will be used for the purpose of concrete and revetment to approach roads, guide bunds and afflux bunds laid from nearest habitation to the project site.
Muck Management Plan	The spoil (stone) will be used for the purpose of concrete and revetment to approach roads, guide bunds and afflux bunds laid from nearest habitation to the project site.

Monitoring mechanism for Muck Disposal	The spoil (stone) will be used for the purpose of concrete and revetment to approach roads, guide bunds and afflux bunds laid from nearest habitation to the project site.

5. Land Area Breakup:

Private land	18 ha.
Government land/Forest Land	Forest Land – 1900 ha (National Chambal Wildlife Sanctuary)
Submergence area/Reservoir area	Submergence area -7218 ha (Govt. Land)
Land required for project components	Land requirement for the project is approx. about 3 ha. for pump house and pressure main, approx. about 15 ha for head works. Hence total actual land requirement for the project is about 18 ha.
Additional information (if any)	---

6. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/ No**	**Details of Certificate/Letter/Remarks**
Reserve Forest/Protected Forest Land	No	
National Park	No	
Wildlife Sanctuary	Yes	About 1900 ha of National Chambal Wildlife Sanctuary is coming under submergence area for which application for NOC/ Permission from NBWL is already submitted to MoEF&CC.

7. Court case details:

Court Case	Nil
Additional information (if any)	---

8. Affidavit/Undertaking details:

Affidavit/Undertaking	Undertaking enclosed as Annexure-VI
Additional information (if any)	---

9. Miscellaneous

Particulars	**Letter no. and date**

Details of consultant	**Rightsource Industrial Solutions Pvt. Ltd., Hyderabad**
Project Benefits	The importance of irrigation is to increase agricultural output and employment. The proposed project is expected to provide employment in different activities such as construction, transportation and plantation activities during construction phase and subsequently in agriculture and agro and other industries. The total man power requirement for the construction period is 1000members. The area irrigated by the project is inhabited by Rural families and thus the project helps to improve the economic condition of Rural families in the command area of the project. The implementation of the project will improve the economic condition of about 50000 household members and majority of this population is dependent on agriculture.
Status of other statutory clearances	About 1900 ha of National Chambal Wildlife Sanctuary is coming under submergence area for which application for NOC/ Permission from NBWL is already submitted to MoEF&CC.
R&R details	Not applicable
Additional detail (If any)	---

18.2.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR to the project for conducting EIA/EMP and Public hearing for Panchnad Major Irrigation Scheme (CCA : 24,328 Ha) in an area of 24328 Ha located at village Sadhrapur, Sub-District and District Auraiya, Uttar Pradesh by M/s Irrigation and Water Resource Department, Kanpur, Uttar Pradesh.

The EAC noted that the all irrigation projects falls under Category B as per EIA Notification 2006 as amended. The command area of the project is 24,328 Ha, however, the project attracts the General Condition of EIA Notification 2006 as amended, as the proposed project cover area is falling within 10 km of inter-state Boundary and National Chambal Wildlife Sanctuary; hence, the project has to be appraised at Central Level as Category "A" project of item 1 (c) 'River Valley projects' of the Schedule to the EIA Notification, 2006.

The EAC raised concerned about the total land area is approx. about 3 ha. for pump house and pressure main, approx. about 15 ha for head works. So, total actual land requirement for the project is about 18 ha; whereas submergence area of 7218 ha is a government land and about 1900 ha of National Chambal Gharial Wildlife Sanctuary is coming under submergence area.

The Sanctuary houses various endangered wildlife species specially Ghariyals. PP informed that an application for NOC/ Permission from NBWL is already submitted to MoEF&CC.

The EAC further noted that the inter-state boundaries of Uttar Pradesh - Madhya Pradesh - Rajasthan States are falling within the submergence area in Chambal River.

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

i. PP shall submit land use /land type pattern.
ii. In view of ecological sensitivity of the proposed project site the Sub-committee of EAC members shall conduct a site visit before making any recommendations to the project site.

*The proposal was therefore **deferred** on the above lines.*

Agenda Item No. 18.3

Pane Open Loop Pumped Storage Project of capacity 1500 MW in an area of 290.87 ha at Villages Khanu, Pane and Vagheri, Taluka Mahad and Velhe, District Raigad and Pune Maharashtra by M/s JSW Energy PSP Seven Limited – **Amendment for Terms of References (TOR)** – reg.

[Proposal No. IA/MH/RIV/498608/2024; F. No. J-12011/63/2023-IA.I (R)]

18.3.1 The proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Pane Open Loop Pumped Storage Project of capacity 1500 MW in an area of 290.87 ha at Villages Khanu, Pane and Vagheri, Taluka Mahad and Velhe, District Raigad and Pune Maharashtra by M/s JSW Energy PSP Seven Limited.

18.3.2 The Project Proponent and the accredited Consultant M/s. JM EnviroNet Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. Pane Pumped Storage Project (PSP) is Off-Stream open Loop pumped storage development project proposed with an installed capacity of 1500 MW/9480 MWH. The Project comprises of upper & lower reservoirs with a gross storage capacity of 8.026 MCM (0.283 TMC) & 13.588 MCM (0.480 TMC) respectively To create the desired storage capacity, the upper reservoir is to be constructed on the hill top with maximum dam height of 73.00 m (from deepest bed level) while the lower reservoir will have maximum height of 72.00 m (from deepest bed level) constructed at the downhill.

ii. The scheme of operation for the project is with 6.32 Hours of peak hour generation per day and 6.95 Hours for pumping back the water to the upper reservoir. Being an off-stream open loop project, one time filling of the PSP reservoir will be carried out from the self-catchment inflows of the Lower Reservoir.

iii. The proposal is for amendment in the Terms of Reference granted by the Ministry vide letter dated 30.01.2024 for the project Proposed Pane Open Loop Pumped Storage Project of capacity 1500 MW at Villages: Pane and Vagheri, Tehsil: Mahad, District:

Raigad, and Village: Khanu, Tehsil: Velhe, District: Pune, Maharashtra in favor of M/s. JSW Energy PSP Seven Limited.

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

S. No.	Para of ToR Issued MoEFCC dated 30.01.2024	Details as per the ToR dated 30.01.2024	To be revised/ read as	Justification/ Reason
1.	Total area of the Project. (Subject, Page No. 1; Para 1, Page 1; Point No. 3 & 4 (iii), Page no. 2; Point No. 4 (xvii), Page no. 3 & 4;Point No. 6 & 7, Page no. 5)	290.87 Ha	293.50 Ha	The company has revaluated the proposal w.r.t. area & layout and increased the project area from 290.87 ha (including 62.60 ha Forest land, 13.06 ha Govt. Land 215.21 ha Pvt. Land) to 293.50 Ha (including 66.91 ha forest land, 8.74 Ha Govt. Land, 217.85 Ha Pvt. Land).
2.	Muck Disposal Area (Point No. 4 (v), Page no. 2; Point no. 4 (xvii), Page no. 4)	24.191 Ha	26.82 Ha	
3.	Area of Forest Land (Point no. 4 (xvii), Page no. 4 & 5)	62.60 Ha	66.91 Ha	
4.	Govt. Land & Private land (Point no. 4 (xvii), Page no. 4)	13.06 Ha Govt. Land & 215.21 Ha Pvt. Land	8.74 Ha Govt. Land & 217.85 Ha Pvt. Land	
5.	Location (Including coordinates) (Point no. 4 (xvii), Page no. 4)	Latitude: 18°16'53.08" N to 18°15'36.61" N Longitude: 73° 28'50.40" E to 73°29'39.00" E	Latitude: 18°14'7.266" N to 18°17'31.675" N Longitude: 73° 27'53.922" E to 73°30'1.001" E	
6.	Total Submergence Area: 1. Forest Land 2. Agriculture Land	Total Submergence Area: 77 Ha 1. Forest Land: 2 Ha	Total Submergence Area: 74.22 Ha 1. Forest Land: 21.65 Ha	

S. No.	Para of ToR Issued MoEFCC dated 30.01.2024	Details as per the ToR dated 30.01.2024	To be revised/ read as	Justification/ Reason
	(Point No. xiv, Page no. 22; Point No. xiv, Page no. 24;)	2. Agriculture Land: 75 Ha	2. Private: 46.37 Ha 3. Govt. Land: 6.20 Ha	
7.	Standard Terms of Reference for River Valley/irrigation (Annexure 1, Page no. 6 to 22)	Standard Terms of Reference for (River Valley/Irrigation projects)	Specific Terms of Reference (ToRs) issued by the MOEFCC, New Delhi vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Open Loop Pumped storage projects for preparation of EIA/ EMP report.	As per specific ToR Point no. 5(E) 5.6 "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." In this connection EIA/ EMP report has been prepared as per MoEFCC OM dated 14.08.2023. Intimation letter regarding the same had been submitted to MOEFCC, New Delhi vide letter no. JSW/PSP-Pane/ToR/2024-25/01 dated 30th April 2024. However, EIA/EMP report comply additional/specific ToR as mentioned in Annexure 1, Page no. 3 to 6.

18.3.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Pane Open Loop Pumped Storage Project of capacity 1500 MW in an area of 290.87 ha at Villages Khanu, Pane and Vagheri, Taluka Mahad and Velhe, District Raigad and Pune Maharashtra by M/s JSW Energy PSP Seven Limited.

The project/activity is covered under Category A of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry. The Ministry granted Terms of Reference vide letter dated 30.01.2024 for the proposed project and PP has submitted the proposal for amendment in ToR for change in the coordinates of the project and land area requirement alongside specific Terms of Reference for PSP projects.

18.3.4 The EAC after examining the information submitted and detailed deliberations recommended the proposal grant of amendment in Terms of References as proposed by the PP to Pane Open Loop Pumped Storage Project of capacity 1500 MW in an area of 293.50 ha at Villages Khanu, Pane and Vagheri, Taluka Mahad and Velhe, District Raigad and Pune Maharashtra by M/s JSW Energy PSP Seven Limited under the provisions of EIA Notification, 2006 and as amended with subject to the following additional conditions:

i. All ToR points mentioned in the ToR letter dated 30.01.2024 shall remain unchanged.
ii. EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout.

Agenda Item No. 18.4

Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc., Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited– Amendment for Terms of References (TOR) – reg.

[Proposal No. IA/RJ/RIV/498320/2024; F. No. J-12011/20/2019-IA-I]

18.4.1 The proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc., Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited.

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

i. Sukhpura Off-Stream Closed Loop Pumped Storage Project 2560 MW (15539 MWH) and envisages non-consumptive utilisation of 1.195 TMC of water from Brahmani Nadi by recirculation. As such, the proposed project involves creation of upper reservoir (75°24'13.15"E, 24°59'51.34"N), reservoir near Sukhpura village and lower reservoir

(75°22'53.28"E , 25°0'37.02"N) Water will be taken up from nearby Brahmani Nadi in Chittorgarh District.

ii. The proposed scheme involves construction of Geomembrane Faced Rockfill Embankment (GFRD) for the weighted average height of around 31m (with maximum height of 37m) for the length of 5894 m. Similarly, the lower reservoir is proposed to be located in the gorge portion which is suitable for creating the desired gross storage capacity of 1.23 TMC by doing excavation up to the desired level. Out of 1.23 TMC, the live storage capacity is 1.201 TMC and dead storage capacity is 0.03 TMC by keeping FRL and MDDL at EL 410.00m & EL 393.00m respectively. For creating this storage, it is proposed to construct Geomembrane Faced Rockfill Embankment (GFRD) for the weighted average height of 15m (with maximum height of 25m) for the length of 1999m.

iii. Intake structure and trash rack for Eight number of independent pressure shafts will be taking off from Power block of Sukhpura OCPSP upper reservoir. Surface Power house will be located at about 716m from the intake structure and shall be equipped with Seven vertical-axis reversible Francis type units composed each of a generator/motor and a pump/turbine having generating/pumping capacity of 320MW / 350MW respectively and two vertical-axis reversible Francis type units composed each of a generator/motor and a pump/turbine having generating/pumping capacity of 160MW / 175MW respectively.

iv. The proposal is for amendment in the Terms of Reference granted by the Ministry vide letter dated 03.08.2022 for the project Sukhpura Off-Stream Closed Loop Pumped storage project (OCPSP) located at Sukhpura, Gorakiya, Nahargarh, Patappura, Borav, Laxmikhera Villages; Tehsil-Rawatbhata, Chittorgarh District, Rajasthan. in favour of M/s Greenko Energies Private. Ltd.

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

S. No.	Para of ToR amendment issued by MoEF&CC	Details as per the ToR amendment	To be revised/ read as	Justification/ reasons
1	Para 3 Point 3	Project envisages non-consumptive re-utilization of 1.176 TMC of water for recirculation between two proposed reservoirs.	project envisages non-consumptive re-utilization of 1.195 TMC of water for recirculation between two reservoirs	Increase in MWH
2	Para 3 Point 3	Upper reservoir are at longitude 75°23'43.98" E and latitude is 24° 59'	upper reservoir are at longitude 75°24'13.15"E and latitude is	Layout Modification

		56.09" N and that of lower reservoir are at longitude 75° 23' 6.47" E and latitude 25° 0' 18.18" N.	24°59'51.34"N and that of lower reservoir are at longitude 75°22'53.28"E and latitude 25°0'37.02"N.	
3	Para 3 Point 4	Upper reservoir gross storage capacity of 1.57. Out of 1.57 TMC, the live storage capacity is 1.23 TMC and the dead storage capacity is 0.34 TMC.	Upper reservoir gross storage capacity of 1.61 TMC. Out of 1.61 TMC, the live storage capacity is 1.195 TMC and the dead storage capacity is 0.42 TMC.	Layout Modification
4	Para 3 Point 4	Upper Reservoir FRL & MDDL at EL 607.00 m and EL 587.00 m	Upper Reservoir FRL & MDDL at EL 605.00m & EL 586.00m	Layout Modification
5	Para 3 point 4	Upper Reservoir proposed to construct Rockfill embankment for the average height of around 32 m (with maximum height of 39 m) for the length of 5,746 m.	Upper Reservoir proposed to construct Geomembrane Faced Rockfill Embankment (GFRD) for the weighted average height of around 31m (with maximum height of 37m) for the length of 5894m.	Layout Modification
6.	Para 3 Point 5	Lower Reservoir gross storage capacity of 1.45 TMC in which the live storage capacity is 1.176 TMC and dead storage capacity is 0.27 TMC.	Lower Reservoir gross storage capacity of 1.23 TMC. Out of 1.23 TMC, the live storage capacity is 1.201 TMC and dead storage capacity is 0.03 TMC.	Layout Modification
7	Para 3 Point 5	Lower reservoir keeping FRL and MDDL at EL 415.00 m and EL 397.00 m.	Lower reservoir FRL and MDDL at EL 410.00m & EL 393.00m.	Layout Modification
8	Para 3 Point 5	Lower Reservoir is proposed to construct Rockfill embankment for the average height of 18 m (with maximum height of 28 m) for the length of 1,926 m.	Lower Reservoir is proposed to construct Geomembrane Faced Rockfill Embankment (GFRD) for the weighted average height of 15m (with maximum height of 25m) for the length of 1999m.	Layout Modification
9	Para 3 Point 6	Length of Penstock 817.07 m Length of surface penstock from Intake to Vertical Pressure Shaft – 517.94m Length of	Length of Penstock 826.21 m Length of surface penstock from Intake to Vertical Pressure Shaft – 571.69m Length of Vertical Pressure Shaft –	Layout Modification

		Vertical Pressure Shaft – 133.51m Length of Horizontal Pressure Shaft – 115.61m	142.95m Length of Horizontal Pressure Shaft – 111.57m	
10	Para 3 point 6	Rated head of 187 m in generating mode and 196 m in pumping mode.	Rated head of 189.79 m in generating mode and 197.26 min pumping mode.	Layout Modification
11	Para 3 point 7	Total Land: 815.0771 ha, involving 678.5318 ha of forestland and 136.5453 ha of non-forest land.	788.6762 ha (610.8428 ha of forestland and 177.8334 ha of non- forest land)	A site visit was conducted by the Divisional Forest Officer (DFO) following the submission of the forest diversion proposal to the MoEF&CC. During this verification, it was identified that certain areas originally classified as forest land were, in fact, non-forest land. Consequently, the total land area requirement has now been updated to 788.6761 Ha, with 610.8427 Ha designated as forest land and 177.8334 Ha as non-forest land.

18.3.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Amendment in Terms

of Reference (ToR) to the project for Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc., Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited.

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

The Ministry granted Terms of Reference vide letter dated 03.08.2022 for the proposed project and PP has submitted the proposal for amendment in ToR for change in the coordinates of the project, water requirement, and land area requirement alongside design parameters. The EAC noted that the total land requirement for the project has been decreased from 815.0771 ha (678.5318 ha of forest land and 136.5453 ha of non- forest land) to 788.6762 ha (610.8428 ha of forestland and 177.8334 ha of non- forest land).

18.3.4 The EAC after examining the information submitted and detailed deliberations recommended the proposal grant of amendment in Terms of Reference as proposed by the PP to Sukhpura Off-Stream Closed Loop Pumped Storage Project (OCPSP)-2560 MW in an area of 788.6761Ha in Village Sukhpura, Lakshmikhera, and Nahargarh etc., Sub District Rawatbhata, District Chittaurgarh, Rajasthan by M/s Greenko Energies Private Limited, under the provisions of EIA Notification, 2006 and as amended with subject to the following additional conditions:

i. All ToR points mentioned in the ToR letter dated 03.08.2022 shall remain unchanged.
ii. EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout.

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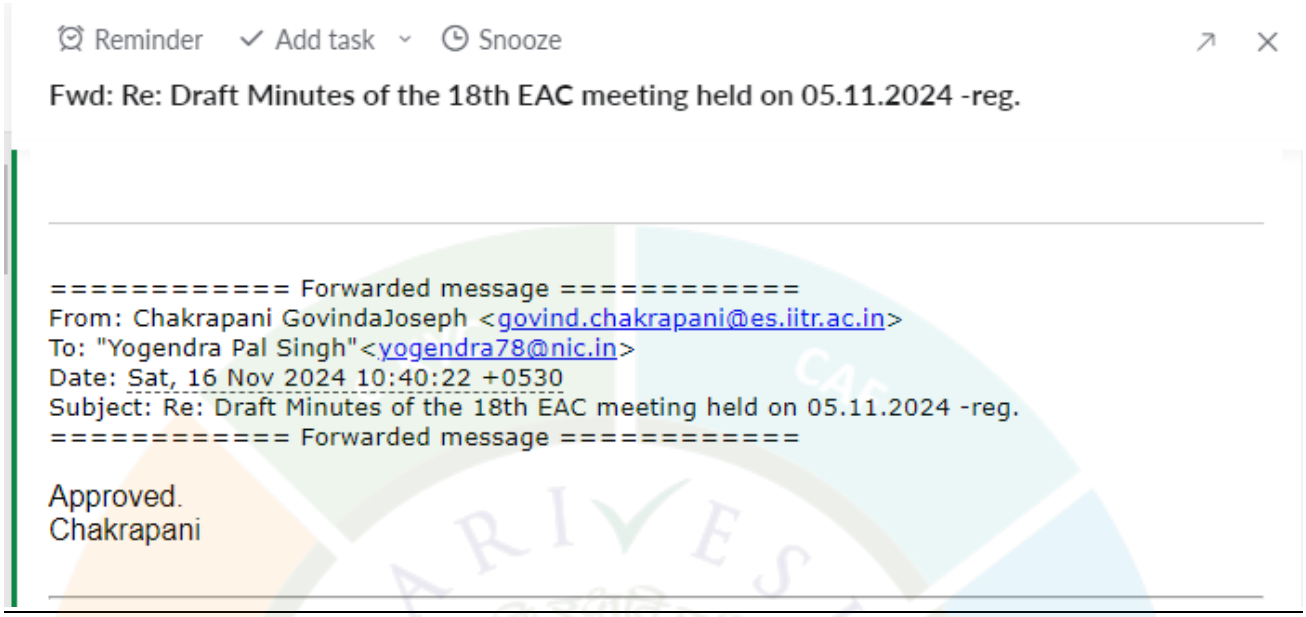
ANNEXURE I

ATTENDANCE

S. No.	Name of Member	Role	Remarks
1.	Prof. Govind Chakrapani	Chairman	P
2.	Dr. Uday Kumar R Y	Member	P
3.	DR. J. V. Tyagi	Member	P
4.	Dr. Mukesh Sharma	Member	A
5.	Shri Kartik Sapre	Member	P
6.	Shri Ajay Kumar Lal	Member	P
7.	Shri Rajeev Varshney	Member Representative of Central Electricity Authority (CEA)	P
8.	Shri Piyush Ranjan	Member Representative of Central Water Commission (CWC)	P
9.	Dr. J. A. Johnson	Member Representative of Wildlife Institute of India (WII)	P
10.	Dr. A.K. Sahoo	Member Representative of CIFRI	P
11.	Shri Yogendra Pal Singh	Member Secretary	P
12.	Dr. Krishnendu Mondal	Scientist 'D'	P

Approval of the Chairman



Reminder Add task Snooze

Fwd: Re: Draft Minutes of the 18th EAC meeting held on 05.11.2024 -reg.

========== Forwarded message ==========
From: Chakrapani GovindaJoseph <govind.chakrapani@es.iitr.ac.in>
To: "Yogendra Pal Singh"<yogendra78@nic.in>
Date: Sat, 16 Nov 2024 10:40:22 +0530
Subject: Re: Draft Minutes of the 18th EAC meeting held on 05.11.2024 -reg.
========== Forwarded message ==========

Approved.
Chakrapani