

**MINUTES OF THE 26<sup>TH</sup> MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 8<sup>TH</sup> APRIL, 2022 FROM 10.30AM – 5:30PM THROUGH VIDEO CONFERENCE.**

The 26<sup>th</sup> 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 8<sup>th</sup> April, 2022 through video conference, under the Chairmanship of Dr. Uday Kumar R.Y. The list of Members present in the meeting is at Annexure.

**Agenda No. 26.1**

**Confirmation of the minutes of 25<sup>th</sup> EAC meeting**

The minutes of the 25<sup>th</sup> EAC (River Valley Hydroelectric Project) meeting held on 14<sup>th</sup> March, 2022 were confirmed.

**Agenda No. 26.2:**

**Brahmagavhan Lift Irrigation Scheme III undertaken (12, 500 Ha CCA) in an area of 3007.2 ha at Village Old Lakhmapur, Tehsil Gangapur, District Aurangabad, Maharashtra by M/s Godavari Marathwada Irrigation Department Corporation – Environmental Clearance (EC) – reg.**

**[Proposal No. IA/MH/RIV/263338/2020; F. No. J-12011/12/2020-IA.I]**

**26.2.1:** The proposal is for grant of Environmental Clearance (EC) to Brahmagavhan Lift Irrigation Scheme III undertaken (12, 500 Ha CCA) in an area of 3007.2 ha at Village Old Lakhmapur, Tehsil Gangapur, District Aurangabad, Maharashtra by M/s Godavari Marathwada Irrigation Department Corporation.

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

- i. The proposed project of M/s. Brahmagavhan Lift Irrigation Scheme- III [BLIS] is a major project is being undertaking by M/s Godavari Marathwada Irrigation Department Corporation [GMIDC] on Jayakwadi Reservoir in Godavari Basin for Drought prone areas.
- ii. Project proponent appointed Sd Engineering Services Pvt. Ltd. as an environmental consultant for assessing the impact of the project on various environmental parameters in the study area and to prepare EIA reports and Environment Management Plan for negating the adverse impacts of the project with NABET Accreditation No. NABET/EIA/1922/RA0136 which is valid till 10th May 2022.

- iii. Terms of Reference (TOR) for undertaking detailed EIA Study in accordance with the provisions of the EIA notification by MoEF&CC vide its letter dated 30<sup>th</sup> September, 2020.
- iv. The project falls within 10 km distance of Jayakwadi Bird Sanctuary & as per Gazette Notification issued on 12<sup>th</sup> July 2017 which is protected area notified under the Wildlife (Protection) Act, 1972; hence, as per EIA Notification 2006, general conditions, the project shall be appraised at Central Level under Schedule 1(c) of EIA notification & its subsequent amendments.
- v. **Project Location:** This scheme is proposed on Backwater of Jayakwadi Project near old Lakhmapur Village of Ganagpur Taluka in Aurangabad District. (Latitude 19°39' 0.36" N and Longitude 75°03'23.04" E) The area served can be located in Toposheet No 47 M/1 & 47 M/2 under Jayakwadi Dam Project.
- vi. It is planned to bring around 10000 Hectare Irrigable Command Area & 12500 Ha CCA of 40 Villages of Gangapur Taluka in Aurangabad District under irrigation. The water will be utilized for irrigation purpose by adopting drip irrigation with piped conveyance system.
- vii. This scheme comprises lifting of water in two stages. First pump house is proposed at old Lakhmapur Village situated near backwater of Jayakwadi Dam and towards 5 Km East from Aurangabad – Ahmednagar Highway. First or Second pump house is to be located on the upstream side of Jayakwadi Dam at a distance of about 50 Km.
- viii. Rising main of stage-1 is designed as 21.78 Km long with pipe diameter of 1580 mm and thickness of 9 mm for carrying the design discharge of 4.09 cumecs whereas rising main of stage-2 is designed as 13.02 Km long with pipe diameter of 1170 mm and thickness of 7 mm for carrying the design discharge of 2.25 cumecs. Thus the total length of rising main comes out to be 34.80 Km.
- ix. **Salient features of the project site:**

Sr No	Particulars	Stage-I	Stage-II	Total
1.	Location of project	Old Lakhmapur village, Tal. Gangapur		
2.	Latitude	19°39'0.36" N		
3.	Longitude	75°03' 23.04" E		
4.	Discharge	4.0917 Cumecs	2.250 Cumecs	
5.	Area irrigated (ICA)	4500 Ha	5500 Ha	10000 Ha
6.	Length of rising main	21780 m	13020 m	34800m
7.	Diameter of rising main (M.S. pipe commercial type)	1580 mm	1170 mm	

9.	Thickness of pipe for rising main	9 mm	7 mm				
10.	No. of rows of rising main	1	1				
11.	Static head for rising main	33.710 m	35.400 m				
12.	Frictional head for rising main	41.030 m	32.720 m				
13.	Total head for rising main	74.740 m	68.120 m				
14.	Pump efficiency	89%	86%				
15.	No. of pumps	5	4	9			
16.	H.P. provided	5080 (1016X5) HP	2600 (650X4) HP				
17.	Velocity	2.086 m/sec	2.093 m/sec				
18.	Water utilization	55.00 Mm <sup>3</sup>					
19.	Maximum Water Level(M.W.L)	465.590 m	501.500 m				
20.	Full Reservoir Level (F.R.L.)	463.910 m	501.500 m				
21.	Minimum Drawdown Level(M.D.D.L.)	455.520 m	498.500 m				
22.	F.S.L. in DC	501.500 m	538.600 m				
23.	Method of Irrigation	Drip Irrigation					
24.	No. of beneficiary villages	40					
25.	Supply Source	Backwater of Jayakwadi Project near old Lakhmapur, Tal.Gangapur, Dist. Aurangabad.					
ii	Lifting Point	Backwater of Jayakwadi Dam near old Lakhmapur					
iii	Feeder Reservoir	Jayakwadi Dam					
iv	Command	Gangapur Taluka in Aurangabad District					
29.	Name of village near the Head Works	Backwater of Jayakwadi Dam Old Lakhmapur Tal. Gangapur Dist Aurangabad					
30.	Location of Head Works						
i.	Lifting Point	Jayakwadi Reservoir near Old Lakhmapur Village, Tal.Gangapur, Aurangabad					
ii	List of Earthquake Zone no	Zone II					
31.	Project Area Reference as detailed below	Topo sheet	Jayakwadi Reservoir	Lifting Point	Rising main	Pump House	Command Area
		Topo sheet No.	47 M/1	47 M/1	47 M/2	47 M/2	47 M /2
32.	Index Plan	As per Figure 2-3 of this Chapter					
33.	Access to the Project						
i.	Nearest Airport	Aurangabad Airport (MS) 44 km from Lakhmapur village					

ii.	Nearest Railway station	Aurangabad Railway station – 36 km from Lakhmapur Village.
34.	Interstate aspects of the project	
i	Catchment area of the basin	It is lift Scheme hence no independent catchment is beingharnessed
ii	State-wise/ Country-wisedetails of catchment area	Not Applicable
iii	Submergence due toproject	No submergence due to project as it is a lift scheme
iv	Water allocation for thestate	Not Applicable
35.	Proposed annual utilization by the project	55 Mm <sup>3</sup>
i.	Irrigation (surface) :	10,000 Ha
ii	Rabi	100 %
iii	Total -	100%
iv	Irrigation	10,000 Ha
36.	Estimated life of the project(years)	50 year
i.	Irrigation (ha.)	10,000 Ha
ii.	Culturable command area(CCA)	12500 Ha
37.	Area under Irrigation(break up)	10,000 Ha
i.	Rabi	100 %
ii	Annual irrigated area	10,000 Ha
iii	Intensity of irrigation	100%
iv	Cost per 1000 cum ofgross/live storage	Not required as it is not a storage scheme.
v	Water utilization (forirrigation only)	55 Mm <sup>3</sup>
38.	Project Performance	
i.	Irrigation	10,000 Ha.
ii	Head Regulator(s)	Intake well at Lifting point & Outlet regulators at DC and Main pipe line.
39.	Canal System	
i.	Main Canal (Piped)	Piped network as per Design
ii	Purpose of Canal	Irrigation
iii	Type	Rising Main Pipe Canal(M.S. Pipe)
iv	Flow/	Piped system
v	Lined/unlined	Not applicable

40.	Discharge capacity of the channel above which lining is proposed	Not applicable (Piped Canal)
i	Type of lining	Not applicable
ii	Design data	Not applicable
iii	Rising mains and Entire system	Not applicable
iv	Distribution system	Distributaries i.e. Minors & sub-minors (piped)
41.	Estimated Project Cost	Rs. 426.26 Cr

- x. **Water Availability for Irrigation Project:** Water requirement for this scheme as per Modified Penman Method is 54.80 Mm<sup>3</sup>. Government of Maharashtra has sanctioned the use of this water for irrigation under this Lift Irrigation Scheme in Gangapur taluka. Chief Engineer, Planning and Hydrology, Nashik has issued a non-objectionable certificate to use 55 Mm<sup>3</sup> of water for Brahmagavhan Lift Irrigation Scheme Part- III, calculated unutilized sanctioned water quantity (165.06 Mm<sup>3</sup>) vide letter dated on 31/05/2017. The water allocated to this scheme will not be diverted to any inoperative scheme.
- xi. **Land requirement:** The land required for Pump House-1 & Switch Yard is 6 Hectare and land will be acquired permanently, while the land for the rising mains will be temporarily acquired on rental basis during the tenure of construction period. This land to be acquired on rental basis comes out to be 35 Ha. Neither the forest land nor the land under railways department is affected by this project. No villages or its part needs to be rehabilitated for this project.
- xii. **Ecological Sensitive Area, if any within 10km of project site:** Project area inside Jayakwadi Bird Sanctuary is 1.34 hectare and outside area is 11.66 hectare.
- xiii. The proposed scheme is on Jayakwadi Backwater, which is 50 Km from Jayakwadi Dam constructed on Godavari River. Jayakwadi Bird Sanctuary is at 150 m approximately from the Project site. This project will require wildlife clearance from standing committee of national board of wild life clearance for which separate application has been already submitted and status is under process.
- xiv. **Submergence area:** The proposed project will be on Jayakwadi Backwater so there will be no new Submergence Area. After commencement of this scheme, drought relief measures will not be required in future resulting the indirect benefit towards the scheme. It is lift Scheme hence no independent catchment is being harnessed.
- xv. **Project Cost:** The total cost estimated for the proposed project is Rs. 426.26 Cr.
- xvi. **Rehabilitation and Resettlement:** There is no rehabilitation & resettlement issue; land envisaged for the proposed project does not contain any habitation. The proposed project does

not involve displacement of the families/houses for the project activities. This scheme requires 6 Ha of land to be acquired for construction of Pump houses, Delivery chambers and approach road. The land for the rising mains has to be temporary acquired on rental basis during the tenure of construction period. This land to be acquired on rental basis comes out to be 35 Ha. Neither the forest land nor the land under railways department is affected by this project. No villages or its part needs to be rehabilitated for this project.

- xvii. **Power Requirements:** Electricity: 33KV Line/6.6 KV (for Operation phase source: Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) permission with separated connection for electricity is attached as Annexure 2-IV a) For PUMP House-1: 5 PUMP OF 1016 HP b) For PUMP House-2: 4 PUMP OF 650 HP
- xviii. **Time of Completion:** The total developmental period of the entire proposed project will be about 36 to 48 months
- xix. **Baseline Status of Environment:** Summarisation of the Environmental monitoring undertaken at different locations for the monitoring period of December 2020 to August 2021. The ambient Air Quality Monitoring was carried out during the month of December 2020 to February 2021 as Winter Season, March 2021 to May 2021 as Summer Season & June 2021 to August 2021 as Monsoon Season as mandated by ToR issued by EAC, Govt. of India.
- a) **Air Environment:** The ambient Air Quality Monitoring was carried out during the month of December 2020 to February 2021 as Winter Season, March 2021 to May 2021 as Summer Season & June 2021 to August 2021 as Monsoon Season as mandated by ToR issued by EAC, Govt. of India. Ambient quality monitoring was done at 8 locations within the study area.
- The PM10 concentrations at all sampling locations varied in the range of 31.4 to 53.3 $\mu\text{g}/\text{m}^3$ . The highest concentration was found at Gangapur, which is attributed to. The PM10 concentrations for all locations were observed to be below stipulated standards of NAAQS (24 hourly PM10 = 100  $\mu\text{g}/\text{m}^3$ ).
  - The PM2.5 concentrations at all sampling locations varied in the range of 14.5 to 35.7 $\mu\text{g}/\text{m}^3$ . The highest concentration was found at Agarwadagon. The PM2.5 concentrations for all locations were observed to be below stipulated standards of NAAQS (24 hourly PM2.5 = 60  $\mu\text{g}/\text{m}^3$ ).
  - The analysis of ambient air quality data for three months consequently point out normal ambient air quality at project site, as well as at all locations; upwind and downwind identified in the study area. Particulate matter PM10 as well as PM2.5 is within limits prescribed. SO2 and NOx levels and other parameters are well below the prescribed limits and hence overall picture as far as ambient air is concerned is affirmative for the proposed project

- b) **Noise Environment:** The ambient Noise Quality Monitoring was carried out during study period at 8 locations; the maximum noise values measured during Summer Season i.e. 51.6364 Leq. dB(A) at day time & Minimum Noise value measured during Winter Season i.e. 42.3341 Leq. dB(A). The maximum noise values measured during Monsoon Season i.e. 51.25907 Leq. dB(A) at Mangalpur location. This is attributed to various transportation activities. All the values observed were below the stipulated values in standards stipulated by MoEF for day time i.e. (Ref. MoEF&CC notification for The Noise Pollution (Regulation and Control) Rules – 2000) amendments modified in 11.01.2010.
- No traffic shall be increased during operation phase of proposed irrigation project. Minor and temporary traffic shall be increase during construction phase of the project.
  - Conclusion: The baseline monitoring of noise levels shows that, there is no disturbance due to noise in study area.
- c) **Hydrogeology:** The Aurangabad district area is included in Deccan Trap ground province comprising of hard rock basalt formation. The basaltic aquifers are regarded as anisotropic because of variability in type morphology and geohydrology of basaltic lava flows; the presence of dykes, lava tubes and the unpredictable patterns of vascularity weathering and jointing with respect to their extent and thickness, as also to the frequency and inter-connections of joints.
- Ground Water Scenario: As per areas notified by CGWA/SGWA Gangapur Taluka of Aurangabad District, Maharashtra fall under ‘Semi-Critical’ category
- d) **Geology:** Geologically, Basalt formation (Deccan traps) is the major rock formation in the district. The major part of the district is underlain by a sequence of basaltic lava flows while alluvium occupies a small portion.
- The Deccan Trap has succession of flows in the elevation range and are normally horizontally disposed over a wide stretch and give rise to table-land type of topography also known as plateau.
  - Geomorphologically the major part of study area comprises of Pediment Padi plain Complex, whereas others features are River and reservoirs, Flood plain, Low dissected plateau and moderately dissected plateau.
  - Major part of the district falls in Godavari basin with a small area in north eastern parts falling Tapi Basin. The major river in the district is the Godavari with its tributaries namely; Purna, Dudhna and Shivna rivers. The other important tributaries are Sukna, Khelna, Kham, Gulathi, Shivbhadra and Girija rivers. Depending on the drainage and geomorphology, the district has been divided into 52 watersheds.
- e) **Seismicity of the Area:** As per the seismic zoning map of India (ISI 1990), the project area falls in seismic zone II which is Low intensity zone.

- f) **Water Environment:** Samples for ground water & surface water quality assessment were collected from different 10 Locations each within the study area.
- **Ground Water Quality:** The ground water quality is characterized as usual by high mineral content and adversely affected at many places due to high concentration, especially of nitrate, iron and cautious levels of fluoride at a few locations indicating that the water is not suitable for drinking purpose with reference to Drinking water Standards. However, it is suggested that under the Regional water supply scheme for potable water in the rural areas, provision of containment of above parameters be made in the absence of alternate source of water with the backdrop of drought prone area.
  - **Surface Water Quality :** The surface water quality as observed in analysis and as reviewed indicates that it is falling under the category “Good to Excellent” and is in agreement with the water quality evaluated for locations at river Godawari at Jayakwadi dam, downstream of Paithan, Pathegaon bridge, upstream of Aurangabad Reservoir near Kaigaon bridge etc. by The Energy and Resources Institute (teri), based on the compilation of data gathered by Maharashtra Pollution Control Board (MPCB) in their Report on Water Quality Status of Maharashtra; January 2019. The water is suitable as being used for drinking and irrigation and obviously for the proposed lift irrigation project. The entire pipeline will be laid underground beneath 2.8 to 3m in the earth, in which case chances of getting both ground water and surface water polluted none exist.
- g) **Soil Environment:** The soil in the 10 km radius of study area, keeping in view the topography is covered in total 10 sampling locations for all three season. The major part of the study area is covered by black cotton soil & the analysis results shows that the soil is moderately alkaline in nature with pH value ranging from 7.1 to 7.8. Conductivity observed from 0.21 to 0.56  $\mu\text{s}/\text{cm}$  which indicates non saline to slightly saline nature.
- h) **Land Use & Land Cover:** A recent satellite image for study area was collected from NRSC. The image was interpreted for identification of various land use / land cover classes. Ground truthing was done to confirm and edit the interpreted land use / land cover classes. The major portion of study area land is covered by Crop land. Land use of the study area has been classified into Built up area (2.83 %), Crop land (51.65%), Fallow land (35.24%), Water Bodies (5.16%), River (1.45%), Open Land (1.38%), Grass land with open scrub (2.18%) & Forest (0.11%)
- i) **Ecology & Biodiversity:**
- a) The field survey for the collection of the baseline data for Ecology & Biodiversity commenced in winter 2020 followed by summer & monsoon season 2021. The present study on the biological assessment of the proposed project is based on field survey of the area supported by secondary data from various governmental and non-governmental sources.



- b) The study area mainly consisting of Jayakwadi Bird Sanctuary holds more importance from Ecological studies point of view. The area of Jaikwadi Bird Sanctuary is a non-forest area, which was acquired from around 118 villages of Aurangabad and Ahmadnagar Districts. Presently the land is in possession of irrigation department. This water body is the main attraction for different avifaunal species including resident, local migrant and long distance migratory birds due to presence of good diversity of fresh water fishes, molluses, crustaceans and other fauna.
- c) As per the “Survey of Forest Types of India” by Champion and Seth (1968), the forest type of the proposed project site and surrounding study area can be classified into southern dry mixed deciduous and southern thorn forest.
- d) **Floral Investigation:** The study area is dominated by agricultural fields. Most of the area is covered by active cropping accompanying patches of barren land and grassland in between. However, presence of the surrounding region is rich in the bird diversity apart from the floral and faunal diversity as compared to other part of the area. With regard to the tree vegetation is concerned *Azadirachta indica* and *Prosopis Juliflora* occur in abundance. Other dominant tree species exhibited by the region are *Acacia nilotica*, *Acacia leucophlea*, *Albizia lebbeck*, *Mangifera indica*, *Cassia simea*, *Cassia fistula*, *Tamarindus indicus*, *Ficus bengalensis*, *Ficus racemosa*, *Crocus nucifera*, *Bauhinia racemosa*, *Aegle marmelos*, *Ailanthus excels*, *Annona squamosa*, *Bombax ceiba*, *Bougainvillea glabra*, *Butea monosperma*, *Dalbergia sissoo*, *Delonix regia*, *Ficus racemosa*, *Ficus religiosa*, *Mangifera indica*, *Peltophorum pterocarpum*, *Samania saman* and many others. Some of the plants introduced by human beings, agencies either as ornamentals, fruits, vegetable sources or merely as the curiosities.
- e) **Agriculture Activity:** The agricultural cultivation in acquired areas on both the banks of the reservoir has become the regular practice of the people of the surrounding villages. The crops grown along the banks are sugarcane, maize, wheat, cotton, sunflower, soyabean, jawar, bajri, groundnuts and pulses.
- f) **Faunal Investigation:** There was no major physical sighting of large mammals during biodiversity study other than domestic mammals’ viz., cow, buffalo, cat, stray dogs, goat etc. During the field studies some tracks and signs (Plate 2) for Indian Wild Boar (*Sus scrofa*), Indian Hare (*Lepus nigricollis*) and domesticated animals were observed in the study area. According to the information collected from forest / wildlife department and local people Jackal (*Canis aureus*), Tadas (*Hyaena hyaena*), Common Mongoose (*Herpestes edwardsii*), Smooth Indian Otter (*Lutragale perspicillata*), Indian Hare (*Lepus nigricollis*) and Indian Wild Boar (*Sus scrofa*) are generally observed in different parts of the study area. Some reptiles i.e. Krait (*Bungarus caeruleus*), Russel viper (*Vipera russelli*), Common Rat Snake (*Ptyas mucosus*) are generally observed in the study area as narrated by local people.
- g) **Butterflies:** During survey 18 species of butterfly were observed from four different families in the study area. Nymphalidae was the most dominant family with 12 species followed by Pieridae with 4 species and Danaidae, Papilionidae with 1 species each
- h) **Avifauna:** During overall survey in the study area, a total of 66 bird species belonging to 36 families were recorded in the study area. Most dominant family was Ardeidae with 6 species followed by Charadriidae and Ciconiidae with 4 species each. 19 families were

recorded from the study area with one species each. The bird species were mostly observed around Jayakwadi dam, agriculture fields and human habitation. The bird species observed during the survey are Asian openbill (*Anastomus oscitans*), Barn swallow (*Hirundo rustica*), Baya weaver (*Ploceus philippinus*), Black drongo (*Dicrurus macrocercus*), Black Ibis (*Pseudibis papillosa*), Black stork (*Ciconia nigra*), Black winged stilt (*Himantopus himantopus*), Caspian tern (*Hydroprogne caspia*), Cattle egret (*Bubulcus ibis*), Citrine wagtail (*Motacilla citreola*), Common Myna (*Acridotheres tristis*), Glossy ibis (*Plegadis falcinellus*), Grey heron (*Ardea cinerea*), Indian pond heron (*Ardeola grayii*), Little cormorant (*Microcarbo niger*), Purple swamphen (*Porphyrio porphyrio*), Sand plover (*Charadrius mongolus*), Small Bee – eater (*Merops Orientalis*), White – breasted Kingfisher (*Halcyon smyrnensis*), White throated kingfisher (*Halcyon smyrnensis*), wire tailed swallow (*Hirundo smithii*) and woolly necked stork (*Ciconia episcopus*) etc.

- i) **Fish ecology:** A survey has been conducted on the fishes of Jayakwadi Dam which is situated on south west side of the project site. Data was also collected from the Local fishermen about Fish diversity and fish production in the study area. During public consultation with the fishermen community it was documented that species Rohu (*Labeo rohita*), Catla (*Catla catla*), Mrigal (*Cirrhinus mrigala*), Common carp (*Cyprinus carpio*), Dokrya (*Chana gachua*) and Chana punctatus are observed in the study area.
- j) **Aquatic Quality:** For aquatic quality, 10 Samples were collected & analyzed for the species identification & count. phytoplankton species from the family of Chlorophyceae, Bacillariophyceae, Cynophyceae, Euglenophyceae were found & zooplanktons species from the family of Rotifera Cladocera, Copepoda & Ostracoda were found.
- k) **Jayakwadi Bird Sanctuary:** Jayakwadi Dam/Bird Sanctuary and the surrounding area are the ideal habitat for many resident and migratory bird species. Almost 200 species of birds can be found in this region, which includes more than 70 species of migratory birds. Out of these, 45 chief species are of international migration.

j) **Socio-Economic**

- a) The proposed project provide irrigation facility to 10000 h. a. of lands through drip irrigation in Gangapur Taluka and providing irrigation facility to 40 villages of Gangapur Taluka. The proposed Lift Irrigation Scheme will provide irrigation facility to the area and help to enhance agriculture based activities in the region. This will boost the social as well as economic conditions of the farmers.
- b) The project will provide direct and indirect employment opportunity during construction and operation phase with both skilled as well as unskilled labour.
- c) After commencement of this scheme drought relief measures will not be required in future resulting the indirect benefit towards the scheme.
- d) Development of cluster of these selected villages under this scheme that preserve and nurture the essence of rural community life, with focus on equality and inclusiveness.

- e) There is no rehabilitation & resettlement issue; land envisaged for the proposed project does not contain any habitation. The proposed project does not involve displacement of the families/houses for the project activities.

xx. **Environmental Cost Benefit Analysis:**

Cost benefit analysis (CBA) has been completed by the project proponent for the proposed project for irrigable command area (ICA) ~10000 Ha is  $\text{Benefit/Cost} = 6933/6725.24 = 1.24$  Benefit Cost Ratio & Economic Rate of Return;

- Total Benefits – 6933 Lakh
- Total Cost (Expenditure) – 5573.52 Lakh
- The Benefit Cost Ratio works out to be: - 1. 24
- Economic Rate of Return (E.R.R):- 17.077 %
- EMP Cost :195 lakh

xxi. **ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:**

- a) **Impacts due to Muck Generation:** Rising mains underground excavation will be done. Total excavation volume from proposed work in this project has been calculated, which will be 511023 cum. 42,682 cum and 14,718 cum respectively. Thus, total volume of pipeline is calculated as 57,400 cum. Therefore, total muck generated will be 4,53,525 cum; which will be used in different activities. Excavation in earth mixed with boulders, hard soil and disintegrated. Muck requiring disposal from laying pipeline network especially rising mains has been estimated as 482424 cum. During excavation, care will be taken that top fertile soil is kept.
- b) **Wildlife and Biodiversity Management Plan:** This plan envisages wildlife management and the conservation of biodiversity and sustenance of livelihood as long-term goals of study area. The major threats of Jaikwadi Bird Sanctuary has been analyzed and a plan for conserving the biodiversity of the ecological rehabilitation of the tract by pasture development and enrichment, afforestation and land stabilization measures, improving water regime, control of illicit fishing and wetland farming, are some of the steps to protect and conserve the biodiversity of Jaikwadi Bird Sanctuary and surrounding area.
- c) **Wildlife Management and Conservation:** Though neither any Schedule-I species have been reported in command area nor any RET species of flora has been found in the command area, yet the protection of nearby Jayakwadi Bird Sanctuary area is needed during construction due to influx of transportation in the area. The preference of key stone species of the command area has been analyzed for habitat manipulation and management intervention. The following activities are proposed for the management and conservation of biodiversity of the area.

- i) **Threatened Species Conservation Plan Jaikwadi Bird Sanctuary & reservoir area:** Total project area is 13 Ha, out of this the area under wildlife sanctuary is 1.34 Ha. The sanctuary is main habitat for thousands of migratory and local birds; the govt. of Maharashtra declared this area as "Jaikwadi Bird Sanctuary" vide Govt. Notification No. WLP/ 1086/27206/CR-39/86-(ii) (F-5 dt.10th Oct. 1986) for 34105 ha. of area which was acquired for the construction of dam. There are no any threatened species reported from project core zone areas however some threatened avifaunal has been found from nearby bird sanctuary area in secondary data. Most of the species have been protected and conserved within the Protected Area.
- ii) **Improvement in Food and Nesting Habitat:** Food Availability management will be done along with reservoir as well as in Bird Sanctuary area to conserve bird diversity through improvement of food and nesting habitat like edible grasses, bamboos, zizyphus etc. Nesting habitats provide a safe place for eggs and young birds to develop. Food and Nest tree species will be suggested for Developing Avifaunal Habitat to conserve Avi fauna especially migratory birds
- iii) **Elevated earthen/Wooden platforms & Artificial Nesting Platform (ANP) for the birds:** Earthen / wooden platforms are used in fluctuating water level areas to providing better place for roosting for the birds. The Nathsagar reservoir has around 30 islands inside the water body. These islands become visible when water goes down in late winter and summer season and the birds can see different roosting sites. During maximum capacity of reservoir these Earthen / wooden platforms of different height will be used as roosting place for birds. For Terns, gulls and herons floating nest will be used.
- iv) **Fishery Conservation and management plan:** Fish diversity survey has been conducted on Jaikwadi Dam situated on East side of the pump house. area. During public consultation with the fishermen community, it was documented that species Rohu (labeo rohita), Catla (Catla catla), Mrigal (Cirrhinus mrigala), Common carp (Cyprinus carpio), Dokrya (Chana gachua) and Chana punctatus are observed in the study area which shows highly significant economic condition. Species observed in the samples collected shows of presence of low level organic pollution in the lake water, which can be attributed to anthropogenic activities by the villagers of the surrounding area. Fisher man will be proper trained to aware to people to prevent water body for water pollution. They look after and check illicit fishing in Jaikwadi Bird Sanctuary. Fish net barriers/ fish Mesh/ fish screens shall be installed to protect fish's species which check to harmed or killing when passing through irrigation water.

xxii. **Environmental management plan:**

The detailed break-up of EMP expenditure on environmental mitigation measures (**EMP Cost: Rs. 93 Lakh for construction phase and 103 Lakh for operation phase**) to be acquired by M/s. Brahmagavhan Lift Irrigation Scheme- III is given below.

S. NO	Particular	Cost for Lift Irrigation Scheme (LIS) (in Lakhs)	Recurring cost per annum(in lakhs)
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<b>A. Construction Phase</b>			
1.	Environmental safeguard measures to control air, noise and water pollution,road construction	15	--
2.	Green belt development	30	--
3.	Fisheries conservation and managementplan	2	--
4.	Public health delivery system	3	--
5.	Sanitation and Solid waste managementplan	1	--
6.	Energy conservation measures	4	--
7.	Biodiversity and wild life conservationmanagement plan	5	--
8.	Land restoration and landscaping	5	--
9.	Environmental monitoring programme	27	--
	<b>Total (Construction phase)</b>	92	
<b>B. Operation Phase</b>			
1.	Command area development	38	4
2.	Local area development plan	29	3
3.	Maintenance of green belt plan	9	1
4.	Fisheries conservation and managementplan	7	1
5.	Disaster Management Plan	10	1
6.	Environmental monitoring programme	10	1
	<b>Total (Operation phase)</b>	103	<b>10</b>
	<b>Grand total (A+B)</b>	195	

xxiii. **Public Hearing:** The public hearing was held on 14<sup>th</sup> December, 2021 at Arapur, Gut No.34, South side of Aurangabad-Mumbai Highway, Gawali Shivra road, Ta. Gangapur, Dist-Aurangabad. The notice regarding the environment public hearing was published in Marathi local language paper “Dainik Sakal” and in English newspaper “Times of India” on 12<sup>th</sup> November, 2021.

xxiv. **Project benefits:**

- a) The proposed project of M/s. Brahmagavhan Lift Irrigation Scheme- III [BLIS] is to provide irrigation solution in the drought prone area adjacent to the submerged area of Jayakwadi project. The proposed project is to provide irrigation solution in the drought prone area adjacent to the submerged area of Jayakwadi project. Due to this project, the landowners / farmers will get benefited from enhanced irrigation capacity; thereby increasing the area under cultivation, resulting into better financial condition. Thus creating an indirect positive impact on the standard of living.
- b) The proposed project of M/s. Brahmagavhan Lift Irrigation Scheme- III [BLIS] intends to irrigate 10000 Ha (ICA) and 12500 Ha (CCA) of land. This project is beneficial to about 40 villages nearby and would fulfil the need of improving the livelihood /enhance the income status of people.

- c) This project will lead to increase the water availability in the drought prone area and thus, it is expected to enable the local people to change cropping patterns.

xxv. **Employment:** Total 25 Nos workers (Construction Phase: 20 nos + Operation Phase: 5 Nos) are expected to be employed for the proposed project activity.

### **26.2.3 The EAC during deliberations noted the following:**

The EAC noted that proposed project is for grant of Environmental Clearance (EC) to Brahmagavhan Lift Irrigation Scheme III undertaken (12, 500 Ha CCA) in an area of 3007.2 ha at Village Old Lakhmapur, Tehsil Gangapur, District Aurangabad, Maharashtra by M/s Godavari Marathwada Irrigation Department Corporation. Terms of Reference (TOR) was accorded by MoEF&CC vide its letter dated 30<sup>th</sup> September, 2020 for undertaking detailed EIA Study in accordance with the provisions of the EIA notification.

The Eco Sensitive Zone around Jaikawadi Bird Sanctuary has been notified vide Gazette Notification S.O. 2202 (E) dated 12.07.2017. Project area inside Jayakwadi Bird Sanctuary is 1.34 hectare and outside area is 11.66 hectare. Project activities which are proposed are allowed as per the aforesaid Gazette Notification. It was further noted that project attracts 'General Condition' of EIA notification 2006, as amended as project falls within 10 km distance of Jayakwadi Bird Sanctuary.

It was noted that total land required for the proposed project is 6 Hectare and 35 Ha will be acquired on rental basis neither the forest land nor the land under railways department is affected by this project. No villages or its part needs to be rehabilitated for this project.

Proposed project planned to bring around 10000 Hectare Irrigable Command Area & 12500 Ha CCA of 40 Villages of Gangapur Taluka in Aurangabad District under irrigation. The water will be utilized for irrigation purpose by adopting drip irrigation with piped conveyance system. Total water requirement is 54.80 Mm<sup>3</sup>, which will be fulfilled from backwater of Jayakwadi Project near old Lakhmapur, Tal. Gangapur, Dist. Aurangabad. Chief Engineer, Planning and Hydrology, Nashik has issued a non-objectionable certificate to use 55 Mm<sup>3</sup> of water for Brahmagavhan Lift Irrigation Scheme Part- III, calculated unutilized sanctioned water quantity (165.06 Mm<sup>3</sup>) vide letter dated on 31/05/2017.

The EAC observed that the avifauna documented during study period are mainly based on secondary data sources. It is quite surprising that no Schedule –I avian species was recorded during sampling. Since the project cover area falls within the Bird Sanctuary there is a requirement of rigorous sampling exercise so that appropriate biodiversity conservation plan can be formulated to minimize the possible impacts of the proposed activity.

**26.2.4** *The EAC after detailed deliberation on the information submitted and as presented during the meeting expressed that following are the deficiencies which required for further consideration of the project. It was desired that PP may submit the below mentioned information:*

- i. *The Base line data collected for avian species should be authenticated by the concerned forest and Wildlife Department. Provide details of migratory bird species in the region.*
- ii. *Submit Wildlife Management Plan focusing on avifauna in consultation with reputed expert institutes duly approved by the concerned forest and Wildlife Department.*
- iii. *Impacts analysis report be prepared keeping in view the possible extent of habitat degradation and habitat fragmentation during construction phase and operational phase. in consultation with WII.*
- iv. *Details of project components falling inside Jayakwadi Bird Sanctuary.*
- v. *Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem, loss of biodiversity, water availability/water uses for irrigation and Ecological flows due to construction of the project.*
- vi. *Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, raw material transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.*
- vii. *Details of the name and number of posts to be engaged by the project proponent for implementation and monitoring of environmental parameters be provided.*
- viii. *Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC /CEA shall be submitted.*
- ix. *Time bound action plan with budget allocation for addressing the public hearing issues.*

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

**Agenda No. 26.3:**

**Channaka-Korata (Rudha) barrage on Penganga River-Interstate Irrigation Project in an area of 228.08 ha., Adilabad district of Telangana by M/s Irrigation & CAD Department, Government of Telangana - Reconsideration of Environmental Clearance – reg.**

**[Proposal No. IA/TG/RIV/55126/2016; F. No. J-12011/05/2021-IA.I(R)]**

**26.3.1:** The proposal is for Reconsideration of Environmental Clearance (EC) to Channaka-Korata (Rudha) barrage on Penganga River-Interstate Irrigation Project in an area of 228.08 ha., Adilabad district of Telangana by M/s Irrigation & CAD Department, Government of Telangana.

PP didn't not attend the meeting therefore; the proposal was **deferred**.

**Agenda No. 26.4:**

**Idukki Hydro Electric Project (780 MW) in an area of 127 ha at Village -Arakulam, Tehsil Thodupuzha, District Idukki, Kerala by M/s Chief Engineer (Civil- Investigation & Construction Central), KSEBL – Terms of Reference (TOR) – reg.**

**[Proposal No. IA/KL/RIV/262627/2022; F. No. J-12011/06/2022-IA.I (R)]**

**26.4.1:** The proposal is for grant of Terms of Reference (TOR to Idukki Hydro Electric Project (780 MW) in an area of 127 ha at Village -Arakulam, Tehsil Thodupuzha, District Idukki, Kerala by M/s Chief Engineer (Civil- Investigation & Construction Central), KSEBL.

PP vide email dated 7<sup>th</sup> April, 2022 informed that due to unavoidable circumstances faced by the PP, they were unable to present the proposal. Therefore, the proposal was **deferred**.

**Agenda No. 26.5:**

**Vijayanagar Pumped Storage Project (2 x 65 MW) in an area of 82.4768 ha. Village & District Bellary Tehsil Sandur, Karnataka by JSW Renewable Energy (Vijayanagar) Limited – Terms of Reference (TOR) – reg.**

**[Proposal No. IA/KA/RIV/264454/2022; F. No. J-12011/05/2022-IA. I (R)]**

**26.5.1:** The proposal is for grant of Terms of Reference (TOR) to Vijayanagar Pumped Storage Project (2 x 65 MW) in an area of 82.4768 ha. Village & District Bellary Tehsil Sandur, Karnataka by JSW Renewable Energy (Vijayanagar) Limited

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

- i. The proposed Vijayanagar Pumped Storage Project is a green field project by the JSW Renewable Energy Ltd for captive use in JSW Steel Plant. The project, conceived as an off-stream closed loop project of installed capacity 130 MW/780 MWH pumped storage component with 6 hours storage capacity for peak power, located in Vidya Nagar area of JSW Steel Plant, Taluka Sandur, District Bellary, Karnataka.
- ii. The project will encompass an upper reservoir to be located close to JSW boundary on hillock adjacent to the existing Raw Water Reservoir-1, constructed to meet the water demand of JSW Steel and Power Plant, serving as lower reservoir.
- iii. The upper reservoir with gross and live storage of 2.47 MCM and 2.42 MCM, is proposed to be created by constructing 1522m long gravity dam with its top at El 665m and FRL at El 662m and maximum height of 25m from NSL.
- iv. The existing Raw Water Reservoir- 1(lower reservoir) with normal pond level at El 520m shall be used as lower reservoir. The water conductor system comprising of two nos. of 5.0 m diameter steel penstocks of length 718 m each shall take off from intake/outlet structure at the upper reservoir and aligned along the hill slope up to the surface powerhouse (45m L x 18m B x 48m H) designed to house two Francis Vertical Shaft Reversible Pump Turbine of 65 MW



each. RCC box type 8m (w) x4m (d) 800m long Tailrace Channel shall lead water to lower reservoir.

- v. For reservoir operation the project contemplates non-consumptive re-utilization of 2.42 MCM of water for recirculation among two reservoirs. One time filling of the upper reservoir shall be done from the existing Lower Reservoir -1 which has a total capacity of about 5.53 MCM, which is available completely for the project. The evaporation is assumed to be 10% of live storage i.e., 0.242 MCM, which will be recouped with water from lower reservoir.
- vi. The project with installed capacity of 130 MW by utilizing a design discharge of 112 cumecs with net head of 132.33m for six-hour peaking hour daily will annually generate 270.46 MU at 95% plant availability.
- vii. The PSP will utilize 2x78 MW (156MW) to pump water from lower reservoir to the upper reservoir in 6.44 hour pumping operation shall be drawn from Captive Solar and Wind Projects either commissioned or in advance stage of completion. The existing substation and transmission line in JSW plant area would be utilized for evacuation of power from the PSP.
- viii. **Land requirement:** The total land requirement for project is 82.4768 ha of which 24.2124 ha shall be forest land 18.5972 ha Government land (KIADB) and 39.6672 ha land owned by JSW Steel. Submergence area 12 ha.
- ix. **Forest Clearances:** Application for Forest Land Diversion has been made to MOEF&CC vide FP/KA/HYD/152438/2022
- x. **Ecological Sensitive Area:** No archaeological monument of national importance lies either in the project area or in its submergence area. **Daroji Bear Sanctuary exists** within 10 km of project boundary. No part of the project lies within Eco-sensitive zone of the Sanctuary. The nearest project boundary is about 6.7 km from ESZ boundary of Daroji Bear Sanctuary.
- xi. As per Seismic Zoning Map of India the project area falls under Zone II as per IS-1893 (Part 1) 2002, (Low risk Zone).
- xii. **Alternative site Analysis: Alternative site Analysis:** Four alternatives with dam all around the upper reservoir with the possibility of providing Gravity dam and Concrete Faced Rockfill Dyke-(CFRD), locating of surface powerhouse near to the hill toe or near the lower reservoir, alignment of WCS with and without bends, were examined to minimize the cost of construction. As the Raw Water Reservoir -1 (Gross capacity 5.53 MCM) already exists in Vidyanagar JSW area and is available completely for the project, it has been planned to treat it as the lower reservoir for the PSP.

In case of Alternative 1, the concrete gravity dams all around the upper reservoir would lead to high cost. The length of penstock is more which may require to introduce a u/s surge shaft. This would result in higher cost of the project.

In case of Alternative 2, the concrete gravity dam around the upper reservoir is planned similar to Alternative 1. The length of the penstock in this alternative is less, which will eliminate the requirement of surge shaft. This alternative is better than Alternative 1.

In case of Alternative 3, a CFRD as proposed for the upper reservoir will be highly advantageous for any project due to the ease of the construction, cost of the dyke and performance of the dyke itself. Yet, it carries a significant disadvantage in this instant case.

The CFRD is known to allow permissible leakages downstream which in this case is not favourable as this reservoir is located over a hill and constant seepages which even under permissible limits may adversely affect the downhill located township of plant. The seepage from the dyke will form a perineal water flow in the valley which may need further training works to divert safely downstream. As seen from the studies the downstream face of the CFRD will require substantial construction material to suit the prevalent topography.

In case of Alternative 4, all the project components are similar to Alternative 2. But the bends in the penstock alignment is avoided by laying the penstock straight. The upper reservoir site is well suited for constructing a concrete gravity dyke of required height in building up the upper reservoir with corresponding storage in requirement of power generation. The upstream face being vertical will aide in increasing storage when compared against the CFRD option. In conclusion, the Alternative 4 will be adopted for Vijayanagar PSP based on the various considerations as given above.

- xiii. **Muck Management:** About 12.11 lakh cubic meter muck shall be generated from excavation. Part of the excavated material shall be utilized in the construction of after processing the excavated material. An area of 38.8647 ha has been earmarked for dumping of muck at 4 designated 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.
- xiv. **Water availability:** The proposed closed loop PSP with no consumptive utilization of water for its operation has been planned by creating a new upper reservoir & utilizing the Raw Water Reservoir -1 (Gross capacity 5.53 MCM) already existent in Vidyanagar JSW area as the lower reservoir. Existing raw water Reservoir R-1 at Vidyanagar, which is proposed as lower reservoir, is being filled from water allotted to JSW for Integrated Steel Plant Complex and its auxiliary units like power plant, oxygen plant and cement plant etc. At present, the raw water allotted for JSW Steel Plant by Government of Karnataka is 70.8nMGD, of which approximately 30.8 MGD is from Tungabhadra dam and 40.0 MGD from Almaty dam. The annual loss due to evaporation works out to 0.242 MCM and will be recouped either from rain water contribution from catchment or water brought from Raw Water Reservoir-3. Water is transported from dam to reservoir through pipelines and no natural stream/river water is/will be used for industrial purpose.

- xv. **Employment:** About 650 workers (labor and staff) would be engaged temporarily during peak construction period. The water requirement (500 kld) for construction and domestic shall be mainly met from the existing lower reservoir
- xvi. **Project Cost:** As per preliminary estimation the tentative cost of project is INR 679.51 Crores. Levelized tariff with no pumping cost and Rs 1.0 /unit pumping cost shall be INR 4.67/kWh and INR 5.99/kWh respectively.
- xvii. **Inter-State/International Aspects:** There is neither any Inter-state nor national boundaries within 15 km from project boundaries.
- xviii. Online Application for setting up of the proposed Pumped Storage Project (130MW) has been submitted to Karnataka Udyog Mitra on 26.8.2021 and request for Issuance of GO for "in Principal Approval of Investment for Project" was made on 30.12.2021 and accordingly, project has been approved by Karnataka Udyog Mitra in the last meeting held on 2nd March 2022 at Bangalore. Final Approval Letter is awaited.

### **26.5.3 The EAC during deliberations noted the following:**

The EAC in the present meeting (26<sup>th</sup> meeting) deliberated on the information submitted (Form 1, PFR, etc.) and noted that the instant proposal for grant of terms of Terms of Reference (ToR) to Vijayanagar Pumped Storage Project (2 x 65 MW) in an area of 82.4768 ha village & District Bellary Tehsil Sandur, Karnataka by JSW Renewable Energy (Vijayanagar) Limited. township.

It is noted that the project is closed loop stand-alone project where water will be cycled between the proposed upper reservoir (Gross storage 2.47MCM) to be constructed on the hill top & lower reservoir (Gross storage 5.53 MCM) already existing in Vidyanagar area of JSW Steel Plant. The EAC observed that muck disposal site proposed by the PP is very close to the boundary of proposed

Further, it is noted that Daroji Bear Sanctuary exists within 10 km of project boundary. However, no part of the project lies within Eco-sensitive zone of the Sanctuary. The nearest project boundary is about 6.7 km from ESZ boundary.

**26.5.4** *The EAC after detailed deliberations on the information submitted and as presented during the meeting **recommended** for grant of Standard ToR to Vijayanagar Pumped Storage Project (2 x 65 MW) in an area of 82.4768 ha village & District Bellary Tehsil Sandur, Karnataka by JSW Renewable Energy (Vijayanagar) Limited under the provisions of EIA Notification, 2006 and as amended along with the following additional/specific ToR:*

#### **[A] Environmental Management and Biodiversity Conservation**

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

- (ii) *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.*
- (iii) *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.*
- (iv) *Fisheries Management Plan shall be prepared along with other Environmental Safety Measures for Sone River and shall be incorporated in the EIA/EMP report, if applicable*
- (v) *Environmental Cost Benefit Analysis shall be done in terms of water availability, water uses for generation of hydro power.*
- (vi) *Undertaking regarding water allocated to this scheme shall not be diverted to other purpose such as lift irrigation scheme etc.*
- (vii) *Environmental matrix during construction and operational phase needs to be submitted.*
- (viii) *Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.*
- (ix) *Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.*
- (x) *Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature required to be cut for reservoir creation and other project component.*
- (xi) *Ground water depth in project vicinity area to be collected and to be incorporated in EIA/EMP report.*
- (xii) *Impact along with measures on aquatic ecosystem due to quantity of water to be lifted for power generation be incorporated in EIA/EMP report.*
- (xiii) *Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.*
- (xiv) *Project impact on avifauna shall be studied and incorporated in EIA/EMP report.*

**[B] Socio-economic Study**

- (xv) *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. 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.*
- (xvi) *Tentative no. of project affected families shall be identified and accordingly appropriate*

*Rehabilitation & Resettlement plan shall be prepared.*

**[C] Disaster Management**

- (xvii) Details of quantity of muck generation component wise (Excavation in tunnels, pressure shaft and powerhouse etc) and disposal site/ transportation to be provided.*
- (xviii) Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC /CEA shall be submitted.*
- (xix) Techno-economic viability of the project must be recommended from CEA/CWC.*
- (xx) Muck reclamation plan for each benches shall be prepared and incorporated in EIA/EMP report.*
- (xxi) Measures for dust control in closely located school, hospital and town during construction phase.*

**[D] Miscellaneous**

- (xxii) Undertaking shall be submit regarding that the entire power requirement to pump the water from the lower reservoir to the proposed upper reservoir from renewable sources.*
- (xxiii) Both capital and recurring expenditure under EMP shall be submitted.*
- (xxiv) The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.*
- (xxv) Inter-state issues shall be examined in consultation with CWC.*
- (xxvi) Necessary permission from Chief Wildlife Warden stating that proposed plant boundary is located outside the eco-sensitive zone of Daroji Bear Sanctuary.*
- (xxvii) PP shall carry out cumulative impact assessment of area for the proposed unit, upcoming projects and existing unit and incorporate in EIA/EMP report.*
- (xxviii) Necessary clearance from Government of Karnataka that raw water which is allotted to use for JSW Steel Plant will be used for closed loop PSP for generation of electricity.*
- (xxix) Arial view video and photographs of project site shall be recorded and to be submit.*
- (xxx) Certified compliance report from Regional office of MoEF&CC of EC compliance of all existing plant units.*
- (xxxi) Stage-I FC to be submitted within six month of issue date of ToR.*
- (xxxii) Action Plan for meeting power requirement for pumped storage projects from renewable sources.*

**Agenda No. 26.6:**

**Renukaji Dam Project (40 MW) with CCA 32372 Ha in an area of 49800 ha. at Village Dadahu, Tehsil - Dadahu (S.T) District. Sirmaur, Himachal Pradesh by M/s Himachal Pradesh Power Corporation Limited – Terms of Reference (TOR) – reg.**

**[Proposal No. IA/HP/RIV/250502/2022; F. No. J-12011/53/2008-IA. I**

**26.6.1:** The proposal is for grant of Terms of Reference (TOR) to Renukaji Dam Project (40 MW) with CCA 32372 Ha in an area of 49800 ha. at Village Dadahu, Tehsil - Dadahu (S.T) District. Sirmaur, Himachal Pradesh by M/s Himachal Pradesh Power Corporation Limited.

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

- i) Renukaji Dam Project planned to supply drinking water to NCT of Delhi M/s Himachal Pradesh Power Corporation Limited. The Project has been conceived as a storage scheme on Giri River, a tributary of Yamuna in district Sirmaur of Himachal Pradesh.
- ii) The Project envisages construction of 148 m high Rock Fill Dam across River Giri near Dadahu in Sirmaur District and a Powerhouse at the toe of Dam to generate 40MW of incidental power. The project will provide 49800 ha m (0.498 BCM) of live water storage in its reservoir and a firm water supply to the tune of 23 cumecs to Delhi.
- iii) The project has been declared as "National Project" in February, 2009, as such the cost (excluding power component) shall be borne by Govt. of India (Gol) and other beneficiary states in the ratio of 90:10.
- iv) An MoU was signed between the state of Himachal Pradesh & the Union Territory of Delhi for construction of Renukaji Dam Project in April, 1992
- v) Project was declared "National Project" in Feb. 2009. Cost of the project was finalized by CWC as Rs 3498.96 crore at March 2009 price level.
- vi) Earlier, Environment Clearance (EC) was accorded to Renukaji Dam Project (40 MW) by Ministry of Environment & Forests (MoEF), Govt. of India on 23.10.2009. Subsequently, amendment has been granted on 15.01.2019 as per NGT order. Further, vide letter dated 6<sup>th</sup> November, 2019 MOEFCC granted extension to EC for three years i.e. 22.10.2022
- vii) EC was challenged by local people in Hon'ble NGT and Hon'ble High Court of HP in 2009 & 2010. Hon'ble NGT after clubbing and hearing all such petitions and PILs dismissed the same on 2.2.2016.
- viii) The case for diversion of forest land was submitted on 25.09.2008, however, due to various issues involved and multiple inspections and subsequent recommendations of changes by

forest authorities of State and Centre, Stage-I clearance could be obtained only on 20.02.2015. Due to non-availability of funds, including its clearances are to come from GoI and beneficiary states, however, due to non-signing of “Interstate Agreement” and CCEA approval, funds required for Stage-II forest clearance could not be received, hence, forest clearance could not be obtained.

ix) **Present status of the project is as follows:**

S. NO	ACTIVITY	STATUS
1.	<b>Consent to Establish</b>	Permission Obtained & being renewed.
2.	<b>Diversion of Wildlife Sanctuary area adjoining to the Main Dam</b>	Permission obtained and equivalent land under acquisition for transfer to wild life department.
3.	<b>Forest Clearance.</b>	Stage-I obtained in February 2015.
4.	<b>DPR Approval.</b>	DPR approved at Oct 2018 level.
5.	<b>TAC Approval.</b>	TAC approval accorded by MoJS in December 2019
6.	<b>Investment Clearance.</b>	Investment Clearance accorded by MoJS in August 2020
7.	<b>Cabinet Committee on Economic Affairs (CCEA) approval</b>	CCEA Clearance accorded on 15.12.2021.

x) **Land Requirement:** Total 1988.27 ha land required for the project details as under:

DESCRIPTION OF LAND	DEEMED FOREST (ha)	NON-FOREST (ha)	TOTAL (ha)	REMARKS
<b>Private Land</b>	134	813.57	947.57	Land acquired through Award/Sale deed.
	-	6.70	6.70	Total land yet to be acquired .
<b>Sub-Total</b>	<b>134</b>	<b>820.27</b>	<b>954.27</b>	
<b>Govt. Land</b>	80	15	95	NOC from concerned Departments under progress .
<b>Forest Land</b>	695	-	695	Stage-I approval obtained.
<b>Private Land on lease</b>	-	244	244	For temporary use such as for dumping, quarries etc..
<b>Total</b>	<b>909</b>	<b>1079.27</b>	<b>1988.27</b>	
<b>Additional: 50 ha land acquired through SDM for handing over to Wild Life Department.</b>				

xi) **Cost of implementation of Environment Management Plan (approved in 2009):**

<b>S. No</b>	<b>Sub-Plan/activity</b>	<b>Financial Provision (in lacs)</b>	<b>Expenditure so far(in lacs)</b>
1.	Catchment Area Treatment Plan	16034.25	<b>1367.20</b>
2.	Resettlement and Rehabilitation Plan	23466.13	<b>2531.69</b>
3.	WL Management & Bio Diversity Conservation Plan	32068.5	-
4.	Compensatory Afforestation (Revised for 909ha.)	3920.59	-
5.	Green Belt Development Plan	136	-
6.	Reservoir Rim Treatment Plan	1941	-
7.	Muck Disposal Plan	960.68	-
8.	Restoration Plan for Quarries	471.07	-
9.	Landscape and Restoration Plan	280	-
10.	Health Management Plan	175	-
11.	Subsidized Fuel Scheme	155.7	-
12.	Solid Waste Management Plan	946.5	-
13.	Fisheries Development and Management Plan	500	-
14.	Disaster Management Plan	140	-
15.	NPV for 909ha forest land	12179.95	-
16.	Alternate area up gradation cost of 50ha	225	-
17.	Environment Monitoring Plan	74 .00	<b>148.80</b>
	<b>Total</b>	<b>93600.37</b>	<b>4047.69</b>

xii) **Details of project affected families are as follows:**

<b>S. No</b>	<b>Affected Gram Panchayats</b>	<b>NOs.</b>
1.	Project affected area Gram Panchayats	20
2.	Project affected Zone Gram Panchayats	5
	Total affected Gram Panchayats	25
	<b>Affected Families (Tentative)</b>	
1.	Main project affected families	1142
▪	Both Landless & Houseless families	149
▪	Landless families	19
▪	Houseless families	91
▪	Others	883



2.	Shamlat families	1275
3.	Only Livelihood affected families	45
	<b>Total Project affected families = ( 1142+1275+45 )</b>	<b>2462</b>

**xiii) Statutory Clearances:**

**a) Technical Appraisal Committee (TAC) Clearance.**

- TAC of DOWR, RD & GR has accepted the revised cost estimate in its 143<sup>rd</sup> meeting on 09.12.2019.
- Investment Clearance committee, MoS, DOWR, RD & GR in its meeting 13<sup>th</sup> meeting held on 07.08.2020 has accorded investment clearance to the project.
- Cabinet Committee on Economic Affairs (CCEA) accorded clearance on 15.12.2021.

**b) Forest Clearance:**

- **Stage-I:** - The 'In-Principle' approval for diversion of Forest land has been accorded for Renukaji Dam Project vide Additional Inspector General of Forests MoEF & CC, Gol letter F. No 8-41/2009-FC dated 20-02-2015.
- **Stage-II:** Final Clearance (Stage-II) is pending due to non-deposit of requisite funds in CAMPA account. The Demand letter amounting to Rs. 586.39 crores for Stage-II forest clearance of revised CAT Plan and Wild Life development fund based on the project cost at October, 2018 Price level has been received from Nodal officer/DFO, Renuka vide letter No./Renuka/Vol-11I-6095 dated 23-10-2021.

**xiv) Resettlement & Rehabilitation:**

Total 417.11 bigha (35 ha) land at different locations around the project in Sirmour district has been purchased for the Resettlement & Rehabilitation of oustees.

- Adequate provisions have been made for the resettlement of the oustees of Project Affected Families (PAFs) in the approved R&R Plan for the project.
- Scholarship awarded to 556 No. the wards of PAFs in different categories under Merit Scholarship amounting to Rs 7.81 Crore has been given to PAFs.
- Process of declaration of Main Project Affected Families are under process.
- 259 Project Affected Families (PAFs) have been identified for resettlement & rehabilitation out of 2642 PAFs in Renukaji Dam Project.

**xv) Reasons for Delay:**

1. The Project Affected Families (PAFs) filed various petitions in the Hon'ble High Court & the then Hon'ble National Environment Appellate Authority (NEAA) which were later clubbed in Hon'ble NGT.

2. The Hon'ble National Green Tribunal (NGT), Delhi, through a common judgment dated 02-02-2016, dismissed all such petitions.
3. An eight-member committee was constituted to ascertain sufficiency of all the requisite compliances/recommendations especially related to land requirement and proposed R&R measures of the project.
4. The Hon'ble Tribunal, after getting satisfied with the report of the committee gave go ahead to MoEF & CC which then accorded revised Environmental Clearance on 15.01.2019.
5. The activities on the main components of the project shall be taken up after the grant of Stage-II Forest Clearance (FC) that is in advanced stage with MoEF, Gol and release of adequate funds.

**xvii) Financing/Expenditure on the Project:**

- a) Total expenditure as on 28.02.2022= Rs. 1251.51 crores.
- b) A sum of Rs. 743.71 Crore has been received over the period of time from Gol/Govt. of Delhi & Govt. of Haryana for land acquisition/HP Govt.
  - Rs. 457.57 Crores was released by Gol.
  - Rs. 214.84 Cr was released by Delhi Government.
  - Rs 63.57 Cr was released by Haryana Government.
  - Rs. 7.73 Crore was released by HP Govt.

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

The EAC in the present meeting (26<sup>th</sup> meeting) deliberated on the additional information submitted by PP and noted that earlier, Environment clearance (EC) was accorded to Renukaji Dam Project (40 MW) by Ministry of Environment & Forests (MoEF), Govt. of India on 23.10.2009. Subsequently, amendment has been granted on 15.01.2019 as per NGT order. Further, vide letter dated 6<sup>th</sup> November, 2019 MOEFCC granted extension to EC for three years till 22.10.2022. Therefore, it was observed that as per MoEF&CC Notification dated 18<sup>th</sup> January, 2021 validity of EC of the proposed project is valid till 22.10.2023.

It was noted that due to various court cases in the Hon'ble High Court, NGT, Supreme court and non-accordance of Stage-II FC by MoEF&CC, the construction of the project couldn't start. However, in the Form 1 the entry made by the PP regarding pending court matters is showing 'No'.

Further, it was also noted that PFR submitted that by the PP in form 1 on PARIVESH portal is not as MoEF&CC Office Memorandum dated 30.12.2010 regarding "Guidelines for preparation of prefeasibility report for obtaining prior EC in terms of the provisions of EIA notification, 2006".

**26.6.4** *The EAC after detailed deliberation on the information submitted and as presented during the meeting expressed that following are the deficiencies which required for further consideration of the project. It was desired that PP may submit the PFR in prescribed format mentioning the information on following points:*

- (i) *Comparative chart of critical parameters like submergence, muck disposal, EMP cost, distribution of forest land and any change in design etc. considered in earlier EC and as mentioned in de-novo proposal be provided.*
- (ii) *Site suitability study in terms of loss of Forest ecosystem, loss of biodiversity, water availability/water uses for irrigation and Ecological flows due to construction of the project.*
- (iii) *Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, raw material transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.*
- (iv) *Declaration form the project proponent that no construction work has been started yet.*
- (v) *Undertaking that no court has passed any direction against the project.*

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

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**ATTENDANCE LIST**

<b>Sr. No.</b>	<b>Name &amp; Address</b>	<b>Role</b>	<b>Attendance</b>
1.	Dr. Uday Kumar R.Y.	Member (Chairman)	P
2.	Dr. N. Lakshman	Member	P
3.	Dr. A. K. Malhotra	Member	P
4.	Dr. A. K. Sahoo	Representative of CIFRI	P
5.	Dr. J. A. Johnson	Representative of WII	P
6.	Shri Yogendra Pal Singh	Member Secretary	P

## APPROVAL OF THE CHAIRMAN



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**Fwd: Draft MOM of the EAC (RVHEP) 26th meeting held on 08.04.2022 for perusal and c**  
2 messages

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Yogendra Pal Singh <yogendra78@nic.in>  
To: geetdeepbisht <geetdeepbisht@gmail.com>

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**From:** kgopa@iisc.ac.in  
**To:** "Yogendra Pal Singh" <yogendra78@nic.in>  
**Sent:** Saturday, April 30, 2022 9:49:12 AM  
**Subject:** Re: Draft MOM of the EAC (RVHEP) 26th meeting held on 08.04.2022 for perusal and comments-reg

Dear Yogendra  
I have gone through it and everything is in order  
With regards  
Gopakumar

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**From:** Yogendra Pal Singh <yogendra78@nic.in>  
**Sent:** Saturday, April 30, 2022 9:08:43 AM  
**To:** Gopakumar K <kgopa@iisc.ac.in>  
**Subject:** Fwd: Draft MOM of the EAC (RVHEP) 26th meeting held on 08.04.2022 for perusal and comments-reg

### External Email

Dear Sir,

Please find attached the draft MOM of the EAC (RVHEP) 26th meeting held on 08.04.2022 for approval please.

With Regards,

**Yogendra Pal Singh**  
Scientist 'E'  
M/o Environment, Forest and Climate Change  
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Indira Paryavaran Bhawan  
Jor Bagh, New Delhi-110003  
Tele-fax: 011-20819364