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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 45TH MEETING Expert Appraisal Committee meeting River Valley and Hydroelectric Projects held from 26/04/2023 to 26/04/2023

Date: 06/06/2023

MoM ID: EC/MOM/EAC/957828/4/2023

Agenda ID: EC/AGENDA/EAC/957828/4/2023

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

25/04/2023	10:30 AM	01:30 PM

1. Opening remarks

The 45th meeting of the re-constituted 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 26th April, 2023 through virtual mode, under the Chairmanship of Dr. K. Gopakumar. The list of Members present in the meeting is at Annexure.

2. Confirmation of the minutes of previous meeting

Confirmation of the minutes of 44th EAC meeting held on 27th - 28th March, 2023.

3. Details of proposals considered by the committee

Day 1 -26/04/2023

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Narihalla PSP (300MW) by **JSW ENERGY PSP THREE LIMITED** located at **BALLARI,KARNATAKA**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/KA/RIV/423064/2023	J-12011/19/2023-IA-I (R)	23/03/2023	River Valley/Irrigation projects (1(c))

3.1.2. Project Salient Features

The proposal is for grant of Terms of Reference (ToR) for Narihalla Open Loop Pumped Storage Project of capacity 300 MW in an area of 166.9 Ha at Village Doni Malai and Taranagar, Tehsil Sandur, District Ballari, (Karnataka) by M/s JSW Energy PSP Three Limited.

The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

1. Narihalla Pumped Storage Project, an off stream open loop pumped storage project, is a self-identified project by the JSW Energy PSP Three Limited. The project, having an installed capacity of 300 MW with total 1950 MWH pumped storage component with 6.5 hours storage capacity for peak power generation, is proposed in Sandur Taluka of Bellary District of Karnataka State. The project envisages utilization of gross head of about 153 m available between existing Narihalla (lower) reservoir, located across Narihalla river near Taranagar village, Sandur Taluka, and proposed upper reservoir to be located on a rocky gorge within Donimalai Hill/Forest adjacent to Narihalla reservoir on its right side.
2. Project contemplates construction of 88m high Roller Compacted Concrete Dam with crest length of 325m and 14m high Roller Compacted Concrete Saddle Dam with crest length of 140m for upper reservoir for creating gross and live storage capacity of 9.96 MCM and 5.5 MCM respectively.
3. The total land required for the project components and related works has been estimated to be about 166.90 ha, which includes 42.05 ha of forest land, 114.95 ha private land and 9.90 ha revenue land. No R&R issue is involved as no displacement is envisaged.
4. No archaeological monument of national importance lies either in the project area or in its submergence area. Neither any National Park nor any Wildlife Sanctuary exists within 10 km of project boundary. The PSP project is a hydro-electric project where reservoir operation is based on recycling of water once stored in the reservoirs. Thus, it does not attract condition of uninterrupted environmental flows.
5. As per preliminary estimation the tentative cost of project is INR 1590 Crores. The levelized cost of generation of the project excluding and including pumping cost@ Rs 3.00/kWh and has been found to be Rs 5.05/kWh and Rs 9.09/kWh respectively.
6. The silent feature of the project is as under:-

Project details:

Name of the Proposal	Narihalla PSP (300MW), Sandur Taluka District Bellary, Karnataka. Proposal No.: IA/KA/RIV/423064/2023
Location (Including coordinates)	Upper Reservoir: It is proposed to be located on a rocky gorge within Donimalai Hill/Forest adjacent to Narihalla reservoir on its right side, in Taluka Sandur, District Bellary. (15^0 06' 12.8" N ,76^0 36' 24.7" E) Lower Reservoir: Existing Narihalla reservoir, located across Narihalla river near Taranagar village, Sandur Taluka, District Bellary. ($15^0$07'25.2" N,$76^0$36'21.9'' E).
Inter- state issue involved	No
Seismic zone	Zone -II

Category details:

Category of the project	A

Provisions	Project activity covered at S.N.1(c)(i) Hydro Projects (PSP)
Capacity / Cultural command area (CCA)	300 MW/1950 MWH pumped storage component with 6.5 hours storage capacity for peak power generation. Power required for 7.74 hours pumping operation for backfilling of upper reservoir of PSP shall be about 330 MW.
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	None

Electricity generation capacity:

Powerhouse Installed Capacity	300 MW
Generation of Electricity Annually	641 MU
No. of Units	2X150MW
Additional information (if any)	The project with installed capacity of 300 MW(2x150MW) by utilizing a design discharge of 116.2 cumec with net head of 147m for 6.5-hour peaking hour daily will annually generate 641 MU at 90% plant availability. The PSP will utilize 330MW to pump 99.7 cumec from Narihalla reservoir to the upper reservoir in 7.6 hours. The annual pumping energy required shall be 839 MU. The cycle efficiency of the Narihalla PSP works out to be about 76.4%.

ToR Details:

Cost of project	INR 1590 Crores.
Total area of Project	166.90 ha
Height of Dam from River Bed (EL)	Upper Dam: 88 m(H);325m (L) Saddle Dam: 14 m(H);140m (L) Existing Lower Dam: 31 m(H);295m (L)
Length of Tunnel/Channel	One, 7.5 m diameter,180m long Horse-shoe shaped HRT Restricted orifice Surge shaft14m diameter and 75m high One, 7.0m diameter, 410m (L) steel lined pressure shaft. bifurcating in two-branches near underground powerhouse. Underground Power House (6x250MW) 460m long,7.5m diameter Horse-shoe shaped tailrace tunnel
Details of Submergence area	Upper Reservoir 29.5 ha
Types of Waste and quantity of generation during construction/ Operation	MSW During construction:71.2TPA

	During operation: 32.4TPA
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 1. E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. 1. If not the E-Flows maintain criteria for sustaining river ecosystem.	No Not applicable Not applicable

Muck Management Details:

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	An area of 100 ha has been proposed for dumping of muck at designated muck disposal sites (Private land: 100 ha)
Muck Management Plan	Muck disposal sites which shall be developed from below the ground level by providing hard engineering measures such as retaining structures, crate walls and gabions. Garland drains shall be laid all along outer periphery of the muck piles for carrying rain water. The muck shall be laid with vertical angle not exceeding 28^0 in such a manner that rock mass is properly stacked behind the wall with minimum of voids. The muck pile shall be later covered with geo-Geo-coir textile properly held to the ground by steel wire U-nails and rehabilitated by afforestation of herbs and shrubs. Geo-coir textile shall also be provided on surface of muck piles where top surface is to be vegetated. Detailed Muck Management Plan shall be prepared along with other EMP
Monitoring mechanism for Muck Disposal	The project authorities shall erect a barrier to regulate the traffic flow to and fro the muck piles site. Entry of all vehicles passing the barrier and the information regarding quantities of muck being transported shall be properly arrayed in a register in a transparent manner and shall be liable to be made public by the project authorities as and when required. Proper e-challan shall be issued.

Land Area Breakup:

Private land	114.95 ha
Government land/Forest Land	Govt. land:9.90 ha/Forest land: 42.05ha
Submergence area/Reservoir area	29.5 ha
Land required for project components	6.20 ha (surface:2ha; underground 4.2ha)
Additional information (if any)	Project & labour colony:4.30 ha

	Roads;4.50ha; Workshop/Crusher/B. Plant etc.: 2.20ha 100 ha for muck disposal 20.20 ha for RoW for transmission line power evacuation is also included

Presence of Environmentally Sensitive areas in the study area

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

Court case details:

Court Case	None
Additional information (if any)	None

Affidavit/Undertaking details:

Affidavit/Undertaking	Annexure-IV of Agenda of meeting
Additional information (if any)	None

Previous EC compliance and necessary approvals:

Particulars	**Letter no. and date**
Certified EC compliance report (if applicable)	Not applicable.
Status of Stage- I FC	Not, yet.
Additional detail (If any)	Application for diversion of forest land is yet to be moved.
Is FRA (2006) done for FC-I	Not, yet

Miscellaneous

Particulars	**Details**
Project Benefits	Power Company of Karnataka Limited, Govt. of Karnataka issued LOI vide letter no. PCKL/ADP/JDP/DDP5/PHSP/2021-22/8556/63 dated 29th Mar. 2023 on the basis of competitive bidding

	for purchase of 300 MW power for 40 years. Accordingly, project would generate and supply 641 MU energy during peaking hours to Karnataka State Govt.
Status of other statutory clearances	The mandatory statutory clearance like approval of power potential studies from CEA, site specific earthquake design parameters to be approved by NCSDP, Geological report approval from GSI, DPR approval from CWC and CEA; Forest clearance for diversion of forest land, are yet to be sought.
R&R details	No R&R issues are involved.
Additional detail (If any)	None

3.1.3. Deliberations by the EAC in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

The EAC during deliberations noted the following:

The proposal is for grant of Terms of Reference (ToR) to the project for Narihalla Open Loop Pumped Storage Project of capacity 300 MW in an area of 166.9 Ha at Village Doni Malai and Taranagar, Tehsil Sandur, District Ballari, (Karnataka) by M/s JSW Energy PSP Three 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, as amended and requires appraisal at Central level by the sectoral EAC in the Ministry.

The project proponent was not able to provide the information of existing usage of reservoir. Also, it is unkown that whether this project will hamper the existing water demand. The committee also suggested that as the location is very much sensitive as far as ecological point of view, the committee suggested to revisit the alternate site analysis with proper justification for recommending the suitable site. Also, the EAC decided that the EAC member Dr. Uday Kumar R. Y. shall visit the site for examining the site for ecological point of view and condition of reservoir.

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.	1. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs/ river of catchment area / due to tapping of water for filling reservoir. 2. Impact zone decided prior to base line data generation and accordingly, sampling location shall be

	finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons. 3. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared. 4. 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. 5. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir. 6. Source of construction material and its distance from the project site along with detailed transportation plan for construction material be submitted. 7. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report. 8. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located outside the Eco Sensitive Zone (ESZ) and no Wildlife Sanctuary falls within 10 km of Project site. 9. A detailed wildlife conservation plan for Schedule-I species be prepared duly approved by the Chief Wild Life Warden be submitted. 10. 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. 11. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP. 12. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report. 13. MoU for water uses for the project shall be signed and approved by concerned authority. 14. Environmental matrix during construction and operational phase needs to be submitted. 15. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report. 16. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State. 17. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component. 18. Project impact on avi-fauna shall be studied and incorporated in EIA/ EMP report. 19. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied. 20. Stage-I Forest Clearance shall be obtained. 21. Study of impacts of project on water sources. 22. A brief report on reservoir survival study shall be submitted. 23. A report of Integrated Watershed Development plan shall be submitted. 24. A drone video of the site shall be submitted.
Miscellaneous.	
1.	1. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC I CEA shall be submitted. 2. Undertaking need to submitted on affidavit that regarding no activities has been yet on the project site and water allocated to this scheme shall not be diverted to other purpose. 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. 5. Arial view video of project site shall be recorded and to be submitted. 6. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project. 7. The complete details of pipeline including details of land shall be submitted. 8. Alternate site analysis along with site suitability shall be carried out with proper justification.

	9. Plan for no loss of water due to seepage shall be submitted.
2.	i.Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC I CEA shall be submitted. ii.Undertaking need to submitted on affidavit that regarding no activities has been yet on the project site and water allocated to this scheme shall not be diverted to other purpose. iii.Both capital and recurring expenditure under EMP shall be submitted. iv.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. v.Arial view video of project site shall be recorded and to be submitted. vi.Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project. vii.The complete details of pipeline including details of land shall be submitted. viii.Alternate site analysis along with site suitability shall be carried out with proper justification. ix.Plan for no loss of water due to seepage shall be submitted.
Socio-economic Study	
1.	1. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project. 2. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter. 3. 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. 4. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared. 5. Details of settlement in 10 km area shall be submitted.
Muck Management/ Disaster Management	
1.	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

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.
11.	Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
12.	Land details including forests, private and other land.
13.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
14.	Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study
Description of Environment and Baseline Data	
1.	To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:
2.	(i) Catchment area up to the dam/barrage site.
3.	(ii) Submergence Area.
4.	(iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.

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

follows:	
1.	null
2.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
3.	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.
4.	Landslide zone or area prone to landslide existing in the study area should be examined.
5.	Presence of important economic mineral deposit, if any.
6.	Justification for location & execution of the project in relation to structural components (dam /barrage height).
7.	Impact of project on geological environment.
8.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.
9.	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.
10.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
11.	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.
12.	(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.
13.	History of the ground water table fluctuation in the study area.
14.	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).
15.	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
16.	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.
17.	Run off, discharge, water availability for the project, sedimentation rate, etc.
18.	Basin characteristics
19.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.

20.	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.
21.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
22.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
23.	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.
24.	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.
25.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
26.	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.
27.	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.
28.	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.
29.	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.
30.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
31.	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A species wise list may be provided.
32.	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.
33.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
34.	Economically important species like medicinal plants, timber, fuel wood etc.
35.	Details of endemic species found in the project area.
36.	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.
37.	Cropping pattern and Horticultural Practices in the study area.
38.	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.

39.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
40.	Information (authenticated) on Avi-fauna and wildlife in the study area.
41.	Status of avifauna their resident/ migratory/ passage migrants etc.
42.	Documentation of butterflies, if any, found in the area.
43.	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.
44.	Existence of barriers and corridors, if any, for wild animals.
45.	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.
46.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.
47.	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.
48.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
49.	Fish and fisheries, their migration and breeding grounds.
50.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
51.	Conservation status of aquatic fauna.
52.	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.
53.	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.
54.	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.
55.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
56.	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.
57.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
58.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
59.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.

60.	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.
61.	Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project.
Impact Prediction and Mitigation Measures	
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
2.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.
3.	Effect on soil, material, vegetation and human health.
4.	Impact of emissions from DG set used for power during the construction, if any, on air environment.
5.	Pollution due to fuel combustion in equipments and vehicles
6.	Fugitive emissions from various sources
7.	Changes in surface and ground water quality
8.	Steps to develop pisci-culture and recreational facilities
9.	Changes in hydraulic regime and downstream flow.
10.	Water pollution due to disposal of sewage
11.	Water pollution from labour colonies/ camps and washing equipment.
12.	Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting for commissioning of HRT, TRT and some other structures.
13.	Changes in land use / land cover and drainage pattern
14.	Immigration of labour population
15.	Quarrying operation and muck disposal
16.	Changes in land quality including effects of waste disposal
17.	River bank and their stability
18.	Impact due to submergence.
19.	Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
20.	Pressure on existing natural resources
21.	Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors

22.	Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
23.	Impact on fish migration and habitat degradation due to decreased flow of water
24.	Impact on breeding and nesting grounds of animals and fish.
25.	Impact on local community including demographic profile.
26.	Impact on socio-economic status
27.	Impact on economic status.
28.	Impact on human health due to water / vector borne disease
29.	Impact on increase traffic
30.	Impact on Holy Places and Tourism
31.	Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.
32.	Positive and negative impacts likely to be accrued due to the project are listed.
Environmental Management Plan	
1.	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.
2.	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.
3.	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.
4.	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.
5.	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.
6.	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.
7.	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.
8.	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.
9.	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.
10.	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.
11.	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.
12.	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.
13.	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.
14.	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.
15.	Labour Management Plan for their Health and Safety.
16.	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.
17.	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.

18.	Environmental safeguards during construction activities including Road Construction.
19.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
20.	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 Project for Kurha-Vadhoda Islampur Lift Irrigation Scheme, UPSA Sinchan Yojna with CCA 32372 Ha by **M/S TAPI IRRIGATION DEVELOPMENT CORPORATION, JALGAON** located at **JALGAON,MAHARASHTRA**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/MH/RIV/423561/2023	J-1201 1/05/2021-IA.I(R)	27/03/2023	River Valley/Irrigation projects (1(c))

3.2.2. Project Salient Features

The proposal is for grant of Environmental Clearance (EC) to the proposed construction of Kurha Vadhoda Islampur Lift Irrigation Scheme of Culturable Command Area (CCA) of 32372 ha. at Village Rigaon, Tehsil Muktainagar District Jalgaon (Maharashtra) by M/s Tapi Irrigation Development Corporation, Jalgaon, Maharashtra.

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

Kurha Vadhoda Islampur lift Irrigation Scheme is in jurisdiction of Tapi Irrigation Development Corporation, Jalgaon. The project is located near Village Rigaon, Taluka Muktainagar, District Jalgaon.

1. The scheme envisages lifting of flood water in rainy season from Purna river by constructing Intake channel, Intake structure, Jack well overhead Pump house near village Rigaon Taluka Muktainagar, District- Jalgaon and a dam near village Islampur for a length of 6845m.

1. The proposal for grant of ToR was considered and recommended by the EAC in its meeting held on 25th, 31st and 32nd EAC meetings held on 14th March, 2022, 29th July, 2022 and 12th August, 2022 respectively. The terms of reference was granted by the Ministry vide letter dated 26th September, 2022.

1. The lifting point i.e. Jack well from Purna river falls in Village Rigaon, Tehsil- Muktainagar, District- Jalgaon & Dam site falls in Village-Islampur, Tehsil –Jalgaon (Jamod) & DistrictBuldhana, Maharashtra. Project Coordinates are as follows:

Lifting Point: Latitude: 20°57'30.00"N Longitude: 76°20'00"E
Dam Site at Islampur: Latitude: 21°02'14.99"N Longitude: 76°24'44.99"E

1. The total command area under this scheme comprises for all 104 villages lies in Muktainagar Taluka of Jalgaon district and Jalgaon-Jamod & Sangrampur Talukas in Buldhana District. The Irrigable command area of Jalgaon District is 8445 ha (32%) and 17453 ha (68%) in Buldhana District, thus total command (ICA) under this scheme is 25898 Ha. Irrigation is proposed from dam by Gravity pipe line. Gross Command Area under this scheme is 40465 Ha Culturable Command Area is 32372 Ha & Irrigable Command Area is 25898 Ha. Thus, the project will benefit 25898 ha irrigable area.

Benefitted Taluka	**Benefit Area**			**Benefitted Villages**
	G.C.A	**C.C.A**	**I.C.A**	
Jalgaon District				
Muktainagar Taluka	12889	10311	8249	21
Buldhana District				
Jalgaon- Jamod Taluka	15815	12652	10122	53
Sangrampur Taluka	11761	9409	7527	30
Total	40465	32372	25898	104

1. Purna river is a tributary of the River Tapti (also called Tapi). The Tapi River flows in a deep bed which historically has made it difficult to use for irrigation. This project contemplates to provide irrigation facilities annually to a culturable command area of 32372 Ha thus providing immense growth in agricultural produce of the area and will improve overall economy of the local population. Since there is scope for lifting water from Purna river, the scheme Kurha Vadhoda Islampur Upsa Sinchan Yojana is planned to lift flood water, store & then utilize it.

1. The total storage capacity of reservoir is 77.60 Mcum, and it will benefit 25898 Ha irrigable area (8249 Ha of Muktainagar Taluka & 17649 Ha of Jalgaon-Jamod Taluka) of Jalgaon & Buldhana Districts respectively of Maharashtra state.

1. The existing value of the produce in the command area is Rs. 7366.14 Lakhs for 25898 Ha. After introduction of irrigation, the estimated value of produce in the command area will increase to Rs. 64787.63 Lakhs for 25898 Ha. (An increase of more than 9 times).

1. Catchment Area- The catchment area of Islampur Dam is saucer shaped and classified as good. The total catchment area up to dam site is 8.50 sqkm (3.32 sq miles).

1. The details of the project is as under:

PARTICULARS	**DETAILS**
Name of Project	Kurha Vadhoda Islampur Lift Irrigation Scheme UPSA Sinchan Yojna with CCA 32372Ha at Village Rigaon, Tehsil-Muktainagar District Jalgaon, Maharashtra
Project Proponent	Tapi Irrigation Development Corporation, Sinchan Bhawan , Akash Wani Chowk, Jalgaon, Maharashtra-425001

Location of the project	Village- Rigaon, Taluk-Muktainagar, Dist. Jalgaon, Maharashtra. Dam Site at Islampur: Latitude: 21°02'14.99"N, Longitude: 76°24'44.99"E Lifting Point: Latitude: 20°57'30.00"N, Longitude: 76°20'00"E
Land Requirement and Use	The total area required for the project is 572 Ha out of which 562 Ha is private land, 7.57 Ha is Government Land and remaining 1.98 Ha is Forest land for which Forest Clearance have been obtained on 23.11.2012 vide letter no. No. 6- MHB – 030/2012 – BHO/1853.
Total Water utilization	3.564 TCM
Total Storage capacity of reservoir under the scheme	77.60 Mcum
Average Annual Rainfall	670 mm
Reserved Forest/ Protected Forest	• Machhandar Nath Mandir RF~ 2.6 kms in West from Dam site. • Raipur Reserved Forest~ 2.14kms in NW from dam site. • RF ~ 3.25kms in SE.
Seismic Zone	Zone-III (As per 1893:2002)
Category of Project	"A" (Due to presence of Maharashtra- Madhya Pradesh Interstate Boundary at 5.7kms in NNW from Dam site)
Type of Project	River Valley Projects (Schedule 1(c))

1. **Chronology of EC at MoEF&CC:** The proposal was earlier submitted to MoEF&CC for grant of TOR in January 2009, TOR was approved in April 2009. Draft EIA was submitted to SPCB in January, 2010 for conducting Public Hearing. The Public Hearing was held in April, 2010 and January, 2011. The Final EIA was submitted to MoEF&CC for grant of EC. EC was not granted to the project as the case was not pursued further with MoEF&CC, after submission of Final EIA.

1. However, it may also be noted that almost more than 50% work has been completed but no operation has been started.

1. Progress of Lift Irrigation Project % wise is tabulated below:

Sr. No.	Project Components	Construction done	Construction to be done
1	Earthen Dam	60%	40%
2	HR and Spillway	0%	100%
3	Pump House No.1	95%	5%
4	Intake structure	0%	100%
5	Pump House No.2	0%	100%
6	Pump House No.3	85%	15%
7	Machinery Installation	At PH 1&2 -0%	At PH 1&2 -100%
		At PH 3-60%	At PH 3-40%

8	Rising Main	10.784 km	2.356 km
9	Electric Supply Works	85%	15%
10	Distribution Network	0%	100%

1. Land requirement: The total area required for the project is 572 ha out of which 562 ha is private land and 7.57 Ha is government land and remaining 1.98 Ha is forest land for which Forest Clearance has already been obtained.

1. State/National boundaries: Maharashtra- Madhya Pradesh Interstate Boundary at 5.7kms in NNW from Dam site.

1. Reserved Forest/Protected Forest: Machhandar Nath Mandir RF~ 2.6 kms is located in West direction from Dam site and Raipur Reserved Forest~ 2.14kms is located in NW direction from dam site and another RF ~ 3.25kms is also located in SE direction.

1. Water availability: The total water utilization under this scheme is 3.564 TMC.

1. Power Requirement: Electricity supply to lift water is taken from Malkapur Sub Station of Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL). 132 KV transmission line is erected from Malkapur to Bhota substation, installed at Bhota. From Bhota sub Station 33 KV transmission lines are erected for electric supply to each pump house.

1. Project Cost: Proposed cost for sanctioning to Water Resources Department of Government of Maharashtra is Rs. 2226.53 Crore.

1. The project construction has been started prior to grant of Environmental Clearance and completed almost 50% of the work therefore, PP applied the proposal for grant of EC under violation category.

1. The silent features of the proposal is as under:-

Project details:

Name of the Proposal	Proposed Project for Kurha Vadodha Islampur Lift Irrigation Scheme UPSA Sinchan Yojna with CCA 32372 Ha
Proposal No.	IA/MH/RIV/423561/2023
Location (Including Coordinates)	Village- Rigaon, Taluk-Muktainagar, Dist. Jalgaon, Maharashtra. **Dam Site at Islampur :** Latitude: 21°02'14.99"N Longitude: 76°24'44.99"E **Lifting Point:** Latitude: 20°57'30.00"N Longitude: 76°20'00"E

Company's Name	Tapi Irrigation Development Corporation, Jalgaon, Govt. of Maharashtra
CIN no. of Company/user agency	--
Accredited Consultant and certificate no.	Mantec Consultants Pvt. Ltd./ NABET/EIA/2023/RA0205 (Extension letter from NABET is attached with this Annexure)
Project location (Coordinates /River/ Reservoir)	Project Coordinates: Location of Lifting Point – The Jack well overhead Pump house of the scheme is located near village Rigaon Tal. Muktainagar, Dist.- Jalgaon Latitude - 200- 57' - 30" Longitude 760- 20'- 00" Location of Islampur Dam –Islampur dam is located near village Islampur Tal. Jalgaon Jamod District – Buldhana. Latitude - 210- 02'- 15" Longitude 760- 24'- 45"
Inter- state issueinvolved	Yes (Only due to Presence of Inter-state Boundary at 5.7 km is NNW form Dam site between Maharashtra and Madhya Pradesh).
Proposed on River/Reservoir	Water is to be Lifted From Purna River/to be stored in Islampur reservoir
Type of Hydro-electric project	No (Lift Irrigation Project)
Seismic zone	Zone-III

Category details:

Category of the project	A
Capacity / Cultural command area (CCA)	77.6 Mcum/ 32372 ha
Attracts the General Conditions (Yes/No)	Yes (Only due to Presence of Inter-state Boundary at 5.7 km is NNW form Dam site between Maharashtra and Madhya Pradesh).
Additional information (if any)	No

EC Details:

ToR Proposal No.	IA/MH/RIV/255427/2022,
EAC meeting date	14 March, 29 July, 12 Aug 2022
ToR Letter No.	F. No. J-12011/05/2021-IA.I (R)
ToR grant Date	26th Sept. 2022
Cost of project	Rs. 222653.21 Lakhs
Total area of Project	572 ha
Height of Dam from River Bed (EL)	42.4 mtr.
Details of submergence area	419 ha
District to provide irrigation facility (if applicable)	Yes, (Jalgaon and Buldhana Districts)
Details of tunnels on upper level & lower	Not applicable

level and length of canal (if applicable)	
No. of affected Village.	Islampur, Hashampur, Navkhurd, Gorada
No. of Affected Families	Not Applicable
Project Benefits	The drought prone area will get immensely benefitted due to availability of water for irrigation. The project will benefit 25898 ha irrigable area out of which 8249 ha of Muktainagar Taluka, (Jalgaon District) & 17649 ha is of Jalgaon –Jamod & Sangrampur Taluka of Buldhana District. The assured irrigation would lead to increase in agriculture productivity in grains as well as cash crops and thus boost economic prosperity of the region. The existing value of the produce in the command area is Rs. 7366.14 Lakhs for 25898 Ha. After introduction of irrigation, the estimated value of produce in the command area will increase to Rs. 64787.63 Lakhs for 25898 Ha. (An increase of more than 9 times). Thus there will be immense financial benefits accruing to the population. This increase in agricultural production will also boost the industrial activity especially agro based process industries. These will in turn provide employment opportunities to the locals and benefit the people socially as well as financially. The employment generation potential of the project is approx. 83.84 Lakhs man-days.
R&R details	Not Applicable
Catchment area/ Command area	8.5 sq km/ 25898 ha
Types of Waste and quantity of generation during construction/Operation	Muck 4065022 cum
Material used for blasting and its composition as per DGMS standards.	Not applicable
E-Flows for the Project	Not applicable
Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in which project located. If yes then 1. E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin. 1. If not the E-Flows maintain criteria for sustaining river ecosystem.	No
Details on provision of fish pass	Not applicable
Project benefit including employment details (no of employee)	The total number of unskilled labors in the remaining work will be 1180.
Area of Compensatory Afforestation (CA) with tentative no of plantation.	CA' Shall be taken by forest Department over 1.98 ha from forest land.

Previous EC details	NA
EC Compliance Report by R.O, MOEF&CC	**NA**

Electricity generationcapacity:

Powerhouse Installed Capacity	No generation of electricity
Generation of Electricity Annually	NA
No. of Units	NA

Muck Management Details:

No. of proposed disposal area/ (typeof land- Forest/Pvt land)	5 N 0.5-4 range Subm /Priva
Cross section of proposed muck area, Height of muck with slope.	Area Appr 2.25 Appr Heigh slope
Distance of muck disposal area(location), from muck generation sources(project area)/River, HFLof proposed muck disposal area.	Locat Islam villag Site: Subm Dista appro Km
Total Muck Disposal Area	2.2
Estimate Muck to be generated	6888
Transportation	By Truck
Monitoring mechanism for Muck Disposal Transportation	Moni spilla muck transp

Land Area Breakup:

Private land	562.45 ha
Government land/Forest Land	7.57 ha/ 1.98 ha
Submergence area/Reservoir area	419 ha/ 87.0 ha
Land required for project components	572.00 ha

Presence of Environmentally Sensitiveareas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter/Remarks
Reserve Forest/Protected Forest Land	Yes/NO	Forest Clearance is attached for laying underground pipe line and erection 33 KV sub-station.
National Park	No	
Wildlife Sanctuary	No	
Archaeological sites monuments/historical temples etc	No	
Additional information (if any)	-	

Availability of Schedule-I species in study area Yes-

Public Hearing (PH) Details

Advertisement for PH with date	Exempted (The proposal was earlier submitted to MoEF&CC for grant of TOR in January 2009, TOR was approved in April 2009. Draft EIA was submitted to SPCB in January, 2010 for conducting Public Hearing. The Public Hearing was held in April, 2010 and January, 2011. The Final EIA was submitted to MoEF&CC for grant of EC. EC was not granted to the project as the case was not pursued further with MoEF&CC, after submission of Final EIA)
Date of PH	
Venue	
Chaired by	
Main issues raised during PH	
No. of people attended	

Brief of base line Environment:

Particulars	Details
Period of baseline data collection/Sampling period.	Pre Monsoon- March 2022-May 2022, Monsoon, - June 2022 to September 2022 Winter – December-2020 to February, 2021
(Air, noise, water, land)	Air, Noise, Soil and Water (Surface & Ground water) Lab Reports Attached
flora and fauna of the project area,	Detailed in the EIA/EMP report
aquatic ecology, etc.	Detailed in the EIA/EMP report
Brief description on hydrology and water assessment as per the approved Pre-DPR:	Detailed in the EIA/EMP report
Additional detail (If any)	----

Court case details:

Court Case	Not Applicable
Additional information (if any)	

Status of other statutory clearances

Particulars	Letter no. and date
Status of Stage- I FC	Stage – II Clearance is attached
Approval of Central Water Commission	In-Principle approval is Attached
Approval of Central Electricity Authority	Not Applicable as it is not a electricity project
Additional detail (If any)	

Details of the EMP

Description	Capital Cost	Working Costs	Total Costs
	INR Lakh	INR Lakh	INR Lakh
Catchment Area Treatment Plan	376800	-	376800
Greenbelt Development Plan	21476587	-	21476587
Biodiversity Conservation and Wildlife Management Plan	2000000	-	2000000
Muck Disposal Plan	-	-	-
Energy Conservation Measures	2000000	-	2000000
Restoration and landscaping of working Areas	1000000		1000000
Sanitation and Solid Waste Management Plan	450000		450000
Water and Air Quality & Noise Management Plan	550000		550000
Compensatory afforestation Plan	-	-	-
Disaster Management Plan	1000000		1000000
Community Augmentation	3000000		3000000
Total EMP Budget	31853387		31853387

3.2.3. Deliberations by the EAC in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

The proposal is for grant of Environmental Clearance (EC) to the project for Kurha Vadhoda Islampur Lift Irrigation Scheme of Culturable Command Area (CCA) of 32372 Ha at Village Rigaon, Tehsil Muktainagar District Jalgaon (Maharashtra) by M/s Tapi Irrigation Development Corporation, Jalgaon, Maharashtra.

The project/activity is covered under category 'B' of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006, as amended, however, due to applicability of general condition i.e. Inter-state boundaries (5.7 km), the proposal appraised at Central level by the sectoral EAC in the Ministry as category A.

The scheme envisages lifting of flood water in rainy season from Purna river by constructing Intake channel, Intake structure, Jack well overhead Pump house near village Rigaon Taluka Muktainagar, District- Jalgaon and a dam near village Islampur for a length of 6845m.

The total command area under this scheme comprises for all 104 villages lies in Muktainagar Taluka of Jalgaon district and Jalgaon-Jamod & Sangrampur Talukas in Buldhana District. The Irrigable command area of Jalgaon District is 8445 ha (32%) and 17453 ha (68%) in Buldhana District, thus total command (ICA) under this scheme is 25898 Ha. Irrigation is proposed from dam by Gravity pipe line. Gross Command Area under this scheme is 40465 Ha Culturable Command Area is 32372 Ha & Irrigable Command Area is 25898 Ha.

The project proponent has informed that the proposal was earlier submitted to MoEF&CC for grant of ToR in January 2009, TOR was approved in April 2009. Draft EIA was submitted to SPCB in January, 2010 for conducting Public Hearing. The Public Hearing was held in 16th April, 2010 and 12th January, 2011. The Final EIA was submitted to MoEF&CC for grant of EC. EC was not granted to the project as the case was not pursued further with MoEF&CC, after submission of Final EIA.

Thereafter, the project proponent submittted proposal for ToR afresh under 'violation category' and the Ministry granted ToR vide letter dated 26.09.2022. The Ministry has granted ToR to the project with public consultation (without public hearing) for conducting EIA study and given additional/specific ToR that Public Consultation shall be carried out as per the provision contained in EIA Notification, 2006. In which public notice shall be issued through State Pollution Control Board and issues raised shall be addressed with allocation of fund and within certain timeline and shall be submitted during EIA/EMP submissions and appraisal. However, in the public consultation process, the public notice has not been issued by the State Pollution Control Board. The consultant M/s Mantec Consultants Pvt. Ltd has informed that they have carried out the public consultation process by themselves through interaction with local people. The project proponent then presented the complete public consultation carried out in the project area along with the minutes of earlier Public hearing to the EAC members and submitted tabular chart of issues raised and compliance of the same with statement on the commitments (activity-wise) made during public hearing. The EAC also suggested to incorporate the same in the Final EIA report and submit request to the Ministry to for uploading on PARIVESH portal.

It was also observed that the project proponent has not submitted the Wildlife Conservation Plan for Schedule-I species reported in the study area to state forest and wildlife department for approval.

The committee deliberated on ecological damage assessment report and observed that it needs revision with respect to procedure followed and restoration cost calculation in various components viz. remediation plan, Cost of natural resource augmentation plan and Cost of Community Resources Augmentation in terms of Ministry's OM dated 7.07.2021 for Standard Operating Procedure (SoP) for Identification and handling of violation cases under EIA Notification 2006.

The Committee also observed certain shortfalls in information provided in the EIA/ EMP report prepared by the consultant specially in the TOR compliance. The EAC showed displeasure about the performance of the consultant and suggested the Ministry to take appropriate action against the consultant and report to NABET to review their accreditation.

The EAC was of the opinion that the present project is being constructed in drought prone area of Jalgaon District of Maharashtra and is of emmence importance of local public, and to scrutinize the EIA/EMP report along with the ecological damage assessment report. The summaryof amounts mode of spending each, as calculated by the EAC, is presented below,

Table 17 COST SUMMARY

Sl.	Description	Estimated

No.		cost (Rs. Crores)
1	Remediation Plan	2.50
2	Natural Resources Augmentation Plan	2.00
3	Community Resources Augmentation Plan	1.54
Total Damage Amountto be given underbank guarantee		**6.04**
4	**Penalty as per OM dated 07/07/2021 to be paid to State Pollution Control Board**	**3.45**
5	**0.5% Contribution from Capital Cost (Rs.690 Crores) against Commitment via affidavit as per OM dated 30/09/2020**	**3.45**

3.2.5. Recommendation of EAC

Recommended

3.2.6. Details of Environment Conditions

3.2.6.1. Specific

Disaster Management	
1.	Necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and thereof.
Environmental Management and Biodiversity Conservation	
1.	Total budgetary provision with respect to Remediation plan, Natural Resources Augmentation Plan and Community Resour Rs. 6.04 crore. Therefore, Project Proponent shall be required to submit a bank guarantee of an amount of Rs. 6.04 crore to Natural Resources Augmentation Plan and Community Resources Augmentation Plan with the SPCB prior to the grant of EC
2.	EMP Budget shall be revised after proper estimation as per quantity of items required for implementation of EMP.
3.	Remediation plan shall be completed in 3 years whereas bank guarantee shall be for 5 years. The bank guarantee shall be implementation of the EMP, followed by recommendations of the EAC and approval of the regulatory authority.
4.	Extensive plantation of native perennial trees shall be done along the purna river for developing tree layer of 500 meter widt river down-stream and upstream. Time bound action plan in this regard shall be prepared and implemented in asso Department and local panchayats.
5.	Environment Management Cell shall be created in the project consisting environmental officers having post graduate sciences/Environmental Engineering to monitor implementation of Environment Management Plan in the project. The head shall report directly to the head of the project.
6.	Wildlife conservation plan shall be implemented after due approval of the State PCCF/CWLW. Biodiversity Management C constituted for Monitoring and Evaluation of Biodiversity Conservation and Wildlife Conservation Plan as approved by the P
7.	

1. Cost of Natural Resource Augmentation Plan

S.No	Environment Component	Activity Description	LOCATION	UNIT COST Rupees	QUANTITY Nos	Total Budg in Rs. 1st Year	2nd Yea
1	Land Environment	Reclamation of dump sites and conversion into community nursery sapling growing centre and issue of seeds and fertilizers for farmers located within 5 KM of project construction sites: The supply of seeds, saplings and fertilizers will be done for 3 years under first cum first issue.	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana 2. Village Rigaon, Tal-Muktainagar Dist-Jalgaon. 3. Village Sule, Tal-Muktainagar Dist-Jalgaon. 4. Village Bhota, Tal-muktainagar Dist-Jalgaon. 5. Village Hashampur, Tal-Jalgaon Jamod Dist-Buldhana. 6. Village Gorada Tal-Jalgaon Jamod Dist-Buldhana.	2500000 Each Location	6		
2	Energy Conservation	Supply, installation, and 3 maintenance of Solar Street lights 10 Nos each in nearby villages 100 Nos each in areas abating 6 Nos reservoirs	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana. 2. Village Rigaon, Tal-Muktainagar Dist-Jalgaon. 3. Village Sule, Tal-Muktainagar Dist-Jalgaon. 4. Village Bhota, Tal-muktainagar Dist-Jalgaon. 5. Village Gorada Tal-Jalgaon Jamod Dist-Buldhana.	100000	50		
SUB-TOTAL (B)							

1. **Cost of Community Resources Augmentation**

Activity	Financial provision, Rs. Lakhs	2019-20	2020-21	2021-22	Total
Medical camps in the surrounding villages, Deosugur, Chicksugur, Yedlapur, Wadloor, Hegsanhalli, Yermaras, etc.in consultation with District Health Authorities & distribution of medicines to the needy patients	**3**	1	1	1	3
Providing scholarships for needy students in Govt. schools in surrounding villages of Deosugur,Hegsanhalli, Chicksugur, Wadloor, Yadav Nagar, MPCL Colony , Hegsanhalli.	**5**	1.5	1.5	2	5
TOTAL	**8**	**2.5**	**2.5**	**3**	**8**

III. Community Development Augmentation Plan:

S.No	Socio-Economic Component	Activity Description	Location	Unit Cost	Quantity	Total Budgetary P In Cro		
				Rupees	Nos	1st Year	2nd Year	
1.	Socio-Economic Welfare	Construction of Bus shelters and public toilets 2 Nos units each in villages / towns nearby project area	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana 2. Village Vadhoda, Tal-muktainagar Dist-Jalgaon.	2000000 Each Location	2			
3.		Supply, installation, and 3 years maintenances of medical equipment's like X ray machine, Vitals monitors, Stretchers, Wheelchair and Furniture; each 1 set in nearby village Government primary health	1. Village kurha, Tal-Muktainagar Dist-Jalgaon	LS	1 Lot			

		centers / hospital of project area						
4.		Supply of computers, AV devise, projectors for upgradation to smart classroom teaching and learning for both teachers and students by inculcating audio, video, animations, multimedia, etc with power backup, each as one lot to Government schools, ITI & Colleges in nearby villages to project area	1. Village kurha, Tal-Muktainagar Dist-Jalgaon 2. Village Vadhoda, Tal-Muktainagar Dist-Jalgaon. 3. Village Pimpalgaon Tal-Jalgaon Jamod Dist-Buldhana. 4. Village Asalgaon Tal-Jalgaon Jamod Dist-Jalgaon. 5. Village Sulaj Tal-Jalgaon Jamod Dist-Buldhana.	1000000	5 lot			
SUB-TOTAL (C)								
TOTAL (A+B+C)								

Total Budgetary Provisions:

Sl. No.	Description	Estimated cost (Rs. Crores)
1	Remediation Plan	2.50
2	Natural Resources Augmentation Plan	2.00
3	Community Resources Augmentation Plan	1.54
	Total Damage Amountto be given underbank guarantee	**6.04**
4	**Penalty as per OM dated 07/07/2021 to be paid to State Pollution Control Board**	**3.45**
5	**0.5% Contribution from Capital Cost (Rs.690 Crores) against Commitment via affidavit as per OM dated 30/09/2020**	**3.45**

8.

1.EAC recommended for an amount of Rs 6.04 crore towards Remediation plan, Natural Resources Augmentation Plan an Augmentation Plan to be spent within a span of three years. The details are given below:

I Cost of Remediation Plan

S.No.	Environment Component	Activity Description	LOCATION	UNIT COST Rupees	QUANTITY Nos
1.	Air & Noise Environment	1. Avenue plantation of 3000 Nos each in nearby villages and areas between project and habitation with 3 years maintenance	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana. 2. Village Gorada Tal-Jalgaon Jamod Dist-Buldhana. 3. Village Rigaon, Tal-Muktainagar Dist-Jalgaon. 4. Village Sule, Tal-Muktainagar Dist-Jalgaon. 5. Village Bhota, Tal-muktainagar Dist-Jalgaon.	1000	15000
2	Water Environment	1. Construction of 5 Nos Rainwater harvesting structures / ponds of adequate capacity in common locations in each village with 3 years maintenance	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana 2. Village Rigaon, Tal-Muktainagar Dist-Jalgaon. 3. Village Sule, Tal-Muktainagar Dist-Jalgaon. 4. Village Bhota, Tal-muktainagar Dist-Jalgaon. 5. Village Hashampur, Tal-Jalgaon Jamod Dist-Buldhana.	500000	10
		1. Supply and installation of 2 Nos drinking water purifiers (RO Systems) of capacity up to 1000 LPH for common use each in nearby village with 3 years maintenance included.		500000	10
SUB-TOTAL (A)					

9.

1. The project proponent shall submit Rs. 3.45 crore as penalty as per Ministry's SOP vide OM dated 7.07.2021 under the State Pollution Control Board. The said amount will be utilized as under:-

S. No.	Activity	LOCATIONS	RATE	TOTAL QTY.	TOTAL COST (RS. In Crores)	YEAR I	YE
1.	Construction/Renovation of School Buildings and Toilets and Solid Waste Management (Provision for Waste Bins for villages) installation of bins	Rasalpur and Dhanora, Tal-Jalgaon Jamod Dist-Buldhana Chinchkheda kh. Tal-Muktainagar Dist-Jalgaon	L.S.	20 % of total Budget	0.69	0.30	0.29
1.	Health Care – Organisation of Health Check up Camps and augmentation Health Care infrastructure in PHCs/PHSC with Equipments like Ultrasound, Lab Equipments, Furniture etc	Vadhoda, kurha, Tal-Muktainagar Dist-Jalgaon. Palshi-supe and pimpalgaon Tal-Jalgaon Jamod Dist-Buldhana	L.S.	20 % of total Budget	0.69	0.30	0.195
1.	Skill Development and Training – in trades like Masonry, carpentry, Poultry, Computer operator, Food Processing, Garment sewing etc	Kurha Tal-Muktainagar Dist-Jalgaon And Asalgaon Tal-Jalgaon Jamod Dist-Buldhana	L.S.	10 % of total Budget	0.345	0.115	0.115
1.	Agriculture and Animal Husbandry – Introduction of High yielding varieties of crops, and animals, Soil conservation measures, Development of Agro forestry	Kurha Tal-Muktainagar Dist-Jalgaon And Dhanora Tal-Jalgaon Jamod Dist-Buldhana	L.S.	10 % of total Budget	0.345	0.115	0.115
1.	Livelihood Enhancement for Economic self reliance – Dairy, agro-based Food processing Units	Kurha Tal-Muktainagar Dist-Jalgaon	L.S.	20 % of Total Budget	0.69	0.30	0.29
1.	Providing Solar Street Lights, Small Roof Top Solar facilities at house level	Vadhoda and chinchkheda Tal-Muktainagar Dist-Jalgaon. Dhanora Tal-Jalgaon Jamod Dist-Buldhana	L.S.	10 % of Total Budget	0.345	0.1725	0.086
1.	Scholarship Programme and Continuing Education support to Dropouts	-	L.S.	10 % of Total Budget	0.345	0.115	0.115
Grand Total (A+B)-InRs					**3.45**	1.417	1.206

Socio economic

1.	1. The existing Hospital being managed by the project authorities shall be upgraded to multispecialty hospital with 50 and Female doctors. 2. Construction of concrete roads in project affected villages as proposed be maintained throughout project life. 3. The budget for plantation and other EMP activities should be revised as per existing rate. 4. R.O drinking water facilities be provided to villagers @ 10 households/Tap water. 5. Under CER activities, preference should be given to strengthen the basic amenities in the project affected villages water supply, providing health care facilities, etc. 6. Preference to be given to the local villagers as per the requirements and suitability, in the job/ other opportunities in to be taken to develop skills of the local villagers particularly with respect to the trades related to construction works s fitter, etc.
2.	1. The existing Hospital being managed by the project authorities shall be upgraded to multispecialty hospital with 50 and Female doctors. 2. Construction of concrete roads in project affected villages as proposed be maintained throughout project life. 3. The budget for plantation and other EMP activities should be revised as per existing rate. 4. R.O drinking water facilities be provided to villagers @ 10 households/Tap water. 5. Under CER activities, preference should be given to strengthen the basic amenities in the project affected villages water supply, providing health care facilities, etc. 6. Preference to be given to the local villagers as per the requirements and suitability, in the job/ other opportunities in to be taken to develop skills of the local villagers particularly with respect to the trades related to construction works s fitter, etc.

3.2.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Statutory compliance	
1.	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
2.	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
3.	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area).
4.	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
5.	NOC shall be obtained from National Commission of Seismic Design Parameters (NCSDS) of CWC.
6.	Necessary approval of CEA shall be obtained for those projects having the project cost more than Rs. 1,000 crores.
Air quality monitoring and preservation	
1.	Regular monitoring of various environmental parameters viz., Water Quality, Ambient Air Quality and Noise levels as per the CPCB guidelines at designated locations shall be carried out on monthly basis and a detailed database of the same shall be prepared and recorded. This shall be used as a baseline data for post construction EIA / Monitoring purposes.

2.	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed standards.
3.	Necessary control measures such as water sprinkling arrangements, etc. bet taken up to arrest fugitive dust at all the construction sites.
4.	Conjunctive use of surface water to be planned in the project to check water logging as well as to increase crops productivity. The field drains shall be connected with natural drainage system (if applicable).
5.	Remodelling of existing natural drains (link drains) and connecting them with irrigated land through constructed field drains, collector drains, etc. are to be ensured on priority basis (if applicable).
6.	Before impounding of the water, Cofferdams for both at the upstream and downstream are to be decommissioned as per EIA/EMP report so that once the project is commissioned; cofferdam should not create any adverse impact on water environment including the rock mass and muck used for the Cofferdam.
7.	As the reservoir will be acting as balancing reservoir and there would be fluctuation of water level during peaking period, efforts be made to reduce impact on aquatic life including impacts during spawning period both at the upstream and downstream of the project.
8.	Water depth sensors shall be installed at suitable locations to monitor e-flow. Hourly data to be collected and converted to discharge data. The Gauge and Discharge data in the form of Excel Sheet be submitted to the Regional Office, MoEF & CC and to the CWC on weekly basis.
9.	Mixed irrigation shall be practised and necessary awareness be given to all the farmers and trained in the use of such systems. Proper crops selection shall be carried out for making irrigation facility more effective (if applicable).
10.	On Farm Development (OFD) works like landscaping, land levelling, drainage facilities, field irrigation channels and farm roads, etc. should be taken up in phased manner prior to the start of irrigation in the entire command area. The Command Area Development Plan should be strictly implemented as proposed in the EIA/EMP report (if applicable).
Noise monitoring and prevention	
1.	All the equipment likely to generate high noise shall be appropriately enclosed or inbuilt noise enclosures be provided so as to meet the ambient noise standards as notified under the Noise Pollution (Regulation and Control) Rules, 2000, as amended in 2010 under the Environment Protection Act (EPA), 1986.
2.	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.
Catchment Area Treatment Plan	
1.	Catchment Area Treatment (CAT) Plan as proposed in the EIA/EMP report shall be implemented in consultation with the State Forest Department and shall be implemented in synchronization with the construction of the project.
Waste management	
1.	Muck disposal be carried out only in the approved and earmarked sites. The dumping sites shall be located sufficiently away from the HFL of the river. Efforts be made to reuse the muck for construction and other filling purposes and balanced be disposed of at the designated disposal sites. Once the muck disposal sites are inactive, proper treatment measures like both engineering and biological measures be carried out so that sites are stabilized quickly.
2.	Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead

	be used for various purposes as envisaged in the EIA/EMP reports. Efforts be made to avoid one time use of plastics.
Green Belt and Wildlife Management	
1.	Based on the recommendation of Cummulative Impact Assessment and Carrying capacity study of river basin or as per the ToR conditions or minimum 15% of the average flow of four consecutive leanest months, whichever value is higher, shall be released as environmental flow.
2.	Detailed information on species composition particular to fish species from previous study/literature be inventoried and proper management plan shall be prepared for insitu conservation in the streams, tributaries of river and the main river itself for which adequate budget provision be made and followed strictly.
3.	Wildlife Conservation Plan approved by the Chief Wildlife Warden shall be implemented in consultation with the local State Forest Department.
4.	To enrich the habitat of the project site, plantation shall be raised as envisaged in the EIA/EMP report. Plantation to be developed along the periphery of the reservoir in multi-layers with local indigenous species in consultation with the local State Forest Department.
5.	Compensatory afforestation programme shall be implemented as per the plan approved.
6.	Fish ladder/pass as envisaged in the EIA/EMP report shall be provided for migration of fishes. Regular monitoring of this facility be carried out to ensure it effectiveness.
Public hearing and Human health issues	
1.	Resettlement & Rehabilitation plan be implemented in consultation with the State Govt. as approved by the State Govt.
2.	Budget provisions made for the community and social development plan including community welfare schemes shall be implemented in toto.
3.	Preventive measures viz. fuming and spraying of mosquito control shall be done in and around the labour colonies, affected villages, stagnated pools, etc. Provisions be made to not to create any stagnated pools to avoid creation of breeding grounds of the vector borne diseases.
4.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
5.	Labour force to be engaged for construction works shall be examined thoroughly and adequately treated before issuing them work permit. Medical facilities shall be provided at the construction sites.
Risk Mitigation and Disaster Management	
1.	Early Warning Telemetric system shall be installed in the upper catchment area of the project for advance intimation of flood forecast.
2.	Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities.
3.	Emergency preparedness plan be made for any eventuality of the dam failure and shall be implemented as per the Disaster Management Plan.

4.	Stabilization of muck disposal sites using biological and engineering measures shall be taken up to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area. The engineering measures for the muck disposal arrangements be evolved after carrying out required slope stability analysis.
5.	Catchment area treatment plan shall be prepared and sufficient fund shall be provided for afforestation, rim plantation, pasture development, nursery development.
Corporate Environment Responsibility	
1.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30th September, 2020, as applicable, regarding Corporate Environment Responsibility.
2.	Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their long time livelihood generation
3.	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation/violation of the environmental / forest / wildlife norms/conditions and / or shareholders/ stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
4.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
5.	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
6.	Post EIA and SIA be prepared for the project through a third party and evaluation report be submitted to the Ministry after five years of commissioning of the project.
7.	Multi Disciplinary Committee (MDC) be constituted with experts from Ecology. Forestry, Wildlife, Sociology. Soil Conservation, Fisheries, NGO, etc. to oversee implementation of various environmental safeguards proposed in EIA/EMP report during construction of the project. The monitoring report the Committee shall be uploaded in the website of the Company.
8.	Formation of Water User Association/Co-operative be made involment of the whole community be ensured for discipline use of available water for irrigation purposes
Miscellaneous	
1.	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
2.	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
3.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

4.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
5.	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
6.	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
7.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
8.	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
9.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
10.	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
11.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
12.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
13.	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
14.	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
15.	Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

Sirohi Pumped Storage Project (1200MW) by **JSW ENERGY PSP ONE LIMITED** located at **SIROHI,RAJASTHAN**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**

IA/RJ/RIV/423815/2023	J-12011/20/2023-IA.I(R)	29/03/2023	River Valley/Irrigation projects (1(c))

3.3.2. Project Salient Features

The proposal is for grant of terms of reference (ToR) to the project for Sirohi Off-Stream Closed Loop Pumped Storage project of capacity 1200 MW in an area of 97.1 Ha located at Village Nivaj, Tehsil Reodar, District Sirohi (Rajasthan) by M/s JSW Energy PSP One Limited.

The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

1. Sirohi Pumped Storage Project, an off stream closed loop pumped storage project, is a self-identified project by the JSW Neo Energy Ltd. The project is proposed in Reodar Tehsil, Sirohi District of Rajasthan with an installed capacity of 1200 MW shall be used as energy storage scheme for the renewable energy projects implemented / being implemented in Rajasthan and Northern region. The project envisages utilization of gross head of about 499 m available between proposed upper and lower reservoirs. The scheme of operation considered for the project is daily regulation to meet the demand of about 6.0 hours of peak power daily. Off-peak pumping hours are considered as 6.85 hours daily.
2. The upper dam is proposed on a table top hill at geographical longitude of 72° 27' 52.1" E and latitude of 24° 41' 54.8" N and falls within the administrative boundary of Nimbaj & Jeerawal villages in Reodar Tehsil of Sirohi District. The lower dam is located across the minor rivulet draining into Sili nallah at geographical longitude of 72° 28' 51.5" E and latitude of 24° 41' 57.1" N and falls within the administrative boundary of Harni Amarpura village in Reodar Tehsil of Sirohi District.
3. Project contemplates construction of gravity concrete upper dam of maximum height 67m and crest length of 1120 m for upper reservoir for creating gross storage capacity of 6.09 MCM at FRL El.888m. The water conductor system off taking from horizontal pit type upper intake shall be fully underground and comprise of 1005 m long 8.5m diameter circular steel lined pressure shaft Underground powerhouse shall be located in a cavern 155 m (L) x 20 m (B) x 54.5m (H).
4. The total land required for the project components and related works has been estimated to be about 97.1 ha, which include 26.5ha private land and 70.6 ha of forest land that need to be considered for diversion. Besides this the extent of land involved for Right of Way (RoW) for transmission line and raw water pipeline has been estimated approximately about 171 ha and 10 ha respectively, which shall be firmed up during DPR stage.
5. No archaeological monument of national importance lies either in the project area or in its submergence area. Neither any National Park nor any Wildlife Sanctuary exists within 10 km of project boundary. The PSP project is a hydro-electric project where reservoir operation is based on recycling of water once stored in the reservoirs. Thus, it does not attract condition of uninterrupted environmental flows.
6. **Salient Features of the project is as under:-**

Project details:

Name of the Proposal	Sirohi PSP (1200MW), Tehsil Reodar District Sirohi, Rajasthan. Proposal No.: IA/RJ/RIV/423815/2023; File No. J-12011/20/2023-IA. I(R)
Location (Including coordinates)	Upper Reservoir: It is proposed to be located on a table top hill at geographical longitude of 72° 27' 52.1" E and latitude of 24° 41' 54.8" N and falls within the administrative boundary of Nimbaj & Jeerawal villages in Reodar Tehsil of Sirohi District. Rajasthan. Lower Reservoir: It is proposed to be located across the minor rivulet draining into Sili nallah at geographical longitude of 72° 28' 51.5" E and latitude of 24° 41' 57.1" N and falls within the administrative boundary of Harni

	Amarpura village in Reodar Tehsil of Sirohi District, Rajasthan.
Inter- state issue involved	No
Seismic zone	Zone -III (Moderate Damage Risk Zone).

Category details:

Category of the project	A
Provisions	Project activity covered at S.N.1(c)(i) Hydro Projects (PSP)
Capacity / Cultural command area (CCA)	1200 MW/7200 MWH pumped storage component with 6.0 hours storage capacity for peak power generation. Power required for 6.85 hours pumping operation for backfilling of upper reservoir of PSP shall be about 1320 MW.
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	None

Electricity generation capacity:

Powerhouse Installed Capacity	1200 MW
Generation of Electricity Annually	2497 MU
No. of Units	4X300MW
Additional information (if any)	With design discharge of 69.4 cumec and rated net head of 492m with four vertical reversible pump turbines each of 300 MW capacity it will have installed capacity of 1200 MW and at 95% plant availability an annual energy generation of 2497MU. For back filling of upper reservoir for 6.85 hours pumping duration with four pumps of 330 MW capacity each and pumping discharge of 60.8 cumecs, the annual pumping energy after accounting for outages per year shall be 3134 MU. The maximum pumping power required for operation of PSP is estimated to be about 1320 MW. The cycle efficiency of the PSP works out to be about 79.70%. The water requirement of 7MCM for initial filling is proposed to be met by constructing a weir / anicut across West Banas River near Wasda village, Abu Road Tehsil of Sirohi district in Rajasthan and double stage pumping of water into the lower reservoir during monsoon season over a period of 2 seasons / years.

ToR Details:

Cost of project	INR 4945 Crores.
Total area of Project	97.10 ha
Height of Dam from River Bed (EL)	Upper Dam: 67 m(H);1120 m (L) Saddle Dam: 21 m(H);150m (L) Lower Dam: 70 m(H);280m (L)
Length of Tunnel/Channel	One, 8.5m diameter, 1005 m (L) steel lined pressure shaft Underground Power House (Cavern size 155 m (L) x 20 m (B) x 54.5m (H). 375m long,8.5m diameter Horse-shoe shaped tailrace tunnel
Details of Submergence area	Upper Reservoir 22.40 ha Lower Reservoir 25.90 ha
Types of Waste and quantity of generation during construction/ Operation	MSW During construction:108TPA During operation: 153 TPA
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 1. E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. 1. If not the E-Flows maintain criteria for sustaining river ecosystem.	No Not applicable Not applicable

Muck Management Details:

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	An area of 20 ha has been proposed for dumping of muck at designated muck disposal sites (Private land: 20 ha)
Muck Management Plan	Muck disposal sites which shall be developed from below the ground level by providing hard engineering measures such as retaining structures, crate walls and gabions. Garland drains shall be laid all along outer periphery of the muck piles for carrying rain water. The muck shall be laid with vertical angle not exceeding 28^0 in such a manner that rock mass is properly stacked behind the wall with minimum of voids. The muck pile shall be later covered with geo-Geo-coir textile properly held to the ground by steel wire U-nails and rehabilitated by afforestation of herbs and shrubs. Geo-coir textile shall also be provided on surface of muck piles where top surface is to be vegetated. Detailed Muck Management Plan shall be prepared along with other EMP

Monitoring mechanism for Muck Disposal	The project authorities shall erect a barrier to regulate the traffic flow to and fro the muck piles site. Entry of all vehicles passing the barrier and the information regarding quantities of muck being transported shall be properly arrayed in a register in a transparent manner and shall be liable to be made public by the project authorities as and when required. Proper e-challan shall be issued.

Land Area Breakup:

Private land	26.5 ha
Government land/Forest Land	Govt. land:0.00 ha/Forest land: 70.60 ha
Submergence area/Reservoir area	50.30 ha
Land required for project components	12.90 ha (surface:4.40ha; underground 8.50ha)
Additional information (if any)	Project & Labour Colony:4.30 ha Roads;7.50ha; Workshop/Crusher/B. Plant etc.: 2.10ha Muck disposal: 20 ha Besides this the extent of land involved for Right of Way (RoW) for transmission line and raw water pipeline has been estimated approximately about 171 ha and 10 ha respectively, which shall be firmed up during DPR stage

Presence of Environmentally Sensitive areas in the study area

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

Court case details:

Court Case	None
Additional information (if any)	None

Affidavit/Undertaking details:

Affidavit/Undertaking	Annexure-IV of Agenda of meeting
Additional information (if any)	None

Previous EC compliance and necessary approvals:

Particulars	Letter no. and date
Certified EC compliance report (if applicable)	Not applicable.
Status of Stage- I FC	Not, yet.
Additional detail (If any)	Application for diversion of forest land is yet to be moved.
Is FRA (2006) done for FC-I	Not, yet

Miscellaneous

Particulars	Details
Project Benefits	The project would generate designed energy of 2497 MU during peaking hours.
Status of other statutory clearances	The mandatory statutory clearance like approval of power potential studies from CEA, site specific earthquake design parameters to be approved by NCSDP, Geological report approval from GSI, DPR approval from CWC and CEA; Forest clearance for diversion of forest land, are yet to be sought.
R&R details	No R&R issues are involved.
Additional detail (If any)	None

3.3.3. Deliberations by the EAC in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

45.3.3: The EAC during deliberations noted the following:-

The proposal is for grant of Terms of Reference (ToR) to the project for Sirohi Off-Stream Closed Loop Pumped Storage project of capacity 1200 MW in an area of 97.1 Ha located at Village Nivaj, Tehsil Reodar, District Sirohi (Rajasthan) by M/s JSW Energy PSP One 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, as amended and requires appraisal at Central level by the sectoral EAC in the Ministry.

3.3.5. Recommendation of EAC

Recommended

3.3.6. Details of Terms of Reference

3.3.6.1. Specific

Environmental Management and Biodiversity Conservation	
1.	i.Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs/ river of catchment area / due to tapping of water for filling reservoir. ii.Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons. iii.A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared. iv.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. v.Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir. vi.Source of construction material and its distance from the project site along with detailed transportation plan for construction material be submitted. vii.A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report. viii.Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located outside the Eco Sensitive Zone (ESZ) and no Wildlife Sanctuary falls within 10 km of Project site. ix.A detailed wildlife conservation plan for Schedule-I species be prepared duly approved by the Chief Wild Life Warden be submitted. x.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. xi.Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP. xii.Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report. xiii.MoU for water uses for the project shall be signed and approved by concerned authority. xiv.Environmental matrix during construction and operational phase needs to be submitted. xv.Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report. xvi.Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State. xvii.Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component. xviii.Project impact on avi-fauna shall be studied and incorporated in EIA/ EMP report. xix.Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied. xx.Stage-I Forest Clearance shall be obtained. xxi.Study of impacts of project on water sources. xxii.A brief report on River survival study shall be submitted.
Miscellaneous.	
1.	i.Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC I CEA shall be submitted. ii.Undertaking need to submitted on affidavit that regarding no activities has been yet on the project site and water allocated to this scheme shall not be diverted to other purpose. iii.Both capital and recurring expenditure under EMP shall be submitted. iv.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. v.Arial view video of project site shall be recorded and to be submitted. vi.Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project. vii.The complete details of pipeline including details of land shall be submitted. viii.Alternate site analysis along with site suitability shall be carried out with proper justification.

	ix.Plan for no loss of water due to seepage shall be submitted.
Muck Management/ Disaster Management	
1.	i.Details of quantity of muck generation component wise and disposal site along with transportation plan and its monitoring to be provided. ii.Details of Muck Management plan prepared along with estimated cost incorporated in EIA/ EMP report. iii.Techno-economic viability of the project must be recommended from CEA/ CWC
Socio-economic Study	
1.	i.Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project. ii.All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter. iii.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. iv.Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared. v.Details of settlement in 10 km area shall be submitted.

3.3.6.2. Standard

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

7.	Drainage pattern and map of the river catchment up to the proposed project site.
8.	Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India.
9.	Soil characteristics and map of the project area.
10.	Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
11.	Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
12.	Land details including forests, private and other land.
13.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
14.	Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study
Description of Environment and Baseline Data	
1.	To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:
2.	(i) Catchment area up to the dam/barrage site.
3.	(ii) Submergence Area.
4.	(iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.
5.	(iv) Downstream upto 10 km from the tip of the reservoir.
Details of the Methology	
1.	The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed.
Methodology for Collection of Biodiversity Data	
1.	The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).

2.	The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number.
3.	The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.
4.	The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN).
Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as follows:	
1.	null
2.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
3.	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.
4.	Landslide zone or area prone to landslide existing in the study area should be examined.
5.	Presence of important economic mineral deposit, if any.
6.	Justification for location & execution of the project in relation to structural components (dam /barrage height).

7.	Impact of project on geological environment.
8.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.
9.	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.
10.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
11.	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.
12.	(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.
13.	History of the ground water table fluctuation in the study area.
14.	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).
15.	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
16.	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.
17.	Run off, discharge, water availability for the project, sedimentation rate, etc.
18.	Basin characteristics
19.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.
20.	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.
21.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
22.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
23.	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.
24.	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.

25.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
26.	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.
27.	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.
28.	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.
29.	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.
30.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
31.	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A species wise list may be provided.
32.	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.
33.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
34.	Economically important species like medicinal plants, timber, fuel wood etc.
35.	Details of endemic species found in the project area.
36.	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.
37.	Cropping pattern and Horticultural Practices in the study area.
38.	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.
39.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
40.	Information (authenticated) on Avi-fauna and wildlife in the study area.
41.	Status of avifauna their resident/ migratory/ passage migrants etc.
42.	Documentation of butterflies, if any, found in the area.
43.	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.
44.	Existence of barriers and corridors, if any, for wild animals.
45.	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.
46.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.
47.	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.
48.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
49.	Fish and fisheries, their migration and breeding grounds.
50.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
51.	Conservation status of aquatic fauna.
52.	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.
53.	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.
54.	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.
55.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
56.	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.
57.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
58.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
59.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
60.	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.
61.	Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project.
Impact Prediction and Mitigation Measures	
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
2.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.

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

28.	Impact on human health due to water / vector borne disease
29.	Impact on increase traffic
30.	Impact on Holy Places and Tourism
31.	Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.
32.	Positive and negative impacts likely to be accrued due to the project are listed.
Environmental Management Plan	
1.	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.
2.	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.
3.	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.
4.	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.
5.	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.
6.	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.
7.	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.
8.	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.
9.	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.
10.	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.
11.	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.
12.	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.
13.	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.
14.	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.
15.	Labour Management Plan for their Health and Safety.
16.	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.
17.	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.
18.	Environmental safeguards during construction activities including Road Construction.
19.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
20.	Water, Air and Noise Management Plans to be implemented during construction and post-construction periods.

4. Any Other Item(s)

N/A

5. List of Attendees

Sr. No.	Name	Designation	Email ID	Remarks
1	Dr K Gopakumar	Chairman, EC	kgopa@iisc.ac.in	
2	Dr N Lakshman	Member (EAC)	lnand@rocketmail.com	Absent
3	Dr Mukesh Sharma	Member (EAC)	mukesh@iitk.ac.in	
4	Dr B K Panigrahi	Member (EAC)	bijayaketan.panigrahi@gmail.com	Absent
5	Dr Chandrahas Deshpande	Member (EAC)	chandrahas.despande@welingkar.org	Absent
6	Dr A K Malhotra	Member (EAC)	ajitkumarmalhotra463@gmail.com	
7	Dr Uday Kumar R Y	Member (EAC)	udaykumarry@yahoo.com	
8	Dr Narayan Shenoy K	Member (EAC)	kn.shenoy@manipal.edu	Absent
9	Shri Sharvan Kumar	Member (EAC)	Dirhpa3@gmail.com	Absent
10	Shri Ashok Kumar Kharya	Member (EAC)	ceenvtmgmt@nic.in	
11	Dr J A Johnson	Member (EAC)	jaj@wii.gov.in	
12	Dr B K Das	Member (EAC)	amiya.sahoo@icar.gov.in	
13	Dr Vijay Kumar	Member (EAC)	vijay.kumar66@nic.in	Absent
14	Dr Yogendra Pal Singh	Scientist E	yogendra78@nic.in	

MINUTES OF THE 45TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 26TH APRIL, 2023 FROM 10.30 AM – 02:30 PM THROUGH VIRTUAL MODE.

The 45th meeting of the re-constituted 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 26th April, 2023 through virtual mode, under the Chairmanship of Dr. K. Gopakumar. The list of Members present in the meeting is at **Annexure**.

Agenda item No.45.1

Confirmation of the minutes of 44th EAC meeting held on 27th - 28th March, 2023.

Agenda item No. 45.2

Kurha Vadhoda Islampur Lift Irrigation Scheme of Culturable Command Area (CCA) of 32372 Ha at Village Rigaon, Tehsil Muktainagar District Jalgaon (Maharashtra) by M/s Tapi Irrigation Development Corporation, Jalgaon, Maharashtra - Environmental Clearance (EC) - reg.

[Proposal No. IA/MH/RIV/423561/2023; F. No. J-12011/05/2021-IA.I (R)]

45.2.1: The proposal is for grant of Environmental Clearance (EC) to the proposed construction of Kurha Vadhoda Islampur Lift Irrigation Scheme of Culturable Command Area (CCA) of 32372 ha. at Village Rigaon, Tehsil Muktainagar District Jalgaon (Maharashtra) by M/s Tapi Irrigation Development Corporation, Jalgaon, Maharashtra.

45.2.2: The Project Proponent and the Consultant M/s Mantec Consultants Pvt. Ltd, made a detailed presentation on the salient features of the project and informed that:

(i) Kurha Vadhoda Islampur lift Irrigation Scheme is in jurisdiction of Tapi Irrigation Development Corporation, Jalgaon. The project is located near Village Rigaon, Taluka Muktainagar, District Jalgaon.

(ii) The scheme envisages lifting of flood water in rainy season from Purna river by constructing Intake channel, Intake structure, Jack well overhead Pump house near village Rigaon Taluka Muktainagar, District- Jalgaon and a dam near village Islampur for a length of 6845m.

(iii) The proposal for grant of ToR was considered and recommended by the EAC in its meeting held on 25th, 31st and 32nd EAC meetings held on 14th March, 2022, 29th July, 2022 and 12th August, 2022 respectively. The terms of reference was granted by the Ministry vide letter dated 26th September, 2022.

(iv) The lifting point i.e. Jack well from Purna river falls in Village Rigaon, Tehsil- Muktainagar, District- Jalgaon & Dam site falls in Village-Islampur, Tehsil –Jalgaon (Jamod) & DistrictBuldhana, Maharashtra. Project Coordinates are as follows:

Lifting Point: Latitude: 20°57'30.00"N Longitude: 76°20'00"E
Dam Site at Islampur: Latitude: 21°02'14.99"N Longitude: 76°24'44.99"E

(v) The total command area under this scheme comprises for all 104 villages lies in Muktainagar Taluka of Jalgaon district and Jalgaon-Jamod & Sangrampur Talukas in Buldhana District. The Irrigable command area of Jalgaon District is 8445 ha (32%) and 17453 ha (68%) in Buldhana District, thus total command (ICA) under this scheme is 25898 Ha. Irrigation is proposed from dam by Gravity pipe line. Gross Command Area under this scheme is 40465 Ha Culturable Command Area is 32372 Ha & Irrigable Command Area is 25898 Ha. Thus, the project will benefit 25898 ha irrigable area.

Benefitted Taluka	**Benefit Area**			**Benefitted Villages**
	G.C.A	**C.C.A**	**I.C.A**	
Jalgaon District				
Muktainagar Taluka	12889	10311	8249	21
Buldhana District				
Jalgaon- Jamod Taluka	15815	12652	10122	53
Sangrampur Taluka	11761	9409	7527	30
Total	40465	32372	25898	104

(vi) Purna river is a tributary of the River Tapti (also called Tapi). The Tapi River flows in a deep bed which historically has made it difficult to use for irrigation. This project contemplates to provide irrigation facilities annually to a culturable command area of 32372 Ha thus providing immense growth in agricultural produce of the area and will improve overall economy of the local population. Since there is scope for lifting water from Purna river, the scheme Kurha Vadhoda Islampur Upsa Sinchan Yojana is planned to lift flood water, store & then utilize it.

(vii) The total storage capacity of reservoir is 77.60 Mcum, and it will benefit 25898 Ha irrigable area (8249 Ha of Muktainagar Taluka & 17649 Ha of Jalgaon-Jamod Taluka) of Jalgaon & Buldhana Districts respectively of Maharashtra state.

(viii) The existing value of the produce in the command area is Rs. 7366.14 Lakhs for 25898 Ha. After introduction of irrigation, the estimated value of produce in the command area will increase to Rs. 64787.63 Lakhs for 25898 Ha. (An increase of more than 9 times).

(ix) Catchment Area- The catchment area of Islampur Dam is saucer shaped and classified as good. The total catchment area up to dam site is 8.50 sqkm (3.32 sq miles).

(x) The details of the project is as under:

PARTICULARS	**DETAILS**
Name of Project	Kurha Vadhoda Islampur Lift Irrigation Scheme UPSA Sinchan Yojna with CCA 32372Ha at Village Rigaon, Tehsil-Muktainagar District Jalgaon, Maharashtra
Project Proponent	Tapi Irrigation Development Corporation, Sinchan Bhawan , Akash Wani Chowk, Jalgaon, Maharashtra-425001
Location of the project	Village- Rigaon, Taluk-Muktainagar, Dist. Jalgaon, Maharashtra. Dam Site at Islampur: Latitude: 21°02'14.99"N, Longitude: 76°24'44.99"E Lifting Point: Latitude: 20°57'30.00"N, Longitude: 76°20'00"E

Land Requirement and Use	The total area required for the project is 572 Ha out of which 562 Ha is private land, 7.57 Ha is Government Land and remaining 1.98 Ha is Forest land for which Forest Clearance have been obtained on 23.11.2012 vide letter no. No. 6- MHB – 030/2012 – BHO/1853.
Total Water utilization	3.564 TCM
Total Storage capacity of reservoir under the scheme	77.60 Mcum
Average Annual Rainfall	670 mm
Reserved Forest/ Protected Forest	• Machhandar Nath Mandir RF~ 2.6 kms in West from Dam site. • Raipur Reserved Forest~ 2.14kms in NW from dam site. • RF ~ 3.25kms in SE.
Seismic Zone	Zone-III (As per 1893:2002)
Category of Project	"A" (Due to presence of Maharashtra- Madhya Pradesh Interstate Boundary at 5.7kms in NNW from Dam site)
Type of Project	River Valley Projects (Schedule 1(c))

(xi) **Chronology of EC at MoEF&CC:** The proposal was earlier submitted to MoEF&CC for grant of TOR in January 2009, TOR was approved in April 2009. Draft EIA was submitted to SPCB in January, 2010 for conducting Public Hearing. The Public Hearing was held in April, 2010 and January, 2011. The Final EIA was submitted to MoEF&CC for grant of EC. EC was not granted to the project as the case was not pursued further with MoEF&CC, after submission of Final EIA.

(xii) However, it may also be noted that almost more than 50% work has been completed but no operation has been started.

(xiii) Progress of Lift Irrigation Project % wise is tabulated below:

Sr. No.	Project Components	Construction done	Construction to be done
1	Earthen Dam	60%	40%
2	HR and Spillway	0%	100%
3	Pump House No.1	95%	5%
4	Intake structure	0%	100%
5	Pump House No.2	0%	100%
6	Pump House No.3	85%	15%
7	Machinery Installation	At PH 1&2 -0%	At PH 1&2 -100%
		At PH 3-60%	At PH 3-40%
8	Rising Main	10.784 km	2.356 km
9	Electric Supply Works	85%	15%
10	Distribution Network	0%	100%

(xiv) Land requirement: The total area required for the project is 572 ha out of which 562 ha is private land and 7.57 Ha is government land and remaining 1.98 Ha is forest land for which Forest Clearance has already been obtained.

(xv) State/National boundaries: Maharashtra- Madhya Pradesh Interstate Boundary at 5.7kms in NNW from Dam site.

(xvi) Reserved Forest/Protected Forest: Machhandar Nath Mandir RF~ 2.6 kms is located in West direction from Dam site and Raipur Reserved Forest~ 2.14kms is located in NW direction from dam site and another RF ~ 3.25kms is also located in SE direction.

(xvii) Water availability: The total water utilization under this scheme is 3.564 TMC.

(xviii) Power Requirement: Electricity supply to lift water is taken from Malkapur Sub Station of Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL). 132 KV transmission line is erected from Malkapur to Bhota substation, installed at Bhota. From Bhota sub Station 33 KV transmission lines are erected for electric supply to each pump house.

(xix) Project Cost: Proposed cost for sanctioning to Water Resources Department of Government of Maharashtra is Rs. 2226.53 Crore.

(xx) The project construction has been started prior to grant of Environmental Clearance and completed almost 50% of the work therefore, PP applied the proposal for grant of EC under violation category.

(xxi) The silent features of the proposal is as under:-

Project details:

Name of the Proposal	Proposed Project for Kurha Vadodha Islampur Lift Irrigation Scheme UPSA Sinchan Yojna with CCA 32372 Ha
Proposal No.	IA/MH/RIV/423561/2023
Location (Including Coordinates)	Village- Rigaon, Taluk-Muktainagar, Dist. Jalgaon, Maharashtra. **Dam Site at Islampur :** Latitude: 21°02'14.99"N Longitude: 76°24'44.99"E **Lifting Point:** Latitude: 20°57'30.00"N Longitude: 76°20'00"E
Company's Name	Tapi Irrigation Development Corporation, Jalgaon, Govt. of Maharashtra
CIN no. of Company/user agency	--
Accredited Consultant and certificate no.	Mantec Consultants Pvt. Ltd./ NABET/EIA/2023/RA0205 (Extension letter from NABET is attached with this Annexure)
Project location (Coordinates /River/ Reservoir)	Project Coordinates: Location of Lifting Point – The Jack well overhead Pump house of the scheme is located near village Rigaon Tal. Muktainagar, Dist.- Jalgaon Latitude - 200- 57' - 30" Longitude 760- 20'- 00" Location of Islampur Dam –Islampur dam is located near village Islampur Tal. Jalgaon Jamod District – Buldhana. Latitude - 210- 02'- 15" Longitude 760- 24'- 45"
Inter- state issue involved	Yes (Only due to Presence of Inter-state Boundary at 5.7 km is NNW form Dam site between Maharashtra and Madhya Pradesh).

Proposed on River/ Reservoir	Water is to be Lifted From Purna River/to be stored in Islampur reservoir
Type of Hydro-electric project	No (Lift Irrigation Project)
Seismic zone	Zone-III

Category details:

Category of the project	A
Capacity / Cultural command area (CCA)	77.6 Mcum/ 32372 ha
Attracts the General Conditions (Yes/No)	Yes (Only due to Presence of Inter-state Boundary at 5.7 km is NNW form Dam site between Maharashtra and Madhya Pradesh).
Additional information (if any)	No

EC Details:

ToR Proposal No.	IA/MH/RIV/255427/2022,
EAC meeting date	14 March, 29 July, 12 Aug 2022
ToR Letter No.	F. No. J-12011/05/2021-IA.I (R)
ToR grant Date	26th Sept. 2022
Cost of project	Rs. 222653.21 Lakhs
Total area of Project	572 ha
Height of Dam from River Bed (EL)	42.4 mtr.
Details of submergence area	419 ha
District to provide irrigation facility (if applicable)	Yes, (Jalgaon and Buldhana Districts)
Details of tunnels on upper level & lower level and length of canal (if applicable)	Not applicable
No. of affected Village.	Islampur, Hashampur, Navkhurd, Gorada
No. of Affected Families	Not Applicable
Project Benefits	The drought prone area will get immensely benefitted due to availability of water for irrigation. The project will benefit 25898 ha irrigable area out of which 8249 ha of Muktainagar Taluka, (Jalgaon District) & 17649 ha is of Jalgaon –Jamod & Sangrampur Taluka of Buldhana District. The assured irrigation would lead to increase in agriculture productivity in grains as well as cash crops and thus boost economic prosperity of the region. The existing value of the produce in the command area is Rs. 7366.14 Lakhs for 25898 Ha. After introduction of irrigation, the estimated value of produce in the command area will increase to Rs. 64787.63 Lakhs for 25898 Ha. (An increase of more than 9 times). Thus there will be immense financial benefits accruing to the population. This increase in agricultural production will also boost the industrial activity especially agro based process industries. These will in turn provide employment opportunities to the locals and benefit the people socially as

	well as financially. The employment generation potential of the project is approx. 83.84 Lakhs man-days.
R&R details	Not Applicable
Catchment area/ Command area	8.5 sq km/ 25898 ha
Types of Waste and quantity of generation during construction/Operation	Muck 4065022 cum
Material used for blasting and its composition as per DGMS standards.	Not applicable
E-Flows for the Project	Not applicable
Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in which project located. If yes then E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin. If not the E-Flows maintain criteria for sustaining river ecosystem.	No
Details on provision of fish pass	Not applicable
Project benefit including employment details (no of employee)	The total number of unskilled labors in the remaining work will be 1180.
Area of Compensatory Afforestation (CA) with tentative no of plantation.	CA' Shall be taken by forest Department over 1.98 ha from forest land.
Previous EC details	NA
EC Compliance Report by R.O, MOEF&CC	**NA**

Electricity generation capacity:

Powerhouse Installed Capacity	No generation of electricity
Generation of Electricity Annually	NA
No. of Units	NA

Muck Management Details:

No. of proposed disposal area/ (type of land- Forest/Pvt land)	5 Nos. of 0.5-4.0 ha area range/ Submergence /Private Land
Cross section of proposed muck area, Height of muck with slope.	Area Approximately 2.25 ha - Approx. Height 2.5 m/ slope1:1.5
Distance of muck disposal area(location), from muck generation sources (project area)/River, HFL of proposed muck disposal area.	Location: Islampur village Site: Submergence Distance approx. 0.8 Km
Total Muck Disposal Area	2.25 Ha
Estimate Muck to be generated	688811 cum
Transportation	By Truck/Tipper
Monitoring mechanism for Muck Disposal Transportation	Monitoring for spillage of muck during transportation.

Land Area Breakup:

Private land	562.45 ha

Government land/Forest Land	7.57 ha/ 1.98 ha
Submergence area/Reservoir area	419 ha/ 87.0 ha
Land required for project components	572.00 ha

Presence of Environmentally Sensitive areas in the study area

ForestLand/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter/Remarks
Reserve Forest/Protected Forest Land	Yes/NO	Forest Clearance is attached for laying underground pipe line and erection 33 KV sub-station.
National Park	No	
Wildlife Sanctuary	No	
Archaeological sites monuments/historical temples etc	No	
Additional information (if any)	-	

Availability of Schedule-I species in study area Yes-

Public Hearing (PH) Details

Advertisement for PH with date	Exempted (The proposal was earlier submitted to MoEF&CC for grant of TOR in January 2009, TOR was approved in April 2009. Draft EIA was submitted to SPCB in January, 2010 for conducting Public Hearing. The Public Hearing was held in April, 2010 and January, 2011. The Final EIA was submitted to MoEF&CC for grant of EC. EC was not granted to the project as the case was not pursued further with MoEF&CC, after submission of Final EIA)
Date of PH	
Venue	
Chaired by	
Main issues raised during PH	
No. of people attended	

Brief of base line Environment:

Particulars	Details
Period of baseline data collection/Sampling period.	Pre Monsoon- March 2022-May 2022, Monsoon, - June 2022 to September 2022 Winter – December-2020 to February, 2021
(Air, noise, water, land)	Air, Noise, Soil and Water (Surface & Ground water) Lab Reports Attached
flora and fauna of the project area,	Detailed in the EIA/EMP report
aquatic ecology, etc.	Detailed in the EIA/EMP report
Brief description on hydrology and water assessment as per the approved Pre-DPR:	Detailed in the EIA/EMP report
Additional detail (If any)	----

Court case details:

Court Case	Not Applicable
Additional information (if any)	

Status of other statutory clearances

Particulars	Letter no. and date
Status of Stage- I FC	Stage – II Clearance is attached
Approval of Central Water Commission	In-Principle approval is Attached
Approval of Central Electricity Authority	Not Applicable as it is not a electricity project
Additional detail (If any)	

Details of the EMP

Description	Capital Cost INR Lakh	Working Costs INR Lakh	Total Costs INR Lakh
Catchment Area Treatment Plan	376800	-	376800
Greenbelt Development Plan	21476587	-	21476587
Biodiversity Conservation and Wildlife Management Plan	2000000	-	2000000
Muck Disposal Plan	-	-	-
Energy Conservation Measures	2000000	-	2000000
Restoration and landscaping of working Areas	1000000		1000000
Sanitation and Solid Waste Management Plan	450000		450000
Water and Air Quality & Noise Management Plan	550000		550000
Compensatory afforestation Plan	-	-	-
Disaster Management Plan	1000000		1000000
Community Augmentation	3000000		3000000
Total EMP Budget	31853387		31853387

45.2.3: **The EAC during deliberations noted the following:**

The proposal is for grant of Environmental Clearance (EC) to the project for Kurha Vadhoda Islampur Lift Irrigation Scheme of Culturable Command Area (CCA) of 32372 Ha at Village Rigaon, Tehsil Muktainagar District Jalgaon (Maharashtra) by M/s Tapi Irrigation Development Corporation, Jalgaon, Maharashtra.

The project/activity is covered under category 'B' of item 1 (c) 'River Valley projects' of the Schedule to the Environmental Impact Assessment Notification, 2006, as amended, however, due to

applicability of general condition i.e. Inter-state boundaries (5.7 km), the proposal appraised at Central level by the sectoral EAC in the Ministry as category A.

The scheme envisages lifting of flood water in rainy season from Purna river by constructing Intake channel, Intake structure, Jack well overhead Pump house near village Rigaon Taluka Muktainagar, District- Jalgaon and a dam near village Islampur for a length of 6845m.

The total command area under this scheme comprises for all 104 villages lies in Muktainagar Taluka of Jalgaon district and Jalgaon-Jamod & Sangrampur Talukas in Buldhana District. The Irrigable command area of Jalgaon District is 8445 ha (32%) and 17453 ha (68%) in Buldhana District, thus total command (ICA) under this scheme is 25898 Ha. Irrigation is proposed from dam by Gravity pipe line. Gross Command Area under this scheme is 40465 Ha Culturable Command Area is 32372 Ha & Irrigable Command Area is 25898 Ha.

The project proponent has informed that the proposal was earlier submitted to MoEF&CC for grant of ToR in January 2009, TOR was approved in April 2009. Draft EIA was submitted to SPCB in January, 2010 for conducting Public Hearing. The Public Hearing was held in 16th April, 2010 and 12th January, 2011. The Final EIA was submitted to MoEF&CC for grant of EC. EC was not granted to the project as the case was not pursued further with MoEF&CC, after submission of Final EIA.

Thereafter, the project proponent submittted proposal for ToR afresh under 'violation category' and the Ministry granted ToR vide letter dated 26.09.2022. The Ministry has granted ToR to the project with public consultation (without public hearing) for conducting EIA study and given additional/specific ToR that Public Consultation shall be carried out as per the provision contained in EIA Notification, 2006. In which public notice shall be issued through State Pollution Control Board and issues raised shall be addressed with allocation of fund and within certain timeline and shall be submitted during EIA/EMP submissions and appraisal. However, in the public consultation process, the public notice has not been issued by the State Pollution Control Board. The consultant M/s Mantec Consultants Pvt. Ltd has informed that they have carried out the public consultation process by themselves through interaction with local people. The project proponent then presented the complete public consultation carried out in the project area along with the minutes of earlier Public hearing to the EAC members and submitted tabular chart of issues raised and compliance of the same with statement on the commitments (activity-wise) made during public hearing. The EAC also suggested to incorporate the same in the Final EIA report and submit request to the Ministry to for uploading on PARIVESH portal.

It was also observed that the project proponent has not submitted the Wildlife Conservation Plan for Schedule-I species reported in the study area to state forest and wildlife department for approval.

The committee deliberated on ecological damage assessment report and observed that it needs revision with respect to procedure followed and restoration cost calculation in various components viz. remediation plan, Cost of natural resource augmentation plan and Cost of Community Resources Augmentation in terms of Ministry's OM dated 7.07.2021 for Standard Operating Procedure (SoP) for Identification and handling of violation cases under EIA Notification 2006.

The Committee also observed certain shortfalls in information provided in the EIA/ EMP report prepared by the consultant specially in the TOR compliance. The EAC showed displeasure about the performance of the consultant and suggested the Ministry to take appropriate action against the consultant and report to NABET to review their accreditation.

The EAC was of the opinion that the present project is being constructed in drought prone area of Jalgaon District of Maharashtra and is of emmence importance of local public, and to scrutinize the

EIA/EMP report along with the ecological damage assessment report. The summary of amounts mode of spending each, as calculated by the EAC, is presented below,

Table 1 COST SUMMARY

Sl. No.	Description	Estimated cost (Rs. Crores)
1	Remediation Plan	2.50
2	Natural Resources Augmentation Plan	2.00
3	Community Resources Augmentation Plan	1.54
Total Damage Amount to be given under bank guarantee		**6.04**
4	**Penalty as per OM dated 07/07/2021 to be paid to State Pollution Control Board**	**3.45**
5	**0.5% Contribution from Capital Cost (Rs.690 Crores) against Commitment via affidavit as per OM dated 30/09/2020**	**3.45**

45.2.4: The EAC after detailed deliberation on the information submitted and as presented during the meeting ***recommended*** for grant of Environmental Clearance (EC) for Kurha Vadhoda Islampur Lift Irrigation Scheme of Culturable Command Area (CCA) of 32372 Ha at Village Rigaon, Tehsil Muktainagar District Jalgaon (Maharashtra) by M/s Tapi Irrigation Development Corporation, Jalgaon, Maharashtra under the provisions of EIA Notification, 2006, as amended subject to compliance of applicable standard EC conditions along with the following specific environmental safeguard measures:

[A] Environmental Management and Biodiversity Conservation:

1. EAC recommended for an amount of Rs 6.04 crore towards Remediation plan, Natural Resources Augmentation Plan and Community Resources Augmentation Plan to be spent within a span of three years. The details are given below:

I Cost of Remediation Plan

S.No.	Environment Component	Activity Description	LOCATION	UNIT COST	QUANTITY	Total Budgetary Provision in Rs. In Crores			
				Rupees	Nos	1st Year	2nd Year	3rd Year	Total
1.	Air & Noise Environment	1. Avenue plantation of 3000 Nos each in nearby villages and areas between project and habitation with 3	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana. 2. Village Gorada Tal-Jalgaon Jamod Dist-Buldhana.	1000	15000	0.50	0.50	0.50	1.50

		years maintenance	3. Village Rigaon, Tal-Muktainagar Dist-Jalgaon. 4. Village Sule, Tal-Muktainagar Dist-Jalgaon. 5. Village Bhota, Tal-muktainagar Dist-Jalgaon.						
2	Water Environment	1. Construction of 5 Nos Rainwater harvesting structures / ponds of adequate capacity in common locations in each village with 3 years maintenance	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana 2. Village Rigaon, Tal-Muktainagar Dist-Jalgaon. 3. Village Sule, Tal-Muktainagar Dist-Jalgaon. 4. Village Bhota, Tal-muktainagar Dist-Jalgaon. 5. Village Hashampur, Tal-Jalgaon Jamod Dist-Buldhana.	500000	10				0.50
		2. Supply and installation of 2 Nos drinking water purifiers (RO Systems) of capacity up to 1000 LPH for common use each in nearby village with 3 years maintenan		500000	10				0.50

		ce included.							
SUB-TOTAL (A)									2.50

2. Cost of Natural Resource Augmentation Plan

S. No	Environment Component	Activity Description	LOCATION	UNIT COST	QUANTITY	Total Budgetary Provision in Rs. In Crores			
				Rupees	Nos	1st Year	2nd Year	3rd Year	Total
1	Land Environment	Reclamation of dump sites and conversion into community nursery sapling growing centre and issue of seeds and fertilizers for farmers located within 5 KM of project construction sites: The supply of seeds, saplings and fertilizers will be done for 3 years under first cum first issue.	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana 2. Village Rigaon, Tal-Muktainagar Dist-Jalgaon. 3. Village Sule, Tal-Muktainagar Dist-Jalgaon. 4. Village Bhota, Tal-muktainagar Dist-Jalgaon. 5. Village Hashampur, Tal-Jalgaon Jamod Dist-Buldhana. 6. Village Gorada Tal-Jalgaon Jamod Dist-Buldhana.	2500000 Each Location	6				1.50

2	Energy Conservation	Supply, installation, and 3 maintenance of Solar Street lights 10 Nos each in nearby villages 100 Nos each in areas abating 6 Nos reservoirs	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana. 2. Village Rigaon, Tal-Muktainagar Dist-Jalgaon. 3. Village Sule, Tal-Muktainagar Dist-Jalgaon. 4. Village Bhota, Tal-muktainagar Dist-Jalgaon. 5. Village Gorada Tal-Jalgaon Jamod Dist-Buldhana.	100000	50				0.50
SUB-TOTAL (B)									2.00

II. **Cost of Community Resources Augmentation**

Activity	**Financial provision, Rs. Lakhs**	**2019-20**	**2020-21**	**2021-22**	**Total**
Medical camps in the surrounding villages, Deosugur, Chicksugur, Yedlapur, Wadloor, Hegsanhalli, Yermaras, etc.in consultation with District Health Authorities & distribution of medicines to the needy patients	**3**	1	1	1	3
Providing scholarships for needy students in Govt. schools in surrounding villages of Deosugur,Hegsanhalli, Chicksugur, Wadloor, Yadav Nagar, MPCL Colony , Hegsanhalli.	**5**	1.5	1.5	2	5
TOTAL	**8**	**2.5**	**2.5**	**3**	**8**

III. Community Development Augmentation Plan:

S.No	Socio-Economic Component	Activity Description	LOCATION	UNIT COST	QUANTITY	Total Budgetary Provision in Rs. In Crores			
				Rupees	Nos	1st Year	2nd Year	3rd Year	Total
1	Socio-Economic Welfare	Construction of Bus shelters and public toilets 2 Nos units each in villages / towns nearby project area	1. Village Islampur, Tal-Jalgaon Jamod Dist-Buldhana 2. Village Vadhoda, Tal-muktainagar Dist-Jalgaon.	2000000 Each Location	2				0.40
3		Supply, installation, and 3 years maintenances of medical equipment's like X ray machine, Vitals monitors, Stretchers, Wheelchair and Furniture; each 1 set in nearby village Government primary health centers / hospital of project area	1. Village kurha, Tal-Muktainagar Dist-Jalgaon	LS	1 Lot				0.64
4		Supply of computers, AV devise, projectors for upgradation to smart classroom teaching and learning for	1. Village kurha, Tal-Muktainagar Dist-Jalgaon 2. Village Vadhoda, Tal-Muktainagar Dist-Jalgaon. 3. Village Pimpalgao	1000000	5 lot				0.50

		both teachers and students by inculcating audio, video, animations, multimedia, etc with power backup, each as one lot to Governmen t schools, ITI & Colleges in nearby villages to project area	n Tal-Jalgaon Jamod Dist-Buldhana. 4. Village Asalgaon Tal-Jalgaon Jamod Dist-Jalgaon. 5. Village Sulaj Tal-Jalgaon Jamod Dist-Buldhana.						
SUB-TOTAL (C)									1.54
TOTAL (A+B+C)									

Total Budgetary Provisions:

Sl. No.	Description	Estimated cost (Rs. Crores)
1	Remediation Plan	2.50
2	Natural Resources Augmentation Plan	2.00
3	Community Resources Augmentation Plan	1.54
Total Damage Amount to be given under bank guarantee		**6.04**
4	**Penalty as per OM dated 07/07/2021 to be paid to State Pollution Control Board**	**3.45**
5	**0.5% Contribution from Capital Cost (Rs.690 Crores) against Commitment via affidavit as per OM dated 30/09/2020**	**3.45**

3. Total budgetary provision with respect to Remediation plan, Natural Resources Augmentation Plan and Community Resources Augmentation Plan is Rs. 6.04 crore. Therefore, Project Proponent shall be required to submit a bank guarantee of an amount of Rs. 6.04 crore towards Remediation plan, Natural Resources Augmentation Plan and Community Resources Augmentation Plan with the SPCB prior to the grant of EC.
4. Remediation plan shall be completed in 3 years whereas bank guarantee shall be for 5 years. The bank guarantee shall be released after successful implementation of the EMP, followed by recommendations of the EAC and approval of the regulatory authority.
5. The project proponent shall submit Rs. 3.45 crore as penalty as per Ministry's SOP vide OM dated 7.07.2021 under Polluters Pay Principle to the State Pollution Control Board. The said amount will be utilized as under:-

S. No.	Activity	LOCATIONS	RATE	TOTAL QTY.	TOTAL COST (RS. In Crores)	YEAR I	YEAR II	YEAR III
1.	Construction/Renovation of School Buildings and Toilets and Solid Waste Management (Provision for Waste Bins for villages) installation of bins	Rasalpur and Dhanora, Tal-Jalgaon Jamod Dist-Buldhana Chinchkheda kh. Tal-Muktainagar Dist-Jalgaon	L.S.	20 % of total Budget	0.69	0.30	0.29	0.10
2.	Health Care – Organisation of Health Check up Camps and augmentation Health Care infrastructure in PHCs/PHSC with Equipments like Ultrasound, Lab Equipments, Furniture etc	Vadhoda, kurha, Tal-Muktainagar Dist-Jalgaon. Palshi-supe and pimpalgaon Tal-Jalgaon Jamod Dist-Buldhana	L.S.	20 % of total Budget	0.69	0.30	0.195	0.195
3.	Skill Development and Training – in trades like Masonry, carpentry, Poultry, Computer operator, Food Processing, Garment sewing etc	Kurha Tal-Muktainagar Dist-Jalgaon And Asalgaon Tal-Jalgaon Jamod Dist-Buldhana	L.S.	10 % of total Budget	0.345	0.115	0.115	0.115
4.	Agriculture and Animal Husbandry – Introduction of High yielding varieties of crops, and animals, Soil conservation measures, Development of Agro forestry	Kurha Tal-Muktainagar Dist-Jalgaon And Dhanora Tal-Jalgaon Jamod Dist-Buldhana	L.S.	10 % of total Budget	0.345	0.115	0.115	0.115
5.	Livelihood Enhancement for Economic self reliance – Dairy, agro-based Food processing Units	Kurha Tal-Muktainagar Dist-Jalgaon	L.S.	20 % of Total Budget	0.69	0.30	0.29	0.10
6.	Providing Solar Street Lights, Small Roof Top Solar facilities at house level	Vadhoda and chinchkheda Tal-Muktainagar Dist-Jalgaon. Dhanora Tal-	L.S.	10 % of Total Budget	0.345	0.1725	0.086	0.086

		Jalgaon Jamod Dist-Buldhana						
7.	Scholarship Programme and Continuing Education support to Dropouts	-	L.S.	10 % of Total Budget	0.345	0.115	0.115	0.115
Grand Total (A+B)-InRs					**3.45**	1.417	1.206	0.826

6. Extensive plantation of native perennial trees shall be done along the purna river for developing tree layer of 500 meter width in 10 KM stretch of the river down-stream and upstream. Time bound action plan in this regard shall be prepared and implemented in association with State Forest Department and local panchayats.
7. Environment Management Cell shall be created in the project consisting environmental officers having post graduate degree in environmental sciences/Environmental Engineering to monitor implementation of Environment Management Plan in the project. The head of the Environment Cell shall report directly to the head of the project.
8. Wildlife conservation plan shall be implemented after due approval of the State PCCF/CWLW. Biodiversity Management Committee (BMC) shall be constituted for Monitoring and Evaluation of Biodiversity Conservation and Wildlife Conservation Plan as approved by the PCCF/CWLW.
9. EMP Budget shall be revised after proper estimation as per quantity of items required for implementation of EMP.

[B] Disaster Management

10. Necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and subsequent amendments thereof.

[C] Socio economic

11. The existing Hospital being managed by the project authorities shall be upgraded to multispecialty hospital with 50 beds facilities with Male and Female doctors.
12. Construction of concrete roads in project affected villages as proposed be maintained throughout project life.
13. The budget for plantation and other EMP activities should be revised as per existing rate.
14. R.O drinking water facilities be provided to villagers @ 10 households/Tap water.
15. Under CER activities, preference should be given to strengthen the basic amenities in the project affected villages like maintaining drinking water supply, providing health care facilities, etc.
16. Preference to be given to the local villagers as per the requirements and suitability, in the job/ other opportunities in the project, etc. Measures to be taken to develop skills of the local villagers particularly with respect to the trades related to construction works such as electrician, welder, fitter, etc.

Agenda item No. 45.3

Sirohi Off-Stream Closed Loop Pumped Storage project of capacity 1200 MW located at Village Nivaj, Tehsil Reodar, District Sirohi (Rajasthan) by M/s JSW Energy PSP One Limited - Terms of Reference (ToR) - reg.

[Proposal No. IA/RJ/RIV/423815/2023; F. No. J-12011/20/2023-IA.I(R)]

45.3.1: The proposal is for grant of terms of reference (ToR) to the project for Sirohi Off-Stream Closed Loop Pumped Storage project of capacity 1200 MW in an area of 97.1 Ha located at Village Nivaj, Tehsil Reodar, District Sirohi (Rajasthan) by M/s JSW Energy PSP One Limited.

45.3.2: The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

i. Sirohi Pumped Storage Project, an off stream closed loop pumped storage project, is a self-identified project by the JSW Neo Energy Ltd. The project is proposed in Reodar Tehsil, Sirohi District of Rajasthan with an installed capacity of 1200 MW shall be used as energy storage scheme for the renewable energy projects implemented / being implemented in Rajasthan and Northern region. The project envisages utilization of gross head of about 499 m available between proposed upper and lower reservoirs. The scheme of operation considered for the project is daily regulation to meet the demand of about 6.0 hours of peak power daily. Off-peak pumping hours are considered as 6.85 hours daily.

ii. The upper dam is proposed on a table top hill at geographical longitude of 72° 27' 52.1" E and latitude of 24° 41' 54.8" N and falls within the administrative boundary of Nimbaj & Jeerawal villages in Reodar Tehsil of Sirohi District. The lower dam is located across the minor rivulet draining into Sili nallah at geographical longitude of 72° 28' 51.5" E and latitude of 24° 41' 57.1" N and falls within the administrative boundary of Harni Amarpura village in Reodar Tehsil of Sirohi District.

iii. Project contemplates construction of gravity concrete upper dam of maximum height 67m and crest length of 1120 m for upper reservoir for creating gross storage capacity of 6.09 MCM at FRL El.888m. The water conductor system off taking from horizontal pit type upper intake shall be fully underground and comprise of 1005 m long 8.5m diameter circular steel lined pressure shaft Underground powerhouse shall be located in a cavern 155 m (L) x 20 m (B) x 54.5m (H).

iv. The total land required for the project components and related works has been estimated to be about 97.1 ha, which include 26.5ha private land and 70.6 ha of forest land that need to be considered for diversion. Besides this the extent of land involved for Right of Way (RoW) for transmission line and raw water pipeline has been estimated approximately about 171 ha and 10 ha respectively, which shall be firmed up during DPR stage.

v. No archaeological monument of national importance lies either in the project area or in its submergence area. Neither any National Park nor any Wildlife Sanctuary exists within 10 km of project boundary. The PSP project is a hydro-electric project where reservoir operation is based on recycling of water once stored in the reservoirs. Thus, it does not attract condition of uninterrupted environmental flows.

vi. **Salient Features of the project is as under:-**

Project details:

Name of the Proposal	Sirohi PSP (1200MW), Tehsil Reodar District Sirohi, Rajasthan. Proposal No.: IA/RJ/RIV/423815/2023; File No. J-12011/20/2023-IA. I(R)

Location (Including coordinates)	Upper Reservoir: It is proposed to be located on a table top hill at geographical longitude of 72° 27' 52.1" E and latitude of 24° 41' 54.8" N and falls within the administrative boundary of Nimbaj & Jeerawal villages in Reodar Tehsil of Sirohi District. Rajasthan. Lower Reservoir: It is proposed to be located across the minor rivulet draining into Sili nallah at geographical longitude of 72° 28' 51.5" E and latitude of 24° 41' 57.1" N and falls within the administrative boundary of Harni Amarpura village in Reodar Tehsil of Sirohi District, Rajasthan.
Inter- state issue involved	No
Seismic zone	Zone -III (Moderate Damage Risk Zone).

Category details:

Category of the project	A
Provisions	Project activity covered at S.N.1(c)(i) Hydro Projects (PSP)
Capacity / Cultural command area (CCA)	1200 MW/7200 MWH pumped storage component with 6.0 hours storage capacity for peak power generation. Power required for 6.85 hours pumping operation for backfilling of upper reservoir of PSP shall be about 1320 MW.
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	None

Electricity generation capacity:

Powerhouse Installed Capacity	1200 MW
Generation of Electricity Annually	2497 MU
No. of Units	4X300MW
Additional information (if any)	With design discharge of 69.4 cumec and rated net head of 492m with four vertical reversible pump turbines each of 300 MW capacity it will have installed capacity of 1200 MW and at 95% plant availability an annual energy generation of 2497MU. For back filling of upper reservoir for 6.85 hours pumping duration with four pumps of 330 MW capacity each and pumping discharge of 60.8 cumecs, the annual pumping energy after accounting for outages per year shall be 3134 MU. The maximum pumping power required for operation of PSP is estimated to be about 1320 MW. The cycle efficiency of the PSP works out to be about 79.70%. The water requirement of 7MCM for initial filling is proposed to be met by constructing a weir / anicut

	across West Banas River near Wasda village, Abu Road Tehsil of Sirohi district in Rajasthan and double stage pumping of water into the lower reservoir during monsoon season over a period of 2 seasons / years.

ToR Details:

Cost of project	INR 4945 Crores.
Total area of Project	97.10 ha
Height of Dam from River Bed (EL)	Upper Dam: 67 m(H);1120 m (L) Saddle Dam: 21 m(H);150m (L) Lower Dam: 70 m(H);280m (L)
Length of Tunnel/Channel	One, 8.5m diameter, 1005 m (L) steel lined pressure shaft Underground Power House (Cavern size 155 m (L) x 20 m (B) x 54.5m (H). 375m long,8.5m diameter Horse-shoe shaped tailrace tunnel
Details of Submergence area	Upper Reservoir 22.40 ha Lower Reservoir 25.90 ha
Types of Waste and quantity of generation during construction/ Operation	MSW During construction:108TPA During operation: 153 TPA
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 Not applicable Not applicable

Muck Management Details:

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	An area of 20 ha has been proposed for dumping of muck at designated muck disposal sites (Private land: 20 ha)
Muck Management Plan	Muck disposal sites which shall be developed from below the ground level by providing hard engineering measures such as retaining structures, crate walls and gabions. Garland drains shall be laid all along outer periphery of the muck piles for carrying rain water. The muck shall be laid with vertical angle not exceeding 28^0 in such a manner that rock mass is properly stacked behind the wall with minimum of voids. The muck pile shall be later covered with geo-Geo-coir textile properly held to the ground by steel wire U-nails and

	rehabilitated by afforestation of herbs and shrubs. Geo-coir textile shall also be provided on surface of muck piles where top surface is to be vegetated. Detailed Muck Management Plan shall be prepared along with other EMP
Monitoring mechanism for Muck Disposal	The project authorities shall erect a barrier to regulate the traffic flow to and fro the muck piles site. Entry of all vehicles passing the barrier and the information regarding quantities of muck being transported shall be properly arrayed in a register in a transparent manner and shall be liable to be made public by the project authorities as and when required. Proper e-challan shall be issued.

Land Area Breakup:

Private land	26.5 ha
Government land/Forest Land	Govt. land:0.00 ha/Forest land: 70.60 ha
Submergence area/Reservoir area	50.30 ha
Land required for project components	12.90 ha (surface:4.40ha; underground 8.50ha)
Additional information (if any)	Project & Labour Colony:4.30 ha Roads;7.50ha; Workshop/Crusher/B. Plant etc.: 2.10ha Muck disposal: 20 ha Besides this the extent of land involved for Right of Way (RoW) for transmission line and raw water pipeline has been estimated approximately about 171 ha and 10 ha respectively, which shall be firmed up during DPR stage

Presence of Environmentally Sensitive areas in the study area

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

Court case details:

Court Case	None
Additional information (if any)	None

Affidavit/Undertaking details:

Affidavit/Undertaking	Annexure-IV of Agenda of meeting
Additional information (if any)	None

Previous EC compliance and necessary approvals:

Particulars	Letter no. and date
Certified EC compliance report (if applicable)	Not applicable.
Status of Stage- I FC	Not, yet.
Additional detail (If any)	Application for diversion of forest land is yet to be moved.
Is FRA (2006) done for FC-I	Not, yet

Miscellaneous

Particulars	Details
Project Benefits	The project would generate designed energy of 2497 MU during peaking hours.
Status of other statutory clearances	The mandatory statutory clearance like approval of power potential studies from CEA, site specific earthquake design parameters to be approved by NCSDP, Geological report approval from GSI, DPR approval from CWC and CEA; Forest clearance for diversion of forest land, are yet to be sought.
R&R details	No R&R issues are involved.
Additional detail (If any)	None

45.3.3: The EAC during deliberations noted the following:-

The proposal is for grant of Terms of Reference (ToR) to the project for Sirohi Off-Stream Closed Loop Pumped Storage project of capacity 1200 MW in an area of 97.1 Ha located at Village Nivaj, Tehsil Reodar, District Sirohi (Rajasthan) by M/s JSW Energy PSP One 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, as amended and requires appraisal at Central level by the sectoral EAC in the Ministry.

45.3.4 The EAC after detailed deliberation on the information submitted and as presented during the meeting ***recommended*** for grant of Standard ToR for conducting EIA study for Sirohi Off-Stream Closed Loop Pumped Storage project of capacity 1200 MW in an area of 97.1 Ha located at Village Nivaj, Tehsil Reodar, District Sirohi (Rajasthan) by M/s JSW Energy PSP One Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:-

[A] Environmental Management and Biodiversity Conservation:

i. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs/ river of catchment area / due to tapping of water for filling reservoir.
ii. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
iii. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone)

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

iv. 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.

v. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir.

vi. Source of construction material and its distance from the project site along with detailed transportation plan for construction material be submitted.

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

viii. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located outside the Eco Sensitive Zone (ESZ) and no Wildlife Sanctuary falls within 10 km of Project site.

ix. A detailed wildlife conservation plan for Schedule-I species be prepared duly approved by the Chief Wild Life Warden be submitted.

x. 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.

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

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

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

xiv. Environmental matrix during construction and operational phase needs to be submitted.

xv. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.

xvi. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.

xvii. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component.

xviii. Project impact on avi-fauna shall be studied and incorporated in EIA/ EMP report.

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

xx. Stage-I Forest Clearance shall be obtained.

xxi. Study of impacts of project on water sources.

xxii. A brief report on River survival study shall be submitted.

[B] Socio-economic Study

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

xxiv. 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.

xxv. 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.

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

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

[C] Muck Management/ Disaster Management

xxviii. Details of quantity of muck generation component wise and disposal site along with transportation plan and its monitoring to be provided.
xxix. Details of Muck Management plan prepared along with estimated cost incorporated in EIA/ EMP report.
xxx. Techno-economic viability of the project must be recommended from CEA/ CWC

[D] Miscellaneous.

xxxi. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC I CEA shall be submitted.
xxxii. Undertaking need to submitted on affidavit that regarding no activities has been yet on the project site and water allocated to this scheme shall not be diverted to other purpose.
xxxiii. Both capital and recurring expenditure under EMP shall be submitted.
xxxiv. 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.
xxxv. Arial view video of project site shall be recorded and to be submitted.
xxxvi. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.
xxxvii. The complete details of pipeline including details of land shall be submitted.
xxxviii. Alternate site analysis along with site suitability shall be carried out with proper justification.
xxxix. Plan for no loss of water due to seepage shall be submitted.

Agenda item 45.4:

Narihalla Open Loop Pumped Storage Project of capacity 300 MW at Village Doni Malai and Taranagar, Tehsil Sandur, District Ballari, (Karnataka) by M/s JSW Energy PSP Three Limited - Terms of Reference (ToR) - reg.

[Proposal No. IA/KA/RIV/423064/2023; F. No. J-12011/19/2023-IA-I (R)]

45.4.1: The proposal is for grant of Terms of Reference (ToR) for Narihalla Open Loop Pumped Storage Project of capacity 300 MW in an area of 166.9 Ha at Village Doni Malai and Taranagar, Tehsil Sandur, District Ballari, (Karnataka) by M/s JSW Energy PSP Three Limited.

43.4.2: The details of the project submitted by project proponent and ascertained from the document submitted are mentioned below:

i. Narihalla Pumped Storage Project, an off stream open loop pumped storage project, is a self-identified project by the JSW Energy PSP Three Limited. The project, having an installed capacity of 300 MW with total 1950 MWH pumped storage component with 6.5 hours storage capacity for peak power generation, is proposed in Sandur Taluka of Bellary District of Karnataka State. The project envisages utilization of gross head of about 153 m available between existing Narihalla (lower) reservoir, located across Narihalla river near Taranagar village, Sandur Taluka, and proposed upper reservoir to be located on a rocky gorge within Donimalai Hill/Forest adjacent to Narihalla reservoir on its right side.
ii. Project contemplates construction of 88m high Roller Compacted Concrete Dam with crest length of 325m and 14m high Roller Compacted Concrete Saddle Dam with crest length of

140m for upper reservoir for creating gross and live storage capacity of 9.96 MCM and 5.5 MCM respectively.

iii. The total land required for the project components and related works has been estimated to be about 166.90 ha, which includes 42.05 ha of forest land, 114.95 ha private land and 9.90 ha revenue land. No R&R issue is involved as no displacement is envisaged.

iv. No archaeological monument of national importance lies either in the project area or in its submergence area. Neither any National Park nor any Wildlife Sanctuary exists within 10 km of project boundary. The PSP project is a hydro-electric project where reservoir operation is based on recycling of water once stored in the reservoirs. Thus, it does not attract condition of uninterrupted environmental flows.

v. As per preliminary estimation the tentative cost of project is INR 1590 Crores. The levelized cost of generation of the project excluding and including pumping cost@ Rs 3.00/kWh and has been found to be Rs 5.05/kWh and Rs 9.09/kWh respectively.

vi. The silent feature of the project is as under:-

Project details:

Name of the Proposal	Narihalla PSP (300MW), Sandur Taluka District Bellary, Karnataka. Proposal No.: IA/KA/RIV/423064/2023
Location (Including coordinates)	Upper Reservoir: It is proposed to be located on a rocky gorge within Donimalai Hill/Forest adjacent to Narihalla reservoir on its right side, in Taluka Sandur, District Bellary. (15^0 06' 12.8" N ,76^0 36' 24.7" E) Lower Reservoir: Existing Narihalla reservoir, located across Narihalla river near Taranagar village, Sandur Taluka, District Bellary. ($15^0$07'25.2" N,$76^0$36'21.9'' E).
Inter- state issue involved	No
Seismic zone	Zone -II

Category details:

Category of the project	A
Provisions	Project activity covered at S.N.1(c)(i) Hydro Projects (PSP)
Capacity / Cultural command area (CCA)	300 MW/1950 MWH pumped storage component with 6.5 hours storage capacity for peak power generation. Power required for 7.74 hours pumping operation for backfilling of upper reservoir of PSP shall be about 330 MW.
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	None

Electricity generation capacity:

Powerhouse Installed Capacity	300 MW

Generation of Electricity Annually	641 MU
No. of Units	2X150MW
Additional information (if any)	The project with installed capacity of 300 MW(2x150MW) by utilizing a design discharge of 116.2 cumec with net head of 147m for 6.5-hour peaking hour daily will annually generate 641 MU at 90% plant availability. The PSP will utilize 330MW to pump 99.7 cumec from Narihalla reservoir to the upper reservoir in 7.6 hours. The annual pumping energy required shall be 839 MU. The cycle efficiency of the Narihalla PSP works out to be about 76.4%.

ToR Details:

Cost of project	INR 1590 Crores.
Total area of Project	166.90 ha
Height of Dam from River Bed (EL)	Upper Dam: 88 m(H);325m (L) Saddle Dam: 14 m(H);140m (L) Existing Lower Dam: 31 m(H);295m (L)
Length of Tunnel/Channel	One, 7.5 m diameter,180m long Horse-shoe shaped HRT Restricted orifice Surge shaft14m diameter and 75m high One, 7.0m diameter, 410m (L) steel lined pressure shaft. bifurcating in two-branches near underground powerhouse. Underground Power House (6x250MW) 460m long,7.5m diameter Horse-shoe shaped tailrace tunnel
Details of Submergence area	Upper Reservoir 29.5 ha
Types of Waste and quantity of generation during construction/ Operation	MSW During construction:71.2TPA During operation: 32.4TPA
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 c) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. d) If not the E-Flows maintain criteria for sustaining river ecosystem.	No Not applicable Not applicable

Muck Management Details:

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	An area of 100 ha has been proposed for dumping of muck at designated muck disposal sites (Private land: 100 ha)

Muck Management Plan	Muck disposal sites which shall be developed from below the ground level by providing hard engineering measures such as retaining structures, crate walls and gabions. Garland drains shall be laid all along outer periphery of the muck piles for carrying rain water. The muck shall be laid with vertical angle not exceeding 28^0 in such a manner that rock mass is properly stacked behind the wall with minimum of voids. The muck pile shall be later covered with geo-Geo-coir textile properly held to the ground by steel wire U-nails and rehabilitated by afforestation of herbs and shrubs. Geo-coir textile shall also be provided on surface of muck piles where top surface is to be vegetated. Detailed Muck Management Plan shall be prepared along with other EMP
Monitoring mechanism for Muck Disposal	The project authorities shall erect a barrier to regulate the traffic flow to and fro the muck piles site. Entry of all vehicles passing the barrier and the information regarding quantities of muck being transported shall be properly arrayed in a register in a transparent manner and shall be liable to be made public by the project authorities as and when required. Proper e-challan shall be issued.

Land Area Breakup:

Private land	114.95 ha
Government land/Forest Land	Govt. land:9.90 ha/Forest land: 42.05ha
Submergence area/Reservoir area	29.5 ha
Land required for project components	6.20 ha (surface:2ha; underground 4.2ha)
Additional information (if any)	Project & labour colony:4.30 ha Roads;4.50ha; Workshop/Crusher/B. Plant etc.: 2.20ha 100 ha for muck disposal 20.20 ha for RoW for transmission line power evacuation is also included

Presence of Environmentally Sensitive areas in the study area

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

Court case details:

Court Case	None
Additional information (if any)	None

Affidavit/Undertaking details:

Affidavit/Undertaking	Annexure-IV of Agenda of meeting
Additional information (if any)	None

Previous EC compliance and necessary approvals:

Particulars	**Letter no. and date**
Certified EC compliance report (if applicable)	Not applicable.
Status of Stage- I FC	Not, yet.
Additional detail (If any)	Application for diversion of forest land is yet to be moved.
Is FRA (2006) done for FC-I	Not, yet

Miscellaneous

Particulars	**Details**
Project Benefits	Power Company of Karnataka Limited, Govt. of Karnataka issued LOI vide letter no. PCKL/ADP/JDP/DDP5/PHSP/2021-22/8556/63 dated 29th Mar. 2023 on the basis of competitive bidding for purchase of 300 MW power for 40 years. Accordingly, project would generate and supply 641 MU energy during peaking hours to Karnataka State Govt.
Status of other statutory clearances	The mandatory statutory clearance like approval of power potential studies from CEA, site specific earthquake design parameters to be approved by NCSDP, Geological report approval from GSI, DPR approval from CWC and CEA; Forest clearance for diversion of forest land, are yet to be sought.
R&R details	No R&R issues are involved.
Additional detail (If any)	None

45.4.3: **The EAC during deliberations noted the following:**

The proposal is for grant of Terms of Reference (ToR) to the project for Narihalla Open Loop Pumped Storage Project of capacity 300 MW in an area of 166.9 Ha at Village Doni Malai and Taranagar, Tehsil Sandur, District Ballari, (Karnataka) by M/s JSW Energy PSP Three 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, as amended and requires appraisal at Central level by the sectoral EAC in the Ministry.

The project proponent was not able to provide the information of existing usage of reservoir. Also, it is unkown that whether this project will hamper the existing water demand. The committee also suggested that as the location is very much sensitive as far as ecological point of view, the committee suggested to revisit the alternate site analysis with proper justification for recommending the suitable site. Also, the EAC decided that the EAC member Dr. Uday Kumar R. Y. shall visit the site for examining the site for ecological point of view and condition of reservoir.

45.3.4 The EAC after detailed deliberation on the information submitted and as presented during the meeting ***recommended*** for grant of Standard ToR for conducting EIA study for Narihalla Open Loop Pumped Storage Project of capacity 300 MW in an area of 166.9 Ha at Village Doni Malai and Taranagar, Tehsil Sandur, District Ballari, (Karnataka) by M/s JSW Energy PSP Three Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:-

[A] Environmental Management and Biodiversity Conservation:

i. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs/ river of catchment area / due to tapping of water for filling reservoir.
ii. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
iii. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
iv. 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.
v. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir.
vi. Source of construction material and its distance from the project site along with detailed transportation plan for construction material be submitted.
vii. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.
viii. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located outside the Eco Sensitive Zone (ESZ) and no Wildlife Sanctuary falls within 10 km of Project site.
ix. A detailed wildlife conservation plan for Schedule-I species be prepared duly approved by the Chief Wild Life Warden be submitted.
x. 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.
xi. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
xii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
xiii. MoU for water uses for the project shall be signed and approved by concerned authority.
xiv. Environmental matrix during construction and operational phase needs to be submitted.
xv. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.
xvi. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.
xvii. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component.

xviii. Project impact on avi-fauna shall be studied and incorporated in EIA/ EMP report.
xix. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
xx. Stage-I Forest Clearance shall be obtained.
xxi. Study of impacts of project on water sources.
xxii. A brief report on reservoir survival study shall be submitted.
xxiii. A report of Integrated Watershed Development plan shall be submitted.
xxiv. A drone video of the site shall be submitted.

[B] Socio-economic Study

xxv. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
xxvi. 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.
xxvii. 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.
xxviii. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.
xxix. Details of settlement in 10 km area shall be submitted.

[C] Muck Management/ Disaster Management

xxx. Details of quantity of muck generation component wise and disposal site along with transportation plan and its monitoring to be provided.
xxxi. Details of Muck Management plan prepared along with estimated cost incorporated in EIA/ EMP report.
xxxii. Techno-economic viability of the project must be recommended from CEA/ CWC

[D] Miscellaneous.

xxxiii. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC I CEA shall be submitted.
xxxiv. Undertaking need to submitted on affidavit that regarding no activities has been yet on the project site and water allocated to this scheme shall not be diverted to other purpose.
xxxv. Both capital and recurring expenditure under EMP shall be submitted.
xxxvi. 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.
xxxvii. Arial view video of project site shall be recorded and to be submitted.
xxxviii. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.
xxxix. The complete details of pipeline including details of land shall be submitted.
xl. Alternate site analysis along with site suitability shall be carried out with proper justification.
xli. Plan for no loss of water due to seepage shall be submitted.

The meeting ended with vote of thanks to the Chair.

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ANNEXURE

ATTENDANCE LIST

Sr. No.	Name & Address	Role	Attendance
1.	Dr. K. Gopakumar	Chairman	P
2.	Dr. A.K. Malhotra	Member	P
3.	Dr. Uday Kumar R. Y.	Member	P
4.	Dr. Mukesh Sharma	Member	P
5.	Dr. A. K. Sahoo	Representative of CIFRI	P
6.	Dr. J. A. Johnson	Representative of WII	P
7.	Shri Ashok Kumar Kharya	Representative of CWC	P
8.	Shri Yogendra Pal Singh	Member Secretary	P

APPROVAL OF THE CHAIRMAN

From: kgopa@iisc.ac.in
To: "Yogendra Pal Singh" <yogendra78@nic.in>
Cc: "Saurabh Upadhyay" <saurabh.upadhyay85@gov.in>
Sent: Tuesday, June 6, 2023 10:33:04 AM
Subject: Re: Draft MOM of 45th & 46th EAC meeting- reg.

Dear Sir

Yes I approve this. Kindly take the others opinion also before we upload it.

With warm regards

Prof. K.Gopakumar, FIEEE, FNAE

DESE, Indian Institute of Science

Bangalore-560012, INDIA