



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

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Minutes of 52ND EXPERT APPRAISAL COMMITTEE meeting River Valley and  
Hydroelectric Projects held from 13/04/2026 to 13/04/2026

Date: 24/04/2026

MoM ID: EC/MOM/EAC/795001/4/2026  
Agenda ID: EC/AGENDA/EAC/795001/4/2026  
Meeting Venue: N/A  
Meeting Mode: Virtual  
Date & Time:

13/04/2026	10:30 AM	05:30 PM
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### 1. Opening remarks

The 52<sup>nd</sup> meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 13<sup>th</sup> April, 2026 through Virtual Mode, under the Chairmanship of Prof. G. J. Chakrapani.

### 2. Confirmation of the minutes of previous meeting

The Minutes of the 51<sup>st</sup> EAC meeting held on 27<sup>th</sup> March, 2026 were confirmed.

### 3. Details of proposals considered by the committee

Day 1 -13/04/2026

#### 3.1. Agenda Item No 1:

##### 3.1.1. Details of the proposal

Ghatghar Pumped Storage Scheme Stage II (125 MW) by Maharashtra State Power Generation Company

Limited located at AHMEDNAGAR,MAHARASHTRA			
Proposal For		Fresh ToR	
Proposal No	File No	Submission Date	Activity Sub-Activity (Schedule Item)
<a href="#">IA/MH/RIV/571723/2026</a>	J-12011/17/2026-IA.I(R)	30/03/2026	River Valley/Irrigation projects Standalone Pump Storage Projects (1(c))

### 3.1.2. Project Salient Features

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

Name of the Proposal	Ghatghar Open Loop Pumped Storage Project Stage II (125 MW) in an area of 329.846 (320.066 Ha existing and 9.78 Ha additional) located at Chondhe Bk., and Ghatghar, Sub-District Shahapur & Akole, District Thane & Ahilyanagar, Maharashtra by M/s Maharashtra State Power Generation Company Limited
Location (Including coordinates)	Near Village Chonde Bk & Ghatghar, Sub- district Shahapur & Akole, District Thane & Ahilyanagar, Maharashtra. <b>UPPER RESERVOIR</b> Lat: 19°32'33.58"N, Long: 73°39'56.02"E <b>LOWER RESERVOIR</b> Lat: 19°31'42.81"N, Long: 73°38'46.82"E
Inter- state issue involved	No
Seismic zone	
Category of the project	A
Provisions	-
Capacity / Cultural command area (CCA)	125 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-
Powerhouse Installed Capacity	1 unit of 125 MW each

Generation of Electricity Annually	273.75 MU
No. of Units	1
Additional information (if any)	-
Cost of project	Rs. 617.24 Crores (Incl. IDC)
Total area of Project	9.78 Hectares
Height of Dam from River Bed (EL)	Upper dam -15.16m Lower dam - 86.14m
Length of Tunnel/Channel	
Details of Submergence area	Both reservoirs are existing
Types of Waste and quantity of generation during construction/ Operation	Municipal solid waste from Labour camps 250 TPA. Plastic waste - Yes E waste - Yes DG set/vehicle/machinery - 0.1 TPA Waste Water generation - 168 KLD per day
E-Flows for the Project	NA
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.	NA
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	
No. of proposed disposal area/ (type of land- Forest/Pvt land)	Nil
Non Forest Land	2.74 Hectares
Forest Land	7.04 Hectares
Total Land	9.78 Hectares
Submergence area/Reservoir area	Both reservoirs are existing
Additional information (if any)	-

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter/Remarks
Reserve Forest/Protected Forest Land	Yes	Total Forest Land - 7.04 Ha (Reserve Forest Land -7.04 Ha)
National Park	No	
Wildlife Sanctuary	No	In the proposed layout only Upper intake falls in wildlife sanctuary (Kalsubai Harishchandragad wildlife sanctuary)
Particulars	Details	
Details of consultant	M/s WAPCOS Limited	
Project Benefits	Power Generation and Employment Generation	

### 3.1.3. Deliberations by the committee in previous meetings

N/A
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### 3.1.4. Deliberations by the EAC in current meetings

<ul style="list-style-type: none"> <li>The Expert Appraisal Committee (EAC) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR for conducting EIA/EMP and Public hearing for Ghatghar Open Loop Pumped Storage Project Stage II (125 MW) in an area of 329.846 (320.066 Ha existing and 9.78 Ha additional) located at Chondhe Bk., and Ghatghar, Sub-District Shahapur &amp; Akola, District Thane &amp; Ahmadnagar, Maharashtra by M/s Maharashtra State Power Generation Company Limited.</li> <li>The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the Central level by the sectoral EAC in the Ministry.</li> <li>The EAC noted that the Ministry had issued EC earlier vide letter no. J-11016/1/94-Env.5; dated 10.06.1985 to the existing project Ghatghar 2x125MW PSP. The committee observed that the proposed Stage II PSP (125 MW) is an expansion of the existing Stage-I (2 × 125 MW) scheme. The Committee noted that Stage-I operates with a design head of 410 m and requires 1.62 MCM of water for 6 hours of daily peak operation. It was further noted that surplus water of about 1.11 MCM in the lower reservoir and 3.52 MCM in the upper reservoir is available. The EAC took note that Stage-II proposes to utilize the existing Ghatghar Reservoir as the upper reservoir and Chonde Reservoir as the lower reservoir.</li> <li>The EAC noted that the total land requirement for the proposed PSP is estimated to be around 9.78 hectares, out of which 7.04 hectares are anticipated to be forest land, while the remaining 2.74 hectares are likely to comprise revenue and private land. Diversion of forest land for non-forest purpose will be involved for construction of project</li> </ul>
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components. However, it was observed that the application for Stage-I Forest Clearance (FC) has not yet been submitted, which necessitates further action from the Project Proponent.

- The EAC noted with concern that the project is located within the Kalsubai Harishchandragad Wildlife Sanctuary, an ecologically sensitive and legally protected area in Western Ghats. The Ministry of Environment, Forest and Climate Change vide Notification S.O. 1367(E) dated 28.04.2017 has notified the Eco-Sensitive Zone (ESZ) around the sanctuary, wherein “establishment of new major hydro-electric projects is prohibited (except as otherwise provided) as per applicable laws.”
- In view of the above, the EAC opined that the Project Proponent shall obtain necessary clarification/clearance from the competent authority, including statutory approvals under applicable environmental and wildlife regulations, confirming that the proposed hydroelectric project is permissible within the notified ESZ.

The EAC based on the information submitted and as presented during the meeting, and in view of the above provisions and regulatory restrictions, decided to **defer the proposal** for grant of Terms of Reference for conducting EIA study for proposed construction of Ghatghar Open Loop Pumped Storage Project Stage II (125 MW) in an area of 329.846 (320.066 Ha existing and 9.78 Ha additional) located at Chondhe Bk., and Ghatghar, Sub-District Shahapur & Akola, District Thane & Ahmadnagar, Maharashtra by M/s Maharashtra State Power Generation Company Limited and directed the Project Proponent to obtain the requisite No Objection Certificate/Clearance from the competent authority under applicable environmental and wildlife regulations, confirming that the proposed hydroelectric project is permissible within the notified ESZ.

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

### 3.1.5. Recommendation of EAC

Deferred for ADS

## 3.2. Agenda Item No 2:

### 3.2.1. Details of the proposal

Humbarli Birmani Off Stream Open Loop Pumped Storage Project by THDC INDIA LIMITED located at SATARA, MAHARASHTRA			
Proposal For		Fresh ToR	
Proposal No	File No	Submission Date	Activity Sub-Activity (Schedule Item)
<a href="#">IA/MH/RIV/572989/2026</a>	J-12011/18/2026-IA.I(R)	19/03/2026	River Valley/Irrigation projects Standalone Pump Storage Projects (1(c))

### 3.2.2. Project Salient Features

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

Upper Reservoir Coordinates: 17° 51' 42.63 "N, 73° 36' 39.37 "E

Lower Reservoir Coordinates: 17° 50' 30.65 "N, 73° 34' 20.28 "E

Name of the Proposal	Humbarli Birmani Off Stream Open Loop Pumped Storage Project (1500 MW), District Satara & Ratnagiri, Maharashtra File No. J-12011/18/2026-IA. I(R)
Proposal No.	IA/MH/RIV/572989/2026
Location (Including Coordinates)	Upper Dam: Village Hatlot, Taluk- Mahabaleshwar, District Satara, Maharashtra Lower Dam: Village Birmani, Taluk-Khed, District Ratnagiri, Maharashtra Upper Reservoir: 17° 51' 42.63 "N, 73° 36' 39.37 " E Lower Reservoir: 17° 50' 30.65 "N, 73° 34' 20.28 " E
Inter- state issue involved	No
Seismic zone	
Category of the project	A
Provisions	Project activity covered at S.N.1(c)(i)(c) Standalone Pumped Storage Project
Capacity / Cultural command area (CCA)	1500 MW/9255 MWH pumped storage component with 6.17 hours storage capacity for peak power generation and 7.17 hours pumping operation for backfilling of upper reservoir of PSP.
Attracts the General Conditions (Yes/No)	Yes
Additional information (if any)	MoU was signed between M/s THDCIL and Department of Water Resources, Govt. of Maharashtra on 03rd day of September 2024, for establishment of Humbarli Birmani PSP.
Powerhouse Installed Capacity	1500 MW
Generation of Electricity Annually	3207.44 MU
No. of Units	6x250MW
Additional information (if any)	The project with installed capacity of 1500 MW(6x250MW) by utilizing a design discharge of

	55.96 cumec/unit rated net head of 505.23m for 6.17-hour daily peaking cycle will annually generate 3207.44 MU. The PSP will utilize 1650 MW to pump 48.14 cumec/unit from lower reservoir to the upper reservoir in 7.17 hours.		
Cost of project	Rs 8470.89 Crores.		
Total area of Project	334.82 ha		
Height of Dam from River Bed (EL)	Upper Dam-51.09 m; Lower Dam-76.15m		
Length of Tunnel/Channel	Length: 14159.86 m comprising of following components: (i) HRT: 784.69m		
Details of Submergence area	Total Submergence area- 87.05 ha (Forest land: 1.31ha, Non-Forest land :85.74ha)		
Types of Waste and quantity of generation during construction/ Operation	Waste Type	Construction (TPA)	Operation (TPA)
	MSW	85	15
	Plastic	12.0	1.0
	E-waste	2.0	0.2
	Burnt oil	17.0	2.00
	Batteries	6.0	0.50
	Bio-medical	5.0	2.0
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 required, as the proposed Pumped Storage Project (PSP) is an open-loop system on a small non perennial stream with a small catchment. The PSP project recycles water between two reservoirs without consuming it. Upon first filling of the reservoir, the project acts as a "pass-through" system, allowing natural flows/precipitated water/floodwaters to flow downstream as they normally would.		
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	200		
No. of proposed disposal area/ (type of land-Forest/Pvt. land)	Muck Disposal Sites-3 Nos		
Muck Management Plan	The muck shall be laid with vertical angle not exceeding 28° in such a manner that rock mass is properl		

	y stacked behind the gabion wall/revetment with minimum of voids. The muck pile shall be later covered with geo-Geocoir textile and rehabilitated by afforestation of herbs and shrubs. Detailed Muck Management Plan shall be formulated during EIA study.	
Monitoring mechanism for Muck Disposal	The project authorities shall erect a barrier to regulate the traffic flow to and from the muck piles site. Proper e-challan shall be issued.	
Private Land	15.00 ha	
Government land	270.32 ha	
Forest Land	49.50 ha	
Total Land	334.82 ha	
Submergence area/Reservoir area	87.05 ha	
Additional information (if any)	Land for transmission line for power evacuation (RoW) is not included.	
<b>Forest Land/ Protected Area/ Environmental Sensitivity Zone</b>	<b>Yes/No</b>	<b>Details of Certificate / letter/Remarks</b>
Reserve Forest/Protected Forest Land	Yes	RF
National Park	No	None within 10km
Wildlife Sanctuary	No	The nearest project boundary is 8.82km from core zone (Koyna WLS) of Sahyadri Tiger Reserve, while its buffer zone is located about 3.30km from the lower reservoir.
<b>Particulars</b>	<b>Letter no. and date</b>	
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 shall be moved	
Is FRA (2006) done for FC-I	Not, yet	
<b>Particulars</b>	<b>Details</b>	

Details of consultant	EQMS India Private Limited 305, 3rd Floor, Plot No. 16, Rishabh Corporate Tower, Community Centre, Karkardooma, Delhi - 110092 Phone: 011-43062757; NABET/EIA/25-28/RA0465, valid up to 23.11.2028.)
Project Benefits	The benefits inter alia shall include the benefits like (i) Average annual generation of 3207.44 MU of energy; (ii) Increased vegetal cover due to implementing of CAT Plan and Green Belt Development Plans (iii) Employment Potential during construction (1500 labour); (iv) Overall development of area by implementing CSR initiatives and Watershed Development Plans.
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	R&R details shall be finalised later.
Additional detail (If any)	The project has been planned to be completed in 60 months from the start date. This period includes 12 months of pre-construction period for preparation and award of works and construction of roads etc. As per preliminary estimation the tentative cost of project is INR 8470.89 Crores.

### 3.2.3. Deliberations by the committee in previous meetings

N/A
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### 3.2.4. Deliberations by the EAC in current meetings

<p><b>The EAC during deliberations noted the following:</b></p> <ul style="list-style-type: none"> <li>• The Expert Appraisal Committee (EAC) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR for conducting EIA/EMP and Public hearing for Humbarli Birmani Open Loop Pumped Storage Project (6x250MW) in an area of 334.82 located at Biramani, and Hatlot, Sub-District Khed &amp; Mahabaleshwar, District Ratnagiri &amp; Satara, Maharashtra by M/s THDC India Limited.</li> <li>• The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the Central level by the sectoral EAC in the Ministry.</li> </ul>
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- The EAC observed that the proposed project is an open loop project of installed capacity 1500MW pumped storage. The proposed upper dam shall be located across a small stream near Hatlot village, Mahabaleshwar taluka, Satara district and the lower dam shall be located on a small stream near Birmani village, Khed taluka, Ratnagiri district. For reservoir operation the project contemplates non-consumptive re-utilization of 7.457 MCM of water for recirculation among two proposed reservoirs. The one-time filling requirement of 9.56 MCM and periodical recoupment for losses(0.719MCM) will be met from yield generated within lower dam catchment area (4.64 sq.km) and used cyclically for energy storage and discharge.
- The EAC noted that total land required for the construction of various components and related works for project is 334.82 ha out of which Forest area is 49.50 ha and non-forest area is 285.32 ha. Diversion of forest land for non-forest purpose will be involved for construction of project components. However, it was observed that the application for Stage-I Forest Clearance (FC) has not yet been submitted, which necessitates further action from the Project Proponent.
- The Committee noted that the project boundary is located at a distance of about 8.82 km from the core zone of Koyna Wildlife Sanctuary within the Sahyadri Tiger Reserve, while the buffer zone lies approximately 3.30 km from the lower reservoir. It was further observed that the upper dam/reservoir and intake components fall within the Mahabaleshwar Panchgani Eco Sensitive Zone. The Committee also noted that the project villages, namely Hatlot and Birmani, are covered under the Western Ghats Ecologically Sensitive Area (ESA) as per Draft Notification S.O. 3060(E) dated 31.07.2024 issued by the Ministry of Environment, Forest and Climate Change. It was further informed by the PP during the meeting that THDC India Limited has applied to the Monitoring Committee of the Mahabaleshwar-Panchgani ESZ on 18.02.2026 for issuance of a No Objection Certificate (NOC).
- It has been observed that Memorandum of Understanding has been signed between THDCIL and Water Resources Department, Govt. of Maharashtra on 03.09.2024 for the development of Humbarli Birmani Pumped Storage Project (1000 MW). The process for updation/ amendment of the MoU for Humbarli Birmani PSP from 1000 MW to 1500 MW is currently under progress.
- The EAC noted that, as per the notification of the Mahabaleshwar-Panchgani Eco-Sensitive Zone issued vide S.O. 52(E) dated 17.01.2001, only non-polluting non-hazardous service industries, units making footwear from processed and ready-made leather, floriculture, horticulture based or agro based industries producing products from indigenous goods from the Eco Sensitive Zone shall be permitted in this zone, providing the project/ activity does not result in polluting effluent, emission or impacts.
- The Committee further observed that, as per the classification of industries provided by the Central Pollution Control Board (CPCB) on date 12.02.2025, the hydel power plants (Capacity > 50 MW) fall under the Red category. Accordingly, the EAC noted that the proposed PSP being a sub category of Hydel Power Plant projects, falls under red category and therefore was not a fit case to be taken up for grant of Terms of Reference (ToR) unless the Project Proponent (PP) obtained requisite No Objection Certificates / clearances from the competent Authority(ies).
- In view of the above mentioned provisions and regulatory restrictions, the EAC decided to defer the proposal and suggested the Project Proponent to obtain the requisite No Objection Certificate/Clearance from the competent authority in accordance with the provisions of the Mahabaleshwar-Panchgani Eco-Sensitive Zone Notification, S.O. 52(E) dated 17.01.2001, for further consideration of the proposal.

The EAC based on the information submitted and as presented during the meeting, and in view of the above provisions and regulatory restrictions, decided to **defer the proposal** for grant of Terms of Reference for conducting EIA study for proposed construction of Humbarli Birmani Open Loop Pumped Storage Project (6x250MW) in an area of 334.82 located at Biramani, and Hatlot, Sub-District Khed & Mahabaleshwar, District Ratnagiri & Satara, Maharashtra by M/s THDC India Limited and directed the Project Proponent to obtain the requisite No Objection

Certificate/Clearance from the competent authority in accordance with the provisions of the Mahabaleshwar-Panchgani Eco-Sensitive Zone Notification, S.O. 52(E) dated 17.01.2001, for further consideration of the proposal.

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

### 3.2.5. Recommendation of EAC

Deferred for ADS

### 3.3. Agenda Item No 3:

#### 3.3.1. Details of the proposal

<b>CHENTIKHEDA MAJOR IRRIGATION PROJECT</b> by Dinesh kumar ratnakar located at <b>SHEOPUR,MADHYA P RADESH</b>			
<b>Proposal For</b>		Fresh EC	
<b>Proposal No</b>	<b>File No</b>	<b>Submission Date</b>	<b>Activity Sub-Activity (Schedule Item)</b>
<a href="#">IA/MP/RIV/557462/2026</a>	J-12011/28/2024-IA.I (R)	13/03/2026	River Valley/Irrigation projects Irrigation Projects (1(c))

#### 3.3.2. Project Salient Features

The proposal is for grant of Environmental Clearance (EC) to the project for Chentikheda Major Irrigation Project (15,300 ha CCA) in an area of 1369.35 located at Aroda, Pachnia, and Garhi etc., Sub-District Vijaypur & Sabalgarh, District Sheopur & Morena, Madhya Pradesh by M/s Water Resource Department Sabalgarh, District Morena, Government of Madhya Pradesh.

**52.3.2** The Project Proponent and the accredited Consultant PDCOR Limited, made a detailed presentation on the salient features of the project and informed that:

S.N.	Type of land	Area	Unit
i	Private Land	709.51	ha
ii	Govt land	587.57	ha
iii	Forest land	72.27	ha
	Total	1369.35	ha
<b>Period</b>	<b>From December 2024 to August 2025</b>		
AAQ parameters	<b>Winter Season</b> <input type="checkbox"/> PM10: 49.1 to 66.7 µg/m <sup>3</sup> <input type="checkbox"/>		

PM2.5: 19.2 to 32.8 µg/m<sup>3</sup>  
 □ SO<sub>2</sub>: 4.9 to 13.5 µg/m<sup>3</sup>  
 □ NO<sub>x</sub>: 12.7 to 20.9 µg/m<sup>3</sup>  
 □ CO: 0.26 to 0.49 mg/m<sup>3</sup>  
 (All values within NAAQS limits)  
**Pre Monsoon Season**  
 □ PM10: 49.7 to 68.0 µg/m<sup>3</sup>  
 □ PM2.5: 19.7 to 33.7 µg/m<sup>3</sup>  
 □ SO<sub>2</sub>: 5.0 to 13.9 µg/m<sup>3</sup>  
 □ NO<sub>x</sub>: 13.0 to 21.6 µg/m<sup>3</sup>  
 □ CO: 0.27 to 0.51 mg/m<sup>3</sup>  
 (All values within NAAQS limits)

Surface water samples

**Winter Season (Season-1)**

Parameter	Minimum	Maximum
pH	7.43	8.20
Dissolved Oxygen (mg/L)	4.10	4.86
Total Dissolved Solids (mg/L)	59.9	316
Total Hardness as CaCO <sub>3</sub> (mg/L)	47.04	282.24
Total Alkalinity (mg/L)	45.26	229.14
Calcium (mg/L)	12.56	62.55
Magnesium (mg/L)	3.54	30.94
Oil & Grease (mg/L)	BDL	BDL
Sulphate (mg/L)	2.10	22.12
Nitrate (mg/L)	2.56	5.36
Chloride (mg/L)	7.71	50.85
Iron (mg/L)	0.10	0.18
BOD (mg/L)	3.18	3.40

**Pre-Monsoon Season (Season-2)**

Parameter	Minimum	Maximum
pH	7.37	8.16
Dissolved Oxygen (mg/L)	4.01	4.45
Total Dissolved Solids (mg/L)	60.7	319.0
Total Hardness as CaCO <sub>3</sub> (mg/L)	49.23	278.10
Total Alkalinity (mg/L)	48.20	234.17
Calcium (mg/L)	12.09	60.23
Magnesium (mg/L)	4.63	31.18
Oil & Grease (mg/L)	BDL	BDL
Sulphate (mg/L)	2.13	21.43
Nitrate (mg/L)	2.52	5.41
Chloride (mg/L)	7.92	48.65
Iron (mg/L)	0.11	0.20
BOD (mg/L)	3.27	3.45

**Monsoon Season (Season-3)**

Parameter	Minimum	Maximum
pH	7.31	8.02
Dissolved Oxygen (mg/L)	4.03	4.37
Total Dissolved Solids (mg/L)	58.4	305.0
Total Hardness as CaCO <sub>3</sub> (mg/L)	45.20	268.12
Total Alkalinity (mg/L)	45.84	226.02
Calcium (mg/L)	10.28	57.10
Magnesium (mg/L)	4.87	30.57
Oil & Grease (mg/L)	BDL	BDL
Sulphate (mg/L)	2.05	19.01
Nitrate (mg/L)	2.50	5.36
Chloride (mg/L)	7.76	45.11
Iron (mg/L)	0.10	0.22
BOD (mg/L)	3.20	3.34

Ground Water

**Ground Water - Winter Season**

Parameter	Minimum	Maximum
pH	6.90	7.25
DO (mg/L)	NA	NA
TDS (mg/L)	441	2580
Hardness as CaCO <sub>3</sub> (mg/L)	395.92	858.48
Alkalinity (mg/L)	257.28	350
Calcium (mg/L)	108.90	218.38
Magnesium (mg/L)	30.51	76.32
Oil & Grease (mg/L)	BDL	BDL
Sulphate (mg/L)	28.45	164.14
Nitrate (mg/L)	3.56	8.14
Chloride (mg/L)	77.13	1171.10
Iron (mg/L)	0.19	0.50

**Pre-Monsoon Season**

Parameter	Minimum	Maximum
pH	6.98	7.45
DO (mg/L)	NA	NA
TDS (mg/L)	459	2489
Hardness as CaCO <sub>3</sub> (mg/L)	404.29	846.10
Alkalinity (mg/L)	260.24	356.00
Calcium (mg/L)	110.70	222.64
Magnesium (mg/L)	30.51	76.32
Oil & Grease (mg/L)	BDL	BDL
Sulphate (mg/L)	31.20	158.10
Nitrate (mg/L)	3.48	7.89
Chloride (mg/L)	74.04	1087.40
Iron (mg/L)	0.19	0.47

**Monsoon Season**

	Parameter		
	Minimum	Maximum	
	pH	7.03	7.41
	DO (mg/L)	NA	NA
	TDS (mg/L)	442	2238
	Hardness as CaCO <sub>3</sub> (mg/L)	408.10	834.13
	Alkalinity (mg/L)	255.20	347.00
	Calcium (mg/L)	107.10	215.28
	Magnesium (mg/L)	34.27	72.31
	Oil & Grease (mg/L)	BDL	BDL
	Sulphate (mg/L)	28.19	152.09
	Nitrate (mg/L)	3.43	7.82
	Chloride (mg/L)	69.12	988.20
	Iron (mg/L)	0.18	0.45
Flora & Fauna	Schedule-I species observed in the study area:		
Name of the Proposal	Chentikheda Major Irrigation Project		
Proposal No.	IA/MP/RIV/557462/2026		
Location (Including coordinates)	Lat 25°58'3.5" N and Long 77°17'2.15" E.		
Company's Name	Water Resource Department, Sabalgarh, District Morena, MP		
CIN no. of Company/user agency	--		
Accredited Consultant and certificate no.	PDCOR Limited Certificate No.: NABET/EIA/25-28/IA 016 0		
Project location (Coordinates /River/Reservoir)	Lat 25°58'3.5" N and Long 77°17'2.15" E.		
Inter- state issue involved	No		
Proposed on River/ Reservoir	Kunwari River		
Type of Hydro-electric project	Only Irrigation Project		
Seismic zone	Zone - II		
Category of the project	B1		
Capacity / Cultural command area (CCA)	15300 Ha		
Attracts the General Conditions (Yes/No)	Yes		

Additional information (if any)	--
ToR Proposal No.	IA/MP/RIV/500241/2024
EAC meeting date	31-12-2024 (ToR)
ToR Letter No.	TOR Identification No. TO24A0502MP5811 182N File No. J-12011/28/2024-IA.I (R)
ToR grant Date	28/01/2025
Cost of project	539 Crore/-
Total area of Project	1369.35 Ha (Submergence Area at FRL)
Height of Dam from River Bed (EL)	19.32 m
Details of submergence area	1369.35 Hectare
District to provide irrigation facility (if applicable)	Sheopur and Morena districts of Madhya Pradesh
Details of tunnels on upper level & lower level and length of canal (if applicable)	Not Applicable
No. of affected Village.	8
No. of Affected Families	1568
Project Benefits	<ul style="list-style-type: none"> <li>ØIrrigation potential for ~15,300 Ha agricultural land</li> <li>ØImproved groundwater recharge</li> <li>ØIncreased crop productivity and cropping intensity</li> <li>ØEmployment generation (construction &amp; operation phase)</li> <li>ØFisheries development</li> <li>ØImprovement in socio-economic conditions of local population</li> </ul>
R&R details	Total 8 villages of Vijaypur tehsil will be impacted due to submergence. Project-Affected Families (PAFs), who will lose land, will be adequately compensated in accordance with the provisions of the LARR Act, 2013.
Catchment area/ Command area	ØCatchment Area: 481.25 km <sup>2</sup> , As per D

	<p>PR (Rainfed catchment, non-snowfed)  Ø Command Area: ~15,300 Ha</p>
Types of Waste and quantity of generation during construction/Operation	<p>ØConstruction Phase: Excavated earth, muck, construction debris, domestic waste from labour camps</p> <p>ØOperation Phase: Minimal solid waste, mainly domestic waste from staff colony and maintenance activities</p>
Material used for blasting and its composition as per DGMS standards.	<p>ØANFO (Ammonium Nitrate Fuel Oil) / slurry explosives</p> <p>ØControlled blasting as per DGMS guidelines</p>
E-Flows for the Project	<p>As per the prescribed guidelines, a minimum environmental flow has been ensured for the project. The non-monsoon runoff is estimated at 0.84 MCM, based on 1% of monsoon runoff. Out of this, 25% (0.20 MCM) has been allocated for maintaining e-flow, which will be released from November to May at an average rate of 0.029 MCM per month.</p>
<p>Is Projects earlier studied in Cumulative Impact assessment &amp; Carrying Capacity studies(CIA&amp;CC) for River in which project located. If yes then</p> <p>a) E-flow with TOR/Recommendation by EAC as per CIA&amp;CC study of River Basin.</p> <p>b) If not the E-Flows maintain criteria for sustaining river ecosystem.</p>	<p>CIA &amp; CC Study- Not studied under basin-level CIA &amp; CC.</p>
Details on provision of fish pass	<p>A fish pass along with fisheries development measures has been proposed to facilitate fish migration across the dam. The plan includes fish seed stocking, hatchery and brood stock management, fingerling rearing ponds, habitat improvement, fishermen training, and provision of boats, nets and transport facilities.</p>
Project benefit including employment details (no of employee)	<p>The proposed Project will generate significant socio-economic benefits, particularly in terms of employment. During the construction and implementation phase, the project is expected to provide direct and indirect employment opportunities to approximately 1,000 labourers. In addition, long-term livelihood opportunities will be created through en</p>

	hanced irrigation, increased agricultural productivity, and allied activities such as fisheries and local services, thereby contributing to overall regional development.
Area of Compensatory Afforestation (CA) with tentative no of plantation.	ØForest Land: 72.27 Ha ØCompensatory Afforestation to be done on equivalent non-forest land with ~30,000 -35,000 plantation (approx.)
Previous EC details	Not Applicable (New Project)
EC Compliance Report by R.O, MOEF&CC	Not Applicable
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	~10,000-20,000 saplings (integrated within greenbelt & CA)
No. of proposed disposal area/ (type of land- Forest/Pvt land)	One site is proposed for disposal of muck and It is Non-forest land, It is Govt. Land.
Cross section of proposed muck area, Height of muck with slope.	Terraced dumping with proper slope stabilization.
Distance of muck disposal area(location), from muck generation sources (project area)/River, HFL of proposed muck disposal area.	The muck disposal site is located within a bout 3.5 km from the project area and at a safe distance from the river. The site is situated above the Highest Flood Level (HFL) to prevent flooding and ensure stability.
Total Muck Disposal Area	13.99 Hectare
Estimate Muck to be generated	1,86,550 Cum
Transportation	Transportation of muck will be carried out by dumpers over a distance of approximately 3.5 km.
Monitoring mechanism for Muck Disposal Transportation	ØPeriodic inspection ØEnvironmental Monitoring Cell supervision
Private land	709.51 Hectare
Government land	587.57 Hectare
Forest Land	72.27 Hectare
Total Land	1369.35 Hectare

Submergence area/Reservoir area	Total Submergence area- 1369.35 Hectare	
Additional information (if any)	-	
Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter/Remarks
Reserve Forest/Protected Forest Land	Yes	72.27 Ha forest land involved Kuno National Park within 10 km
National Park	Yes	
Wildlife Sanctuary	-	
Archaeological sites monuments/historical temples etc	-	-
Additional information (if any)	-	NBWL clearance under process
Advertisement for PH with date	12 <sup>th</sup> June 2025 and 15 <sup>th</sup> June 2025	
Date of PH	14 <sup>th</sup> July 2025 and 30 <sup>th</sup> July 2025	
Venue	<ul style="list-style-type: none"> <li>▫ Karyalaya Gram Panchayat, Agra, Tehsil Vijaypur, District Sheopur and</li> <li>▫ Near Koh Wale Hanuman Mandir, Rampur Ghati, Gram Rampurkala, Tehsil Sabalgarh, District Morena</li> </ul>	
Chaired by	<p><b>District- Sheopur</b></p> <ul style="list-style-type: none"> <li>▫ Mr. Atendra Singh Gurjar, Additional District Magistrate, Sheopur</li> <li>▫ Mr. R.R. Singh Sengar, Regional Officer.</li> </ul> <p><b>District- Morena</b></p> <ul style="list-style-type: none"> <li>▫ Mr. Arvind Kumar Mahour, Sub-Divisional Officer (Revenue), Sabalgarh</li> <li>▫ Mr. R.R. Singh Sengar, Regional Officer.</li> </ul>	
Main issues raised during PH	<ul style="list-style-type: none"> <li>· Land acquisition &amp; compensation</li> <li>· Employment opportunities</li> <li>· Irrigation benefits</li> <li>· Infrastructure development</li> <li>· Environmental concerns</li> </ul>	
No. of people attended	<p><b>District- Sheopur</b> 86 persons</p> <p><b>District- Morena</b> 21 persons</p>	

Particulars	Details	
Period of baseline data collection/Sampling period.	Dec 2024 – Aug 2025 (Winter Season, Pre-monsoon Season, Monsoon Season)	
(Air, noise, water, land)	Within permissible CPCB limits	
flora and fauna of the project area,	<ul style="list-style-type: none"> <li>· Mixed dry deciduous vegetation</li> <li>· Presence of mammals, birds, reptiles</li> <li>· Schedule-I species recorded</li> </ul>	
aquatic ecology, etc.	River Kunwari supports fish diversity	
Brief description on hydrology and water assessment as per the approved Pre-DPR:	<ul style="list-style-type: none"> <li>· Rainfed catchment</li> <li>· Dendritic drainage pattern</li> </ul>	
Additional detail (If any)		
Particulars	Letter no. and date	
Status of Stage- I FC	Under Process	
Approval of Central Water Commission	BODHI approval letter no.- 64/BODHI/HYD/443-Y/22 Bhopal on dated- 10/06/2022	
Approval of Central Electricity Authority	--	
Additional detail (If any)	NBWL clearance under process	
Is FRA (2006) done for FC-I	Under Process	
Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Administrative charges including logistics	0	4
Monitoring Cost	0	33.6
Fisheries Management Plan	75	28
Muck Management	25	0
Labour management Plan	157.52	5
Disaster management Plan	80	1

CAT Plan	634	7
Biodiversity Conservation	18	15.67
Compensatory Afforestation	4.34	0
Green Belt Development Plan	4.5	0.4
Reservoir Rim Treatment Plan	15	1
Landscape and Restoration Plan	41.5	0
Restoration Plan for Quarry Sites	8	1
Command Area Development Plan	16	1
Local Area Development Plan	50	0
Training	16	0
Advocacy and Policy Making	0	4
Miscellaneous	1	0
Dust Management	0	14.4
<b>Total</b>	<b>1145.86</b>	<b>116.07</b>

### 3.3.3. Deliberations by the committee in previous meetings

N/A
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### 3.3.4. Deliberations by the EAC in current meetings

<ul style="list-style-type: none"> <li>· The Expert Appraisal Committee (EAC) deliberated on the information submitted by the Project Proponent and the details presented during the meeting. The Committee observed that the proposal pertains to the grant of Environmental Clearance for the Chentikheda Major Irrigation Project (15,300 ha CCA) in an area of 1369.35 located at Aroda, Pachnia, and Garhi etc., Sub-District Vijaypur &amp; Sabalgarh, District Sheopur &amp; Morena, Madhya Pradesh by M/s Water Resource Department Sabalgarh, District Morena, MP.</li> <li>· The EAC noted that as per the provisions the project comes under “B1” category as it is a major irrigation project because the CCA lies between <math>\geq 10,000</math> ha i.e. 15300 Ha. of CCA for which only EMP is required. However, due to presence of Kuno National Park is located within 10 km distance from the project site the project transformed to category ‘A’ project and will be appraised at Central level.</li> <li>· The Terms of Reference (ToR) for conducting EIA/EMP study and public hearing of the Dulhasti Stage-II HEP was granted by the MoEF&amp;CC vide letter no. J-12011/28/2024-IA.I (R), dated- 28/01/2025.</li> </ul>
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- The EAC, constituted under the provisions of the EIA Notification, 2006, and comprising expert members/domain experts from various relevant fields, examined the proposal submitted by the Project Proponent. This examination included a review of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports, which were prepared and submitted by a QCI/NABET-accredited consultant on behalf of the Project Proponent.
- The EAC noted that the Project Proponent has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.
- The EAC noted that the proposal is for the construction of a dam on the Kunwari River, a tributary of the Sind River in the Yamuna Basin, in Sheopur district, Madhya Pradesh. The Committee noted that the project aims to provide irrigation to about 15,300 hectares of largely unirrigated agricultural land covering 55 villages in Vijaypur tehsil of Sheopur district and Sabalgarh tehsil of Morena district. The EAC appreciated the potential benefits of the project in terms of enhanced irrigation coverage, improved water use efficiency through sprinkler irrigation, and increased agricultural productivity leading to socio-economic development of the region.
- The EAC noted that the total land requirement of the project is 1369.35ha, comprising 587.57 ha of revenue/government land, 709.51 ha of private land about 72.27 ha of forest land. The Committee observed that the PP has not obtained Stage-I Forest Clearance (FC) for diversion of 72.27 ha of forest land for construction of the proposed project. During the meeting, PP informed to the committee that they have applied vide proposal no. FP/MP/HYD/IRRIG/502063/2024 dated 03/11/2024 for obtaining Stage-I Forest Clearance for diversion of 72.27 Ha of forest land.
- The EAC noted that the project site is located within 10 km of Kuno National Park, an ecologically sensitive and protected area. In view of the proximity to the National Park, the Committee emphasized the requirement of prior clearance from the National Board for Wildlife (NBWL) under the provisions of the Wildlife (Protection) Act, 1972. The Committee took note that the Project Proponent has applied for wildlife clearance, and the proposal has been registered with reference/application no. WL/MP/IRRIG/541262/2025 for consideration by the NBWL.
- The EAC inquired about the downstream impacts of the project and observed that the dam proposed on
- The EAC opined that the project shall be considered further only after obtaining the requisite wildlife clearance and submission of recommendations of the Standing Committee of NBWL, along with a site-specific Wildlife Conservation Plan addressing potential impacts on fauna, habitat, and ecological connectivity.
- The EAC while discussing the downstream impacts observed that being a seasonal river the Kunwari River, a tributary of the Sind River, which ultimately drains into the Yamuna within the Chambal basin, depends primarily on monsoon rainfall for its flow like most non-Himalayan rivers of peninsular India. As a result, the river carries substantial water during the monsoon season but experiences a significant reduction in discharge—and may even dry up—during the dry months. Most of the downstream monsoon flow remains substantially undisturbed, particularly because the Kunwari itself carries only a comparatively small catchment contribution vis-à-vis the larger downstream river systems up to its confluence with Sindh and the further confluence of Sindh with Yamuna. The proposed project may facilitate in providing sustained water supply in the downstream

during non-monsoon season supporting environmental continuity in a more orderly and regulated manner.

- The EAC further opined that the proposed project is an irrigation project of national importance, contributing to the food security of the country, but the project site is close to critical wildlife habitat so the project should be implemented with stringent environmental safeguards.
- The committee observed that the Public Hearing for the proposed project has been conducted by the State Pollution Control Committee on 14th July 2025 at Karyalaya Gram Panchayat, Agra, Tehsil Vijaypur, District Sheopur chaired by Mr. Atendra Singh Gurjar, Additional District Magistrate, Sheopur and 30th July 2025 at Near Koh Wale Hanuman Mandir, Rampur Ghati, Gram Rampurkala, Tehsil Sabalgarh, District Morena chaired by Mr. Arvind Kumar Mahour, Sub-Divisional Officer (Revenue), Sabalgarh.
- The EAC discussed the concerns raised during the Public Hearing (PH) and reviewed the action plan submitted by the PP to address these issues. After detailed deliberation, the Committee found the action plan satisfactory, recognizing that the proposed mitigation measures adequately respond to stakeholders' concerns.
- The EAC noted that the total estimated project cost is ₹539 crore, including an existing investment of ₹5.0 crore. The Committee further observed that a capital cost of ₹1141.52 lakh has been earmarked towards the Environmental Management Plan (EMP), with a recurring operation and maintenance cost of ₹116.07 lakh per annum. The cost earmarked for Compensatory Afforestation shall be excluded from the budget outlay of EMP. The revised EMP details are as under:

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Administrative charges including logistics	0	4
Monitoring Cost	0	33.6
Fisheries Management Plan	75	28
Muck Management	25	0
Labour management Plan	157.52	5
Disaster management Plan	80	1
CAT Plan	634	7
Biodiversity Conservation	18	15.67
Green Belt Development Plan	4.5	0.4
Reservoir Rim Treatment Plan	15	1
Landscape and Restoration Plan	41.5	0
Restoration Plan for Quarry Sites	8	1

Command Area Development Plan	16	1
Local Area Development Plan	50	0
Training	16	0
Advocacy and Policy Making	0	4
Miscellaneous	1	0
Dust Management	0	14.4
<b>Total</b>	<b>1141.52</b>	<b>116.07</b>

### 3.3.5. Recommendation of EAC

Recommended
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### 3.3.6. Details of Environment Conditions

#### 3.3.6.1. Specific

<b>Miscellaneous:</b>	
1.	After 5 years of the commissioning of the project, a study shall be undertaken regarding impact of the project on the environment. The study shall be undertaken by an independent agency.
2.	PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis.
3.	A dedicated team to oversee environmental management activities (at project site) shall be set up comprising Environment Manager having post graduate qualification in Environmental Sciences/ Environment Engineering along with other supporting staff. The Environment Manager Shall report to Project Head directly.
4.	PP shall procure construction material only from those Organizations having all valid legal/statutory clearances/permissions or necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and as amended thereof.
<b>Socio-economic:</b>	
1.	Land acquired for the project shall be suitably compensated in accordance with the prevailing guidelines of the state government and provisions under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act,

	2013.
2.	An institutional mechanism to be developed to ensure the preference of jobs to PAFs and also a policy for preferential treatment for award of sundry works to the PAFs and their dependents.
3.	Solar panel be provided to the families living in rural areas within 10 km radius of project.
4.	School up to 12 <sup>th</sup> Standard with smart classrooms shall be established to provide quality education for children from project affected villages/Tribal villages.
5.	Skill Development Centre shall be established within 10 km radius of the project and regular training programmes for development and promotion of traditional art/products of tribal/local population.
6.	The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit once in year. The compliance report of IRO shall be regularly submitted to MoEF&CC.
7.	Bio-Gas plant shall be installed in the Project affected villages @ per family for Utilizing Cattle waste (Cow Dung) into renewable source of fuel.
<b>Disaster Management:</b>	
1.	Disposal of the excavated muck and its filling on the low-lying area with proper measures for the stabilization and greenery to minimize the impacts of the generated construction muck shall be taken up pari passu with construction work.
2.	Stabilization of muck disposal sites using biological and engineering measures shall be taken up immediately to ensure that muck does not roll down the slopes and does not pollute the natural streams and water bodies in surrounding area. The plantation on muck disposal site with local species for restoration of ecology and environment of the project site area.
3.	Necessary control measures such as water sprinkling arrangements, and construction of paved roads leading to muck disposal sites etc. shall be taken up on priority to arrest fugitive dust at all the construction sites.
4.	Solid waste generated, especially plastic waste, etc. should not be disposed of as landfill material. It should be treated with scientific approach and recycled. Use of single-use plastics may be discouraged.
<b>Environmental management and Biodiversity conservation:</b>	
1.	
2.	PP shall obtain recommendations of the Standing Committee of NBWL.
3.	On-line monitoring system will be installed to measure and record the E-Flow releases.
4.	Stocking of fish in reservoir should be based on the area and size of fish. It should be implemented in consultation with the central /state department having expertise in reservoir fisheries.

5.	Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, the trainings to the youths be incorporated for their appropriate engagements in the Project.
6.	Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines and all commitments made during the Public Hearing shall be fulfilled.
7.	Six monthly compliance reports shall be submitted by the project proponent to Regional Office, MoEF& CC, Bhopal without fail until completion of the works.
8.	The Environmental Management Plan (EMP) with total Capital Cost Rs. 1141.52 Lakhs and Recurring cost 116.07 Lakhs shall be strictly adhered to as vetted by the EAC. The budgetary provisions for implementation of EMP, shall be fully utilized and not to be diverted to any other purpose. In case of revision of the project cost or due to price level change, the cost of EMP shall also be updated proportionately.
9.	The contract clause limiting the No. of vehicles used during excavation and transportation shall followed scrupulously and the same shall informed to the ministry.
10.	Ambient Air Quality Monitoring Stations for real time data to be installed at project site before commencement of the construction, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC.
11.	Wildlife conservation plan for Schedule -I Species shall be prepared and implemented after approval of the Chief Wildlife Warden of the State. Safe pathways shall be created for free movement of wildlife after detailed study of pattern of movement of wildlife species in the project cover area.
12.	No vehicle purchase shall be allowed from funds earmarked for implementation of Wildlife Conservation plan. Measures for minimizing the human-animal conflict specially for black bear and leopard be suitably incorporated in the wildlife conservation plan in consultation with State Forest Department.
13.	Watershed Management Plan be prepared in consultation with expert government research institute and be implemented in a time bound manner.
14.	Native plants shall be planted around the muck disposal area in consultation with Forest Department and the survival of plants shall be reported in the 6 monthly compliance report.
15.	Plantation of saplings (10000 nos.) shall be carried out as a part of the tree plantation campaign "Ek Ped Ma Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal ( <a href="https://merilife.nic.in">https://merilife.nic.in</a> ).

### 3.3.6.2. Standard

1(c)	<b>River Valley/Irrigation projects</b>
<b>Statutory compliance</b>	

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.
<b>Air quality monitoring and preservation</b>	
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. be 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).
<b>Noise monitoring and prevention</b>	
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.
<b>Catchment Area Treatment Plan</b>	
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.
<b>Waste management</b>	
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.
<b>Green Belt and Wildlife Management</b>	
1.	Based on the recommendation of Cumulative 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 its effectiveness.
<b>Public hearing and Human health issues</b>	
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. fumigating 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.
<b>Risk Mitigation and Disaster Management</b>	
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.
<b>Corporate Environment Responsibility</b>	
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 approved 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
<b>Miscellaneous</b>	
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.

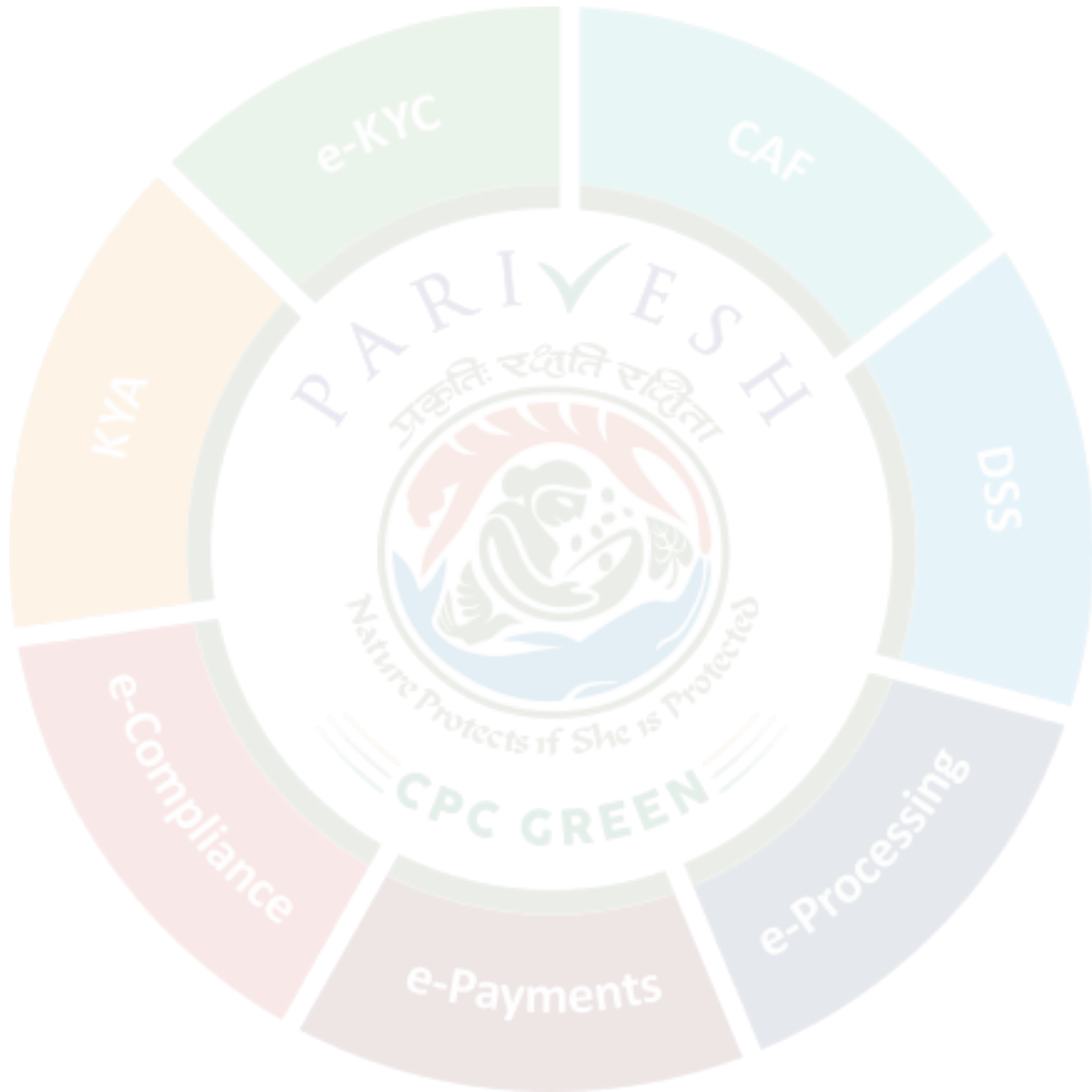
#### 4. Any Other Item(s)

N/A
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#### 5. List of Attendees

Sr. No.	Name	Designation	Email ID	Remarks
1	Prof G J Chakrapani	Chairman, EAC	cha*****@gmail.com	
2	Dr Uday Kumar R Y	Member (EAC)	uda*****@yahoo.com	
3	Dr J A Johnson	Member (EAC)	jaj@wii.gov.in	
4	Dr J V Tyagi	Member (EAC)	jvt*****@gmail.com	
5	Shri Kartik Sapre	Member (EAC)	kar*****@gmail.com	Absent
6	Shri Ajay Kumar Lal	Member (EAC)	akl*****@gmail.com	

7	Dr A K Sahoo	Member (EAC)	ami***@gmail.com	
8	Yogendra Pal Singh	Scientist - F	yog*****@nic.in	
9	Shri Rakesh Goyal	Member	goy*****@nic.in	
10	Shri Balram Kumar	Member	emo***@nic.in	



**MINUTES OF THE 52<sup>ND</sup> MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 13<sup>TH</sup> APRIL, 2026 THROUGH VIRTUAL MODE.**

The 52<sup>nd</sup> meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 13<sup>th</sup> April, 2026 through Virtual Mode, under the Chairmanship of Prof. G. J. Chakrapani. The list of Members present in the meeting is at **Annexure**.

**Confirmation of the Minutes of the 51<sup>st</sup> EAC meeting:**

The Minutes of the 51<sup>st</sup> EAC meeting held on 27<sup>th</sup> March, 2026 were confirmed.

**Agenda Item No. 52.1**

**Ghatghar Open Loop Pumped Storage Project Stage II (125 MW) in an area of 329.846 (320.066 Ha existing and 9.78 Ha additional) located at Chondhe Bk., and Ghatghar, Sub-District Shahapur & Akola, District Thane & Ahmadnagar, Maharashtra by M/s Maharashtra State Power Generation Company Limited – Terms of Reference (TOR) – reg.**

**[Proposal No IA/MH/RIV/571723/2026; F. No. J-12011/17/2026-IA.I (R)]**

**52.1.1** The proposal is for grant of Terms of Reference (ToR) to the project Ghatghar Open Loop Pumped Storage Project Stage II (125 MW) in an area of 329.846 (320.066 Ha existing and 9.78 Ha additional) located at Chondhe Bk., and Ghatghar, Sub-District Shahapur & Akola, District Thane & Ahmadnagar, Maharashtra by M/s Maharashtra State Power Generation Company Limited.

**52.1.2** The Project Proponent and the accredited Consultant M/s WAPCOS Ltd., made a detailed presentation on the salient features of the project and informed that:

- i. MAHAGENCO has proposed to extend the existing Ghatghar Pumped Storage Scheme (PSS) by adding an additional capacity of 125 MW, designated as Ghatghar Pumped Storage Scheme Stage-II.
- ii. The proposed Ghatghar PSS Stage-II (125 MW) envisages utilization of available head between existing Ghatghar Reservoir as upper reservoir and existing Chonde Reservoir as lower dam.
- iii. An Underground Power House (UGPH) will be located in between two reservoirs. Both the reservoirs will be interconnected through water conductor system and the generator and turbines installed at the power house. Presently the stage-II has been proposed as an

extension to utilise the surplus capacity of both existing reservoirs to enhance the generating capacity. Both reservoirs will be connected using with newly proposed water conductor system. Water conductor systems will feed a newly proposed underground powerhouse. Installed capacity of the project is envisaged as 125 MW.

- iv. **Existing Ghatghar Pumped Storage Project:** The existing Ghatghar Stage-1 Pumped Storage Scheme, with an installed capacity of 2x125 MW, was completed and commissioned in 2008 and has been under the operation and maintenance of MAHAGENCO since January 2011 for a 35-year period. As per the Detailed Project Report prepared in July 1993, the upper dam has a gross storage of 5.82 MCM & live storage is 5.14 MCM, while the lower dam has a gross storage capacity of 3.21 MCM & live storage 2.73 MCM. The design head for the existing project is 410 meters. Existing Ghatghar PSP is having design discharge of 74.80 cumecs and project designed to operate for 6 hrs during peak hrs on daily basis. Considering the same, water required for daily generation is 1.62 MCM. Therefore, there is surplus water of 1.11 MCM available in Lower Reservoir and 3.52 MCM in upper reservoir.
- v. The following advantage of Ghatghar PSS Stage-II is given below:
- It uses excess electricity produced at night or when there is less demand to fill the upper reservoir. This makes these plants important for grid management, because they can be put into service in a very short time and tackle the grid's load variations, are extremely reliable and are not impacted from outside.
  - PSP generates power by utilizing off-peak or surplus energy from renewable energy (RE) sources, Thermal sources etc to pump water back into the upper reservoir. This capability ensures a reliable supply of electricity, even during periods of low natural inflow, and enhances grid stability by balancing intermittent renewable generation.
  - PSP capacity is not limited by the river flow and seasonal variations in the flow. This is the advantage of pumped storage plants which can be operated all over the year in all seasons.
- vi. The proposed Ghatghar Pumped Storage Schem Stage-2, with an installed capacity of 125 MW, is located in Maharashtra, spanning across Ahmednagar and Thane districts along the Sahyadri ranges. The upper reservoir is situated near Ghatghar village in Akole Taluka, Ahmednagar District, on the Pravara River, while the lower reservoir is near Chondhe village in Shahapur Taluka, Thane District.
- vii. The geographical co-ordinate of the project are 9°32'33.58"N, 73°39'56.02"E for existing Upper Reservoir and 19°31'42.81"N, 73°38'46.82"E for existing Lower Reservoir.
- viii. The upper dam (Ghatghar Dam) located on Pravara River. The Pravara River, a significant tributary of the Godavari River, is one of the smallest yet vital river systems in Maharashtra, India. The lower dam (Chonda Dam) located on Shai Nala. Shai Nala

also referred to as Shai River, is a small but significant stream in the Murbad taluka of Thane district, Maharashtra, India. Originating in the Sahyadri mountain range, it flows through the rural and hilly terrain of the Konkan region, contributing to the local ecosystem and supporting agriculture in villages like Shai, Shiroshi, and Tokawade. The stream is a minor tributary within the broader Ulhas River system, which eventually drains into the Arabian Sea via Vasai Creek.

ix. The Ministry had issued EC earlier vide letter no. J-11016/1/94-Env.5; dated 10.06.1985 to the existing project Ghatghar 2x125MW PSP in favour of CEA, New Delhi (for WRD, GoM) (in Expansion case/if applicable).

x. The proposed Pumped Storage Scheme envisages the construction of:

- 1 no. upper intake is proposed for water conductor system.
- 1 no. pressure shaft having 3.0m dia. and 685.0m length steel lined connecting intake to power house
- Underground power house cavern housing 1 no. unit of 125 MW reversible Francis pump turbine.
- Transformer cavern is located d/s of power house cavern.
- Downstream surge shaft is proposed to manage transient conditions in the Tailrace Tunnel (TRT)
- 1 no. TRT (Concrete lined) having 3.50 m dia. and 880 m length connecting Power house to existing Lower reservoir.
- To facilitate the construction and operation of the project components, suitable adits and access roads have been proposed.

xi. **Land requirement:** Land requirement for project components 9.789 ha.

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

**Thane District:**

- Population: As of 2011, the population of Thane district was 11,060,148, the population density is 1157 people per square kilometer.
- Sex ratio: The sex ratio in thane was 865 (urban) & 958 (rural).
- Literacy rate: The literacy rate in thane is 84.5%.
- Urban vs rural: 76.99% of the population lives in urban areas, and 23.01% live in rural areas.
- Scheduled Castes and Scheduled Tribes: Scheduled Castes make up 6.6% of the population, and Scheduled Tribes make up 13.9%.

**Ahilyanagar District:**

- Population: As of 2011, the population of Ahilyanagar district was 45,43,159, the

population density is 266 people per square kilometer.

- Sex ratio: The sex ratio in Ahilyanagar was 939.
- Literacy rate: The literacy rate in Ahilyanagar is 79.05%.
- Urban vs rural: 79.71% of the population lives in urban areas, and 20.09% live in rural areas.
- Scheduled Castes and Scheduled Tribes: Scheduled Castes make up 12.63% of the population, and Scheduled Tribes make up 8.63%.

xiii. **Water requirement:**

Approx. 84 KLD During construction stage

Approx. 84 KLD During Operational stage.

- xiv. **Project Cost:** The cost of Project is Rs. 617.24 Crores (Incl. IDC) at PFR Stage. Total capital cost earmarked towards environmental pollution control measures shall be assessed as part of EIA Study.
- xv. **Project Benefit:** Improved energy availability, increase in employment opportunities, impetus to growth and economy of the area. Estimated energy generation of 273.75MU annually. The Detailed study shall be taken up during DPR.
- xvi. **Environmental Sensitive area:** There are NO national parks, Wildlife Sanctuary (Kalsubai Harishchandragad wildlife sanctuary), Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River/ water body Pravara River (Upper dam) & Shai Nala River (Lower dam) is flowing into existing upper reservoirs and existing lower reservoir respectively.
- xvii. **MOU/ any other clearance/ permission signed with State government:** Water Resources Department, Government of Maharashtra has allotted the Ghatghar Stage II 1x125MW PSP site to MAHAGENCO vide MoU Dated 29.04.2025 for development.
- xviii. **Resettlement and rehabilitation:** In Ghatghar PSP site, the number of families likely to lose land will be finalized as a part of DPR preparation. In addition, information of any family losing homestead or other private properties shall also be ascertained.
- xix. **Alternative Studies:** Total three (03) nos. Alternatives have been identified and studied.

**ALTERNATE-I**

In Alternate-I, the intake for the Ghatghar Pumped Storage Project (Stage-II) is proposed to be located approximately 1.5 km upstream of the Upper Dam. In this configuration, an open-cut channel of about 800 meters in length is proposed from the reservoir rim to convey water to the intake structure.

From the intake, water will be diverted to the underground powerhouse through a steel-lined pressure shaft. The pressure shaft is designed with a diameter of 3.0 meters and a length of 793 meters, catering to one generating unit with an installed capacity of 125 MW.

After energy generation in the powerhouse, the water will be discharged into the Lower Reservoir via a Tailrace Tunnel (TRT) and down surge shaft of 10 m dia. is provided to cater the transient condition in the TRT portion. The TRT in this layout consists of a single tunnel with a diameter of 3.50 meters and a length of 526 meters.

The total land requirement for this alternative is approximately 17.42 hectares, out of which 7.87 hectares are anticipated to be forest land, while the remaining 9.55 hectares are likely to comprise revenue and private land.

### **ALTERNATE-II**

In Alternate-II, the intake for the Ghatghar Pumped Storage Project (Stage-II) is proposed to be located approximately 100 meters from the existing intake used for Ghatghar PSP (Stage-I). This proximity allows for better integration with the existing infrastructure and minimizes environmental and construction impacts in the intake area.

In this layout, water from the Upper Reservoir is conveyed to the underground powerhouse through a steel-lined pressure shaft. The pressure shaft has a diameter of 3.0 meters and a length of 685 meters, and is designed to supply water to a single generating unit with an installed capacity of 125 MW. The reduced length compared to Alternate-I contributes to improved hydraulic performance and may result in lower construction costs.

After power generation, the water is routed to the Lower Reservoir via a Tailrace Tunnel (TRT). The TRT in this layout is a single tunnel with a diameter of 3.50 meters and a length of 880 meters. To manage transient hydraulic conditions—such as sudden load changes or turbine shutdowns—a downstream surge shaft with a diameter of 10 meters is incorporated. This surge shaft is essential for mitigating pressure fluctuations and ensuring the structural safety of the TRT system during unsteady flow conditions.

Overall, Alternate-II offers a compact and efficient design that makes optimal use of the available topography and existing infrastructure, while maintaining operational reliability and safety through the inclusion of critical components like the surge shaft.

The total land requirement for this alternative is approximately 9.78 hectares, out of which 7.04 hectares are anticipated to be forest land, while the remaining 2.74 hectares are likely to comprise revenue and private land.

### **ALTERNATE-III**

In Alternate-III, the intake for the Ghatghar Pumped Storage Project (Stage-II) is proposed to be located approximately 75 meters from the existing upper saddle dam of the Upper Reservoir. In this configuration, the alignment of the water conductor system is planned to take downstream of the existing saddle dam, after which it takes a right turn toward the existing Lower Reservoir. The underground powerhouse is proposed to be located close to the existing powerhouse area, enabling the reuse and integration of existing infrastructure and reducing the need for new construction, thereby offering cost and time advantages.

Water from the Upper Reservoir is conveyed to the powerhouse through a steel-lined pressure shaft with a diameter of 3.0 meters and a length of 744 meters. This shaft is designed to serve one generating unit with an installed capacity of 125 MW. The alignment is optimized to take advantage of natural topographical features while minimizing excavation and maintaining hydraulic efficiency.

Following energy generation, the water is discharged into the Lower Reservoir via a Tailrace Tunnel (TRT). In this layout, the TRT has a diameter of 3.50 meters and an extended length of 870 meters, owing to the layout geometry and positioning of the powerhouse. To effectively handle transient hydraulic conditions—such as sudden changes in turbine operation or load rejections—a downstream surge shaft with a diameter of 10 meters is incorporated. This surge shaft plays a critical role in absorbing pressure surges and stabilizing flow within the TRT, thereby safeguarding the structural integrity and operational reliability of the system.

The total land requirement for this alternative is approximately 10.96 hectares, out of which 9.12 hectares are anticipated to be forest land, while the remaining 1.84 hectares are likely to comprise revenue and private land.

xx. **Details of Solid waste/ Hazardous waste generation/ Muck and its management:** Details of Solid waste/Hazardous waste generation/Muck and its management 25000 cu.m Muck. Muck disposal areas have been identified outside the forest area. Detailed Study will be carried out during DPR.

xxi. **Status of Litigation Pending against the proposal, if any:** None

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

- **Project details:**

Name of the Proposal	Ghatghar Open Loop Pumped Storage Project Stage II (125 MW) in an area of 329.846 (320.066 Ha existing and 9.78 Ha additional) located at Chondhe Bk., and Ghatghar, Sub-
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	District Shahapur & Akola, District Thane & Ahilyanagar, Maharashtra by M/s Maharashtra State Power Generation Company Limited
Location (Including coordinates)	Near Village Chonde Bk & Ghatghar, Sub-district Shahapur & Akole, District Thane & Ahilyanagar, Maharashtra.  <b>UPPER RESERVOIR</b> Lat: 19°32'33.58"N, Long: 73°39'56.02"E  <b>LOWER RESERVOIR</b> Lat: 19°31'42.81"N, Long: 73°38'46.82"E
Inter- state issue involved	No
Seismic zone	Zone -IV

- **Category details:**

Category of the project	A
Provisions	-
Capacity / Cultural command area (CCA)	125 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

- **Electricity generation capacity:**

Powerhouse Installed Capacity	1 unit of 125 MW each
Generation of Electricity Annually	273.75 MU
No. of Units	1
Additional information (if any)	-

- **ToR/EC Details:**

Cost of project	Rs. 617.24 Crores (Incl. IDC)
Total area of Project	9.78 Hectares
Height of Dam from River Bed (EL)	Upper dam -15.16m Lower dam – 86.14m
Length of Tunnel/Channel	1565 m
Details of Submergence area	Both reservoirs are existing

Types of Waste and quantity of generation during construction/ Operation	Municipal solid waste from Labour camps 250 TPA. Plastic waste – Yes E waste – Yes DG set/vehicle/machinery - 0.1 TPA Waste Water generation - 168 KLD per day
E-Flows for the Project	NA
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.	NA
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	

- **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt land)	Nil
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- **Land Area Breakup:**

Non Forest Land	2.74 Hectares
Forest Land	7.04 Hectares
Total Land	9.78 Hectares
Submergence area/Reservoir area	Both reservoirs are existing
Additional information (if any)	-

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

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter/Remarks
Reserve Forest/Protected Forest Land	Yes	Total Forest Land - 7.04 Ha (Reserved Forest Land -7.04 Ha)
National Park	No	
Wildlife Sanctuary	No	In the proposed layout only Upper intake falls in wildlife sanctuary

		(Kalsubai Harishchandragad wildlife sanctuary)
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- **Court case details:** Nil
- **Miscellaneous:**

Particulars	Details
Details of consultant	M/s WAPCOS Limited
Project Benefits	Power Generation and Employment Generation

### 52.1.3 The EAC during deliberations noted the following:

- The Expert Appraisal Committee (EAC) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR for conducting EIA/EMP and Public hearing for Ghatghar Open Loop Pumped Storage Project Stage II (125 MW) in an area of 329.846 (320.066 Ha existing and 9.78 Ha additional) located at Chondhe Bk., and Ghatghar, Sub-District Shahapur & Akola, District Thane & Ahmadnagar, Maharashtra by M/s Maharashtra State Power Generation Company Limited.
- The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the Central level by the sectoral EAC in the Ministry.
- The EAC noted that the Ministry had issued EC earlier vide letter no. J-11016/1/94-Env.5; dated 10.06.1985 to the existing project Ghatghar 2x125MW PSP. The committee observed that the proposed Stage II PSP (125 MW) is an expansion of the existing Stage-I (2 × 125 MW) scheme. The Committee noted that Stage-I operates with a design head of 410 m and requires 1.62 MCM of water for 6 hours of daily peak operation. It was further noted that surplus water of about 1.11 MCM in the lower reservoir and 3.52 MCM in the upper reservoir is available. The EAC took note that Stage-II proposes to utilize the existing Ghatghar Reservoir as the upper reservoir and Chonde Reservoir as the lower reservoir.
- The EAC noted that the total land requirement for the proposed PSP is estimated to be around 9.78 hectares, out of which 7.04 hectares are anticipated to be forest land, while the remaining 2.74 hectares are likely to comprise revenue and private land. Diversion of forest land for non-forest purpose will be involved for construction of project components. However, it was observed that the application for Stage-I Forest Clearance (FC) has not yet been submitted, which necessitates further action from the Project Proponent.

- The EAC noted with concern that the project is located within the Kalsubai Harishchandragad Wildlife Sanctuary, an ecologically sensitive and legally protected area in Western Ghats. The Ministry of Environment, Forest and Climate Change vide Notification S.O. 1367(E) dated 28.04.2017 has notified the Eco-Sensitive Zone (ESZ) around the sanctuary, wherein “establishment of new major hydro-electric projects is prohibited (except as otherwise provided) as per applicable laws.”
- In view of the above, the EAC opined that the Project Proponent shall obtain necessary clarification/clearance from the competent authority, including statutory approvals under applicable environmental and wildlife regulations, confirming that the proposed hydroelectric project is permissible within the notified ESZ.

**52.2.4** The EAC based on the information submitted and as presented during the meeting, and in view of the above provisions and regulatory restrictions, decided to **defer the proposal** for grant of Terms of Reference for conducting EIA study for proposed construction of Ghatghar Open Loop Pumped Storage Project Stage II (125 MW) in an area of 329.846 (320.066 Ha existing and 9.78 Ha additional) located at Chondhe Bk., and Ghatghar, Sub-District Shahapur & Akola, District Thane & Ahmadnagar, Maharashtra by M/s Maharashtra State Power Generation Company Limited and directed the Project Proponent to obtain the requisite No Objection Certificate/Clearance from the competent authority under applicable environmental and wildlife regulations, confirming that the proposed hydroelectric project is permissible within the notified ESZ.

The proposal was *deferred* on the above lines.

### **Agenda Item No. 52.2**

**Humbarli Birmani Open Loop Pumped Storage Project (6x250MW) in an area of 334.82 located at Biramani, and Hatlot, Sub-District Khed & Mahabaleshwar, District Ratnagiri & Satara, Maharashtra by M/s THDC India Limited – Terms of Reference (TOR) – reg.**

**[Proposal No IA/MH/RIV/572989/2026; F. No. J-12011/18/2026-IA.I (R)]**

**52.2.1** The proposal is for grant of Terms of Reference (TOR) to the project Humbarli Birmani Open Loop Pumped Storage Project (6x250MW) in an area of 334.82 located at Biramani, and Hatlot, Sub-District Khed & Mahabaleshwar, District Ratnagiri & Satara, Maharashtra by M/s THDC India Limited.

**52.2.2** The Project Proponent and the accredited Consultant M/s. EQMS India Pvt. Ltd, made a detailed presentation on the salient features of the project and informed that:

- i. The proposed Humbarli Birmani Pumped Storage Project (1500MW), an off stream

open loop project, is being developed by the THDC India Limited (THDCIL), around two adjacent valleys drained by a local seasonal nala, a tributary of Koyna River and a seasonal stream, a tributary of Jagbudi river in District Satara and Ratnagiri, Maharashtra.

- ii. Both the upper and lower dam for the PSP are proposed to be newly constructed. The proposed upper dam, shall be located across a small stream near Hatlot village, Mahabaleshwar taluka, Satara district. The lower dam (shall be located on a small stream near Birmani village, Khed taluka, Ratnagiri district.
- iii. The water conductor system and powerhouse shall be totally underground. The project will generate 1500 MW (6x250MW) by utilizing a design discharge of 55.96 cumec/turbine with rated head of 505.23m. The PSP will utilize 1650 MW(6x275MW) to pump 48.14cumec/pump from lower reservoir to the upper reservoir.
- iv. The scheme of operation for the project is 6.17 hours of peak power per day and 7.17 hours for pumping back the water through TRT-reversible turbines pressure shaft-HRT to the upper reservoir.
- v. Water will be used cyclically for energy storage and discharge. For reservoir operation the project contemplates non-consumptive re-utilization of 7.457 MCM of water for recirculation among two proposed reservoirs. The one-time filling requirement of 9.56 MCM and periodical recoupment for losses(0.719MCM) will be met from yield generated within lower dam catchment area (4.64 sq.km) and used cyclically for energy storage and discharge.
- vi. The geographical co-ordinate of the project are:  
Upper Reservoir Coordinates: 17° 51' 42.63 "N, 73° 36' 39.37 "E  
Lower Reservoir Coordinates: 17° 50' 30.65 "N, 73° 34' 20.28 "E
- vii. The Pumped Storage Project envisages construction of upper dam (GFRD; Length:607.66m; Height: 51.09m) across a seasonal Nala, a tributary of Koyna River, in Hatlot village, tehsil Mahabaleshwar, Satara district. Lower dam (Concrete gravity; Length:567.04m; Height:76.15m) located across a seasonal nala, a tributary of Jagbudi River, near Birmani village, Tehsil Khed, Ratnagiri district. The water conductor system shall be totally underground and shall comprise of HRT (2Nos , Lenth: 392.63 m and 392.06m ,Diameter:8.0m); U/s Surge shaft ( Diameter: 14.0m ) ; Pressure shaft tunnel (Main: 2Nos, Length : 758.69m and 756.55m ,Diameter:5.70 m ; Branch Pressure Tunnel: 2No , Length:30m each, Diameter: 4.65m; Unit Pressure Tunnel: 6No , Length: vary from 484.17m to 507.36m, Diameter: 3.25m) ; D/s Surge shaft(Diameter:14m);Underground Powerhouse (Cavern size:169mx22.90mx50.10m) and TRT(Unit TRT: 6 Nos, Diameter 5.2m, length 102m each; Branch TRT: 2 Nos,

Diameter 6.8m, length 47.50m each ; Main TRT: 2 Nos, Diameter 8.0m, Length: 1022.57m & 979.25m).

- viii. The annual energy generation in turbine mode for daily 6.17 hours shall be 3207.44 MU whereas annual energy consumption in pump mode for 7.17 hours is 4104.50 MU. The estimated project cost is Rs 8470.89 crores including escalation and IDC. The Levelized tariff with no pumping cost shall be INR 4.79/kWh. Levelized tariff with Rs 2.50 pumping cost shall be INR 8.07/kWh.
- ix. **Land requirement:** Total land requirement of the project is 334.82 ha (Forest: 49.50 ha; non-forest: 285.32 ha). The private land shall be acquired as per provisions of RFCTLARR Act, 2013.
- x. **Demographic details in 10 km radius of project area:** As per the Census of India 2011, the total population one MCI (Mahabaleshwar) and 59 villages of study area comprising of total 6935 households are 30987 composed of 15376 males and 15611 females with sex ratio of 1015. The cast wise composition of the total population of the project affected villages is made up of scheduled cast population of 2532 (14.39%) and Scheduled Tribe population of 1642 (5.30%). The literate population is 22274 (75.69%) of which the male and female population is 12194 (88.25%) and 10080 (71.74%) respectively. The gender gap for literacy rate is 16.561 %. The total working population is 12773 (41.69%), which comprises 11231 (36.66%) and marginal workers 1542 (5.03%).
- xi. **Water requirement:** The quantity of water required during construction is estimated to be 1375 kld (Construction-1260 kld; Domestic-115 kld) and during operation shall be 30 KLD, which shall be drawn from catchment of local nallas..
- xii. **Project Cost:** The estimated project cost is Rs 8470.89 crores including IDC. Total capital cost and recurring annual cost (operation & maintenance) towards EMP shall be earmarked after evaluating cost of EMPs.
- xiii. **Project Benefit:** The benefits *inter alia* shall include (i) Average annual generation of 3207.44 MU of energy; (ii) Increased vegetal cover due to implementation of CAT Plan and Green Belt Development Plans (iii) Employment Potential during construction and operation phase (iv) Overall development of area by implementing CSR initiatives and Watershed Development Plans.
- xiv. **Environmental Sensitive area:** The nearest project boundary is 8.82 km from core zone (Koyna WLS) of Sahyadri Tiger Reserve, while its buffer zone is located about 3.30 km from the lower reservoir. Upper Dam / reservoir and Intake are covered under Mahabaleshwar - Panchgani Eco-Sensitive Zone (ESZ). Besides this, the project villages viz. Hatlot and Birmani are also covered under Western Ghat ESA as per Draft Notification S.O. 3060(E), dated 31.7.2024. THDCIL on 18.02.2026 has applied to the

Monitoring Committee of Mahabaleshwar Panchgani ESZ for issuance of 'No Objection Certificate'.

xv. **MOU/ any other clearance/ permission signed with State government:** THDCIL signed an MoU with Water Resources Department, Govt. of Maharashtra on 03.09.2024 for the development of Humbarli Birmani Pumped Storage Project (1000 MW). The process for updation/ amendment of the MoU for Humbarli Birmani PSP from 1000 MW to 1500 MW is currently under progress.

xvi. **Alternative Studies:** As the locations of upper and lower reservoirs for the PSP (400MW) in Satara district as identified by WRD, Maharashtra, lie within Sahyadri Tiger Reserve was not found suitable, THDCIL selected a new location for PSP outside Tiger Reserve with upper reservoir located in Satara and lower in Ratnagiri district. With same location for upper reservoir, three alternate locations for lower reservoir slightly moved to upward side to optimize the length of water conductor system were studied. The detail of study is as below:

Alternate-I: As proposed in PFR-This alternative is not considered for further study due to higher length of water conductor system and multiple bends

Alternative-1A: Upper and Lower Reservoir has same location as proposed in PFR along with slight modification in water conductor system alignment. Due to higher project costs and tariffs.

Alternative-2: Upper reservoir location is same as proposed in PFR, lower reservoir is slightly moved to upward side towards western side to optimize the length of water conductor system.

Alternative-3: Upper reservoir location is same as proposed in PFR, lower reservoir is slightly moved to upward side towards eastern side to optimize the length of water conductor system

Alternatives 2 and 3 are similar in economic terms, with negligible differences in cost and tariff. However, due to better accessibility, Alternative-3 (with u/s surge shaft) was selected for further detailed topographical survey and plant capacity optimization study. Alternate-3B (with both u/s and d/s surge shaft) has been identified and confirmed as the most suitable option due to higher installed capacity(1500MW) subsequently higher energy output & better accessibility.

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

a) Municipal Solid Waste (MSW) likely to be generated during construction and operation shall be 85 Ton/annum and 15 ton/annum respectively which shall be managed as per Solid Wastes Management Rules, 2016.

b) Hazardous waste: It inter alia includes burnt mobile oil and greases (17 ton/annum) from vehicles and construction machinery and equipment which shall be handled and disposed

of through authorized dealer as per Hazardous and other Wastes (Management & Transboundary Movement) Rules,2016.

- c) The total quantity of muck / debris, to be generated due to the project, shall be 78.34 lakh cum, of which 37.57 lakh cum shall be consumed on project work and balance 40.77 lakh cum shall be dumped at designated muck sites. Muck piles shall be well supported at base by retaining walls and multi-storied plantation will be developed using grasses, shrubs, bushes, and trees in a site-specific manner.

xviii. **Status of Litigation Pending against the proposal, if any** : None

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

- **Project details:**

Name of the Proposal	Humbarli Birmani Off Stream Open Loop Pumped Storage Project (1500 MW), District Satara & Ratnagiri, Maharashtra File No. J-12011/18/2026-IA. I(R)
Proposal No.	IA/MH/RIV/572989/2026
Location (Including Coordinates)	Upper Dam: Village Hatlot, Taluk-Mahabaleshwar, District Satara, Maharashtra Lower Dam: Village Birmani, Taluk-Khed, District Ratnagiri, Maharashtra Upper Reservoir: 17° 51' 42.63 "N, 73° 36' 39.37 "E Lower Reservoir: 17° 50' 30.65 "N, 73° 34' 20.28 "E
Inter- state issue involved	No
Seismic zone	Zone -V

- **Category details:**

Category of the project	A
Provisions	Project activity covered at S.N.1(c)(i)(c) Standalone Pumped Storage Project
Capacity / Cultural command area (CCA)	1500 MW/9255 MWH pumped storage component with 6.17 hours storage capacity for peak power generation and 7.17 hours pumping operation for backfilling of upper reservoir of PSP.
Attracts the General Conditions (Yes/No)	Yes

Additional information (if any)	MoU was signed between M/s THDCIL and Department of Water Resources, Govt. of Maharashtra on 03rd day of September 2024, for establishment of Humbarli Birmani PSP.
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- **Electricity generation capacity:**

Powerhouse Installed Capacity	1500 MW
Generation of Electricity Annually	3207.44 MU
No. of Units	6x250MW
Additional information (if any)	The project with installed capacity of 1500 MW(6x250MW) by utilizing a design discharge of 55.96 cumec/unit rated net head of 505.23m for 6.17-hour daily peaking cycle will annually generate 3207.44 MU. The PSP will utilize 1650 MW to pump 48.14 cumec/unit from lower reservoir to the upper reservoir in 7.17 hours.

- **ToR/EC Details:**

Cost of project	Rs 8470.89 Crores.																					
Total area of Project	334.82 ha																					
Height of Dam from River Bed (EL)	Upper Dam-51.09 m; Lower Dam-76.15m																					
Length of Tunnel/Channel	Length: 14159.86 m comprising of following components: (i) HRT: 784.69m (ii) Pressure Shaft :4548.24m (iii)TRT: 2714.82m (iv) Adits: 6112.11m																					
Details of Submergence area	Total Submergence area- 87.05 ha (Forest land: 1.31ha, Non-Forest land :85.74ha)																					
Types of Waste and quantity of generation during construction/ Operation	<table border="1"> <thead> <tr> <th>Waste Type</th> <th>Construction (TPA)</th> <th>Operation (TPA)</th> </tr> </thead> <tbody> <tr> <td>MSW</td> <td>85</td> <td>15</td> </tr> <tr> <td>Plastic</td> <td>12.0</td> <td>1.0</td> </tr> <tr> <td>E-waste</td> <td>2.0</td> <td>0.2</td> </tr> <tr> <td>Burnt oil</td> <td>17.0</td> <td>2.00</td> </tr> <tr> <td>Batteries</td> <td>6.0</td> <td>0.50</td> </tr> <tr> <td>Bio-medical</td> <td>5.0</td> <td>2.0</td> </tr> </tbody> </table>	Waste Type	Construction (TPA)	Operation (TPA)	MSW	85	15	Plastic	12.0	1.0	E-waste	2.0	0.2	Burnt oil	17.0	2.00	Batteries	6.0	0.50	Bio-medical	5.0	2.0
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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	No
a) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin.	Not applicable
b) If not the E-Flows maintain criteria for sustaining river ecosystem.	Not required, as the proposed Pumped Storage Project (PSP) is an open-loop system on a small non perinial stream with a small catchment. The PSP project recycles water between two reservoirs without consuming it. Upon first filling of the reservoir, the project acts as a "pass-through" system, allowing natural flows/precipitated water/floodwaters to flow downstream as they normally would.
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	200

• **Muck Management Details:**

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	Muck Disposal Sites-3 Nos Area and Type of land -78 ha (non-forest)
Muck Management Plan	The muck shall be laid with vertical angle not exceeding 28 <sup>0</sup> in such a manner that rock mass is properly stacked behind the gabion wall/revetment with minimum of voids. The muck pile shall be later covered with geo-Geo-coir textile and rehabilitated by afforestation of herbs and shrubs. Detailed Muck Management Plan shall be formulated during EIA study.
Monitoring mechanism for Muck Disposal	The project authorities shall erect a barrier to regulate the traffic flow to and fro the muck piles site. Proper e-challan shall be issued.

• **Land Area Breakup:**

Private Land	15.00 ha
Government land	270.32 ha

Forest Land	49.50 ha
Total Land	334.82 ha
Submergence area/Reservoir area	87.05 ha
Additional information (if any)	Land for transmission line for power evacuation (RoW) is not 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	RF
National Park	No	None within 10km
Wildlife Sanctuary	No	The nearest project boundary is 8.82km from core zone (Koyna WLS) of Sahyadri Tiger Reserve, while its buffer zone is located about 3.30km from the lower reservoir.

- **Court case details: Nil**

- **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 shall be moved
Is FRA (2006) done for FC-I	Not, yet

- **Miscellaneous**

Particulars	Details
Details of consultant	EQMS India Private Limited 305, 3rd Floor, Plot No. 16, Rishabh Corporate Tower, Community Centre, Karkardooma, Delhi – 110092 Phone: 011-43062757; NABET/EIA/25-28/RA0465, valid up to 23.11.2028.)
Project Benefits	The benefits inter alia shall include the benefits like (i) Average annual generation of

	3207.44 MU of energy; (ii) Increased vegetal cover due to implementing of CAT Plan and Green Belt Development Plans (iii) Employment Potential during construction (1500 labour); (iv) Overall development of area by implementing CSR initiatives and Watershed Development Plans.
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	R&R details shall be finalised later.
Additional detail (If any)	The project has been planned to be completed in 60 months from the start date. This period includes 12 months of pre-construction period for preparation and award of works and construction of roads etc. As per preliminary estimation the tentative cost of project is INR 8470.89 Crores.

### 52.2.3 The EAC during deliberations noted the following:

- The Expert Appraisal Committee (EAC) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR for conducting EIA/EMP and Public hearing for Humbarli Birmani Open Loop Pumped Storage Project (6x250MW) in an area of 334.82 located at Biramani, and Hatlot, Sub-District Khed & Mahabaleshwar, District Ratnagiri & Satara, Maharashtra by M/s THDC India Limited.
- The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the Central level by the sectoral EAC in the Ministry.
- The EAC observed that the proposed project is an open loop project of installed capacity 1500MW pumped storage. The proposed upper dam shall be located across a small stream near Hatlot village, Mahabaleshwar taluka, Satara district and the lower dam shall be located on a small stream near Birmani village, Khed taluka, Ratnagiri district. For reservoir operation the project contemplates non-consumptive re-utilization of 7.457 MCM of water for recirculation among two proposed reservoirs. The one-time filling requirement

of 9.56 MCM and periodical recouplement for losses(0.719MCM) will be met from yield generated within lower dam catchment area (4.64 sq.km) and used cyclically for energy storage and discharge.

- The EAC noted that total land required for the construction of various components and related works for project is 334.82 ha out of which Forest area is 49.50 ha and non-forest area is 285.32 ha. Diversion of forest land for non-forest purpose will be involved for construction of project components. However, it was observed that the application for Stage-I Forest Clearance (FC) has not yet been submitted, which necessitates further action from the Project Proponent.
- The Committee noted that the project boundary is located at a distance of about 8.82 km from the core zone of Koyna Wildlife Sanctuary within the Sahyadri Tiger Reserve, while the buffer zone lies approximately 3.30 km from the lower reservoir. It was further observed that the upper dam/reservoir and intake components fall within the Mahabaleshwar Panchgani Eco Sensitive Zone. The Committee also noted that the project villages, namely Hatlot and Birmani, are covered under the Western Ghats Ecologically Sensitive Area (ESA) as per Draft Notification S.O. 3060(E) dated 31.07.2024 issued by the Ministry of Environment, Forest and Climate Change. It was further informed by the PP during the meeting that THDC India Limited has applied to the Monitoring Committee of the Mahabaleshwar-Panchgani ESZ on 18.02.2026 for issuance of a No Objection Certificate (NOC).
- It has been observed that Memorandum of Understanding has been signed between THDCIL and Water Resources Department, Govt. of Maharashtra on 03.09.2024 for the development of Humbarli Birmani Pumped Storage Project (1000 MW). The process for updation/ amendment of the MoU for Humbarli Birmani PSP from 1000 MW to 1500 MW is currently under progress.
- The EAC noted that, as per the notification of the Mahabaleshwar–Panchgani Eco-Sensitive Zone issued vide S.O. 52(E) dated 17.01.2001, only non-polluting non-hazardous service industries, units making footwear from processed and ready-made leather, floriculture, horticulture based or agro based industries producing products from indigenous goods from the Eco Sensitive Zone shall be permitted in this zone, providing the project/ activity does not result in polluting effluent, emission or impacts.
- The Committee further observed that, as per the classification of industries provided by the Central Pollution Control Board (CPCB) on date 12.02.2025, the hydel power plants (Capacity > 50 MW) fall under the Red category. Accordingly, the EAC noted that the proposed PSP being a sub category of Hydel Power Plant projects, falls under red category and therefore was not a fit case to be taken up for grant of Terms of Reference (ToR) unless the Project Proponent (PP) obtained requisite No Objection Certificates / clearances from the competent Authority(ies).

- In view of the above mentioned provisions and regulatory restrictions, the EAC decided to defer the proposal and suggested the Project Proponent to obtain the requisite No Objection Certificate/Clearance from the competent authority in accordance with the provisions of the Mahabaleshwar–Panchgani Eco-Sensitive Zone Notification, S.O. 52(E) dated 17.01.2001, for further consideration of the proposal.

**52.2.4** The EAC based on the information submitted and as presented during the meeting, and in view of the above provisions and regulatory restrictions, decided to **defer the proposal** for grant of Terms of Reference for conducting EIA study for proposed construction of Humbarli Birmani Open Loop Pumped Storage Project (6x250MW) in an area of 334.82 located at Biramani, and Hatlot, Sub-District Khed & Mahabaleshwar, District Ratnagiri & Satara, Maharashtra by M/s THDC India Limited and directed the Project Proponent to obtain the requisite No Objection Certificate/Clearance from the competent authority in accordance with the provisions of the Mahabaleshwar–Panchgani Eco-Sensitive Zone Notification, S.O. 52(E) dated 17.01.2001, for further consideration of the proposal.

The proposal was *deferred* on the above lines.

### **Agenda Item No. 52.3**

**Chentikheda Major Irrigation Project (15,300 ha CCA) in an area of 1369.35 located at Aroda, Pachnia, and Garhi etc., Sub-District Vijaypur & Sabalgarh, District Sheopur & Morena, Madhya Pradesh by M/s Water Resource Department Sabalgarh, District Morena, MP – Environmental Clearance (EC) – reg.**

**[Proposal No. IA/MP/RIV/557462/2026; F. No. J-12011/28/2024-IA.I (R)]**

**52.3.1** The proposal is for grant of Environmental Clearance (EC) to the project for Chentikheda Major Irrigation Project (15,300 ha CCA) in an area of 1369.35 located at Aroda, Pachnia, and Garhi etc., Sub-District Vijaypur & Sabalgarh, District Sheopur & Morena, Madhya Pradesh by M/s Water Resource Department Sabalgarh, District Morena, Government of Madhya Pradesh.

**52.3.2** The Project Proponent and the accredited Consultant PDCOR Limited, made a detailed presentation on the salient features of the project and informed that:

- Chentikheda Major Irrigation project envisages construction of a dam on River Kunwari, a tributary of River Sindh which in turn joins river Chambal very near to its confluence with Yamuna, in Yamuna basin. Project is located near Village- Chentikheda in Tehsil- Vijaypur of District- Sheopur in Madhya Pradesh.
- The dam is located within 10 km from the boundary of Kuno National Park, hence

lies in eco sensitive zone, as such from environmental clearance point of view it has been categorized as category "A" project.

- iii. The dam on completion will provide irrigation facilities to 55 villages of Sheopur and Morena districts, of MP, out of which 39 villages are located in Vijaypur tehsil of Sheopur district and 16 villages in Sabalgarh tehsil of Morena district, all these villages are presently un-irrigated.
- iv. The unique feature of the project is that the entire distribution of water for irrigation is through pressurized pipes which shall be laid underground, and irrigation in fields will be done by sprinkler system only, no flooding irrigation is proposed. The water from reservoir would be lifted with help of electrically operated pumps installed in a pump house building constructed near the reservoir and continuous pumping would be done into network of pipelines in command area with adequate residual pressure at exit to run sprinklers during entire irrigation period. The pipes will extend up to last 5 ha block, after that farmers would install their own sprinkler system and irrigate their farms. The cultivable command area of the project is 15300 ha.
- v. **MINIMUM ENVIRONMENTAL FLOW (E-FLOW)**

The Kunwari River is a seasonal river, as it is a tributary of the Sind River, which ultimately drains into the Yamuna within the Chambal basin. Like most non-Himalayan rivers of peninsular India, it depends primarily on monsoon rainfall for its flow. As a result, the river carries substantial water during the monsoon season but experiences a significant reduction in discharge—and may even dry up—during the dry months. This seasonal nature contrasts with perennial Himalayan rivers, which are sustained year-round by glacial melt and snowmelt.

The catchment area of the proposed project is 481.25 Sqkm. The dependability of Annual runoff (MCM) has been calculated from year 1980 to 2020. The project has been designed on dependability yield at 75% as per norms.

- The dependability yield worked out at 75% = 67.88MCM
- Gross storage capacity has been kept = 61.05 MCM
- Surplus yield = 6.83 MCM
- Live storage = 57.44 MCM
- Dead storage = 3.61 MCM

- vi. As per the guidelines, a minimum environmental flow (e-flow) of 15–20% of the average lean season flow in the river must be maintained. The non-monsoon runoff has been considered as 1% of the monsoon month runoff, which is calculated as 0.84 MCM. In accordance with the guidelines, 25% of the average lean season flow, amounting to 0.20 MCM, which has been duly kept for e-flow. This reserved quantity of water will be released from November to May at a rate of 0.029 MCM per month.

- vii. The project proposal was considered by the Expert Appraisal Committee (Hydro River Valley Sector) in its 21<sup>st</sup> meeting held during 31-12-2024 and recommended for grant of Terms of References (ToRs) for the Project. The ToR has been issued by Ministry vide TOR Identification No. TO24A0502MP5811182N File no. J-12011/28/2024-IA.I (R), dated- 28/01/2025.
- viii. The project is listed at S. No. 1(c) of the Schedule to the Environment Impact Assessment (EIA) Notification under Category 'B'. However, due to the applicability of the General Conditions, it is now being appraised at the Central level by the Expert Appraisal Committee (EAC)
- ix. The geographical co-ordinate of the project are Lat 25°58'3.5" N and Long 77°17'2.15" E.
- x. The Chentikheda Irrigation Project envisages construction of a dam across River Kunwari, a tributary of River Sindh, in the Yamuna Basin, for storage and irrigation purposes.
- xi. **Land requirement:** The land required for various project components is of about 1369.35ha. About 587.57 ha of revenue/government land, 709.51 ha of private land about 72.27 ha of forest land is coming under submergence is to be acquired for the project. Details of land to be acquired for the project are as under:

S.N.	Type of land	Area	Unit
i	Private Land	709.51	ha
ii	Govt land	587.57	ha
iii	Forest land	72.27	ha
	Total	1369.35	ha

- xii. Demographic details within 10 km radius of the project area indicate predominantly rural settlements with agriculture as the main occupation. Detailed socio-economic profile including population, literacy, occupational structure and infrastructure facilities is provided in Chapter 3 of the EIA/EMP report.
- xiii. **Water requirement:** 300 KLD water will be required during construction. Detail will be Provided in EIA/EMP report
- xiv. **Project Cost:** The estimated project cost is Rs 539 Cr including existing investment of Rs 05.0 Cr. Total capital cost earmarked towards environmental management plan is Rs 1145.86 Lakh. and the Recurring cost (operation and maintenance) will be about Rs. 116.07 Lakh per annum.

- xv. **Project Benefit:** Irrigation potential for approximately 15,300 Ha agricultural land, Improvement in groundwater recharge, Increase in agricultural productivity and cropping intensity, Fisheries development, Socio-economic upliftment of local communities, Generation of employment -Approximately 1000 persons (direct and indirect) employment opportunities will be generated during construction and operation phases.
- xvi. **Environmental Sensitive area:** The Kuno National Park is located within 10 km distance from the project site. The application for obtaining clearance from the National Board for Wildlife (NBWL), in view of the project's proximity to Kuno National Park, has already been submitted. The application has been registered with Reference/Application No. WL/MP/IRRIG/541262/2025.
- xvii. **Resettlement and rehabilitation:** A total of 8 villages in Vijaypur Tehsil will be affected due to submergence. Approximately 1568 Project Affected Families (PAFs) have been identified. R&R measures will be implemented in accordance with the provisions of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Compensation, resettlement assistance, and livelihood restoration measures have been detailed in Chapter 7 of the EIA/EMP report.
- xviii. **Scheduled –I species:** Presence of Schedule-I species has been recorded in the study area. A detailed Wildlife Conservation Plan, including mitigation measures for protection of fauna, has been prepared in consultation with the State Forest Department.
- xix. **Alternative Studies:** Three alternative dam sites were examined based on technical, environmental and socio-economic considerations. The selected site has been finalized considering:
  - Minimum forest land involvement
  - Reduced submergence area
  - Better geological suitability
  - Optimal storage and irrigation benefits
- xx. **Baseline Environmental Scenario:**

<b>Period</b>	<b>From December 2024 to August 2025</b>
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<p>AAQ parameters</p>	<p><b>Winter Season</b></p> <ul style="list-style-type: none"> <li>▫ PM10: 49.1 to 66.7 µg/m<sup>3</sup></li> <li>▫ PM2.5: 19.2 to 32.8 µg/m<sup>3</sup></li> <li>▫ SO<sub>2</sub>: 4.9 to 13.5 µg/m<sup>3</sup></li> <li>▫ NO<sub>x</sub>: 12.7 to 20.9 µg/m<sup>3</sup></li> <li>▫ CO: 0.26 to 0.49 mg/m<sup>3</sup></li> </ul> <p>(All values within NAAQS limits)</p> <p><b>Pre Monsoon Season</b></p> <ul style="list-style-type: none"> <li>▫ PM10: 49.7 to 68.0 µg/m<sup>3</sup></li> <li>▫ PM2.5: 19.7 to 33.7 µg/m<sup>3</sup></li> <li>▫ SO<sub>2</sub>: 5.0 to 13.9 µg/m<sup>3</sup></li> <li>▫ NO<sub>x</sub>: 13.0 to 21.6 µg/m<sup>3</sup></li> <li>▫ CO: 0.27 to 0.51 mg/m<sup>3</sup></li> </ul> <p>(All values within NAAQS limits)</p>																																						
<p>Surface water samples</p>	<p><b>Winter Season (Season-1)</b></p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Minimum</th> <th>Maximum</th> </tr> </thead> <tbody> <tr> <td>pH</td> <td>7.43</td> <td>8.20</td> </tr> <tr> <td>Dissolved Oxygen (mg/L)</td> <td>4.10</td> <td>4.86</td> </tr> <tr> <td>Total Dissolved Solids (mg/L)</td> <td>59.9</td> <td>316</td> </tr> <tr> <td>Total Hardness as CaCO<sub>3</sub> (mg/L)</td> <td>47.04</td> <td>282.24</td> </tr> <tr> <td>Total Alkalinity (mg/L)</td> <td>45.26</td> <td>229.14</td> </tr> <tr> <td>Calcium (mg/L)</td> <td>12.56</td> <td>62.55</td> </tr> <tr> <td>Magnesium (mg/L)</td> <td>3.54</td> <td>30.94</td> </tr> <tr> <td>Oil &amp; Grease (mg/L)</td> <td>BDL</td> <td>BDL</td> </tr> <tr> <td>Sulphate (mg/L)</td> <td>2.10</td> <td>22.12</td> </tr> <tr> <td>Nitrate (mg/L)</td> <td>2.56</td> <td>5.36</td> </tr> <tr> <td>Chloride (mg/L)</td> <td>7.71</td> <td>50.85</td> </tr> </tbody> </table>			Parameter	Minimum	Maximum	pH	7.43	8.20	Dissolved Oxygen (mg/L)	4.10	4.86	Total Dissolved Solids (mg/L)	59.9	316	Total Hardness as CaCO <sub>3</sub> (mg/L)	47.04	282.24	Total Alkalinity (mg/L)	45.26	229.14	Calcium (mg/L)	12.56	62.55	Magnesium (mg/L)	3.54	30.94	Oil & Grease (mg/L)	BDL	BDL	Sulphate (mg/L)	2.10	22.12	Nitrate (mg/L)	2.56	5.36	Chloride (mg/L)	7.71	50.85
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Iron (mg/L)	0.10	0.18
BOD (mg/L)	3.18	3.40
<b>Pre-Monsoon Season (Season-2)</b>		
<b>Parameter</b>	<b>Minimum</b>	<b>Maximum</b>
pH	7.37	8.16
Dissolved Oxygen (mg/L)	4.01	4.45
Total Dissolved Solids (mg/L)	60.7	319.0
Total Hardness as CaCO <sub>3</sub> (mg/L)	49.23	278.10
Total Alkalinity (mg/L)	48.20	234.17
Calcium (mg/L)	12.09	60.23
Magnesium (mg/L)	4.63	31.18
Oil & Grease (mg/L)	BDL	BDL
Sulphate (mg/L)	2.13	21.43
Nitrate (mg/L)	2.52	5.41
Chloride (mg/L)	7.92	48.65
Iron (mg/L)	0.11	0.20
BOD (mg/L)	3.27	3.45
<b>Monsoon Season (Season-3)</b>		
<b>Parameter</b>	<b>Minimum</b>	<b>Maximum</b>
pH	7.31	8.02
Dissolved Oxygen (mg/L)	4.03	4.37
Total Dissolved Solids (mg/L)	58.4	305.0
Total Hardness as CaCO <sub>3</sub> (mg/L)	45.20	268.12
Total Alkalinity (mg/L)	45.84	226.02

	Calcium (mg/L)	10.28	57.10
	Magnesium (mg/L)	4.87	30.57
	Oil & Grease (mg/L)	BDL	BDL
	Sulphate (mg/L)	2.05	19.01
	Nitrate (mg/L)	2.50	5.36
	Chloride (mg/L)	7.76	45.11
	Iron (mg/L)	0.10	0.22
	BOD (mg/L)	3.20	3.34
Ground Water	<b>Ground Water – Winter Season</b>		
	<b>Parameter</b>	<b>Minimum</b>	<b>Maximum</b>
	pH	6.90	7.25
	DO (mg/L)	NA	NA
	TDS (mg/L)	441	2580
	Hardness as CaCO <sub>3</sub> (mg/L)	395.92	858.48
	Alkalinity (mg/L)	257.28	350
	Calcium (mg/L)	108.90	218.38
	Magnesium (mg/L)	30.51	76.32
	Oil & Grease (mg/L)	BDL	BDL
	Sulphate (mg/L)	28.45	164.14
	Nitrate (mg/L)	3.56	8.14
	Chloride (mg/L)	77.13	1171.10
	Iron (mg/L)	0.19	0.50
		<b>Pre-Monsoon Season</b>	

Parameter	Minimum	Maximum
pH	6.98	7.45
DO (mg/L)	NA	NA
TDS (mg/L)	459	2489
Hardness as CaCO <sub>3</sub> (mg/L)	404.29	846.10
Alkalinity (mg/L)	260.24	356.00
Calcium (mg/L)	110.70	222.64
Magnesium (mg/L)	30.51	76.32
Oil & Grease (mg/L)	BDL	BDL
Sulphate (mg/L)	31.20	158.10
Nitrate (mg/L)	3.48	7.89
Chloride (mg/L)	74.04	1087.40
Iron (mg/L)	0.19	0.47
<b>Monsoon Season</b>		
Parameter	Minimum	Maximum
pH	7.03	7.41
DO (mg/L)	NA	NA
TDS (mg/L)	442	2238
Hardness as CaCO <sub>3</sub> (mg/L)	408.10	834.13
Alkalinity (mg/L)	255.20	347.00
Calcium (mg/L)	107.10	215.28
Magnesium (mg/L)	34.27	72.31
Oil & Grease (mg/L)	BDL	BDL

	Sulphate (mg/L)	28.19	152.09
	Nitrate (mg/L)	3.43	7.82
	Chloride (mg/L)	69.12	988.20
	Iron (mg/L)	0.18	0.45
Flora & Fauna	Schedule-I species observed in the study area:		

- xxi. **Details of Solid waste/ Hazardous waste generation/ Muck and its management-** During construction, about 50 TPA of municipal solid waste will be generated and managed through authorized disposal. Hazardous waste will be minimal (mainly used oil) and handled as per rules. Total muck generation is estimated at 3.40 MCM. Surplus material will be utilized for road development and leveling, while fertile topsoil will be preserved and reused in nearby agricultural fields.
- xxii. The Public Hearing was conducted by the State Pollution Control Board on 14 July 2025 at Agra Village in Sheopur district and 30 July 2025 at Rampurkala in Morena district, during which key issues related to land acquisition and compensation, employment opportunities, irrigation benefits, infrastructure development, and environmental safeguards were raised, and all concerns have been duly addressed in the EIA/EMP and R&R Plan.
- xxiii. **Status of Litigation Pending against the proposal, if any.** No litigation pending against the proposal.
- xxiv. The salient feature of the project is as under:

• **Project details:**

Name of the Proposal	Chentikheda Major Irrigation Project
Proposal No.	IA/MP/RIV/557462/2026
Location (Including coordinates)	Lat 25°58'3.5" N and Long 77°17'2.15" E.
Company's Name	Water Resource Department, Sabalgarh, District Morena, MP
CIN no. of Company/user agency	--
Accredited Consultant and certificate no.	PDCOR Limited Certificate No.: NABET/EIA/25-28/IA 0160
Project location (Coordinates /River/Reservoir)	Lat 25°58'3.5" N and Long

	77°17'2.15" E.
Inter- state issue involved	No
Proposed on River/ Reservoir	Kunwari River
Type of Hydro-electric project	Only Irrigation Project
Seismic zone	Zone – II

• **Category details:**

Category of the project	B1
Capacity / Cultural command area (CCA)	15300 Ha
Attracts the General Conditions (Yes/No)	Yes
Additional information (if any)	--

• **ToR/EC Details:**

ToR Proposal No.	IA/MP/RIV/500241/2024
EAC meeting date	31-12-2024 (ToR)
ToR Letter No.	TOR Identification No. TO24A0502MP5811182N File No. J-12011/28/2024-IA.I (R)
ToR grant Date	28/01/2025
Cost of project	539 Crore/-
Total area of Project	1369.35 Ha (Submergence Area at FRL)
Height of Dam from River Bed (EL)	19.32 m
Details of submergence area	1369.35 Hectare
District to provide irrigation facility (if applicable)	Sheopur and Morena districts of Madhya Pradesh
Details of tunnels on upper level & lower level and length of canal (if applicable)	Not Applicable
No. of affected Village.	8
No. of Affected Families	1568
Project Benefits	<ul style="list-style-type: none"> <li>➤ Irrigation potential for ~15,300 Ha agricultural land</li> <li>➤ Improved groundwater recharge</li> <li>➤ Increased crop productivity and cropping intensity</li> <li>➤ Employment generation (construction &amp; operation phase)</li> <li>➤ Fisheries development</li> <li>➤ Improvement in socio-economic conditions of local population</li> </ul>

R&R details	Total 8 villages of Vijaypur tehsil will be impacted due to submergence. Project-Affected Families (PAFs), who will lose land, will be adequately compensated in accordance with the provisions of the LARR Act, 2013.
Catchment area/ Command area	<ul style="list-style-type: none"> <li>➤ Catchment Area: 481.25 km<sup>2</sup>, As per DPR (Rainfed catchment, non-snowfed)</li> <li>➤ Command Area: ~15,300 Ha</li> </ul>
Types of Waste and quantity of generation during construction/Operation	<ul style="list-style-type: none"> <li>➤ Construction Phase: Excavated earth, muck, construction debris, domestic waste from labour camps</li> <li>➤ Operation Phase: Minimal solid waste, mainly domestic waste from staff colony and maintenance activities</li> </ul>
Material used for blasting and its composition as per DGMS standards.	<ul style="list-style-type: none"> <li>➤ ANFO (Ammonium Nitrate Fuel Oil) / slurry explosives</li> <li>➤ Controlled blasting as per DGMS guidelines</li> </ul>
E-Flows for the Project	As per the prescribed guidelines, a minimum environmental flow has been ensured for the project. The non-monsoon runoff is estimated at 0.84 MCM, based on 1% of monsoon runoff. Out of this, 25% (0.20 MCM) has been allocated for maintaining e-flow, which will be released from November to May at an average rate of 0.029 MCM per month.
Is Projects earlier studied 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.	CIA & CC Study- Not studied under basin-level CIA & CC.
Details on provision of fish pass	A fish pass along with fisheries development measures has been proposed to facilitate fish migration across the dam. The plan includes

	fish seed stocking, hatchery and brood stock management, fingerling rearing ponds, habitat improvement, fishermen training, and provision of boats, nets and transport facilities.
Project benefit including employment details (no of employee)	The proposed Project will generate significant socio-economic benefits, particularly in terms of employment. During the construction and implementation phase, the project is expected to provide direct and indirect employment opportunities to approximately 1,000 labourers. In addition, long-term livelihood opportunities will be created through enhanced irrigation, increased agricultural productivity, and allied activities such as fisheries and local services, thereby contributing to overall regional development.
Area of Compensatory Afforestation (CA) with tentative no of plantation.	<ul style="list-style-type: none"> <li>➤ Forest Land: 72.27 Ha</li> <li>➤ Compensatory Afforestation to be done on equivalent non-forest land with ~30,000 -35,000 plantation (approx.)</li> </ul>
Previous EC details	Not Applicable (New Project)
EC Compliance Report by R.O, MOEF&CC	Not Applicable
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	~10,000–20,000 saplings (integrated within greenbelt & CA)

• **Electricity generation capacity: NA**

• **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt land)	One site is proposed for disposal of muck and It is Non-forest land, It is Govt. Land.
Cross section of proposed muck area, Height of muck with slope.	Terraced dumping with proper slope stabilization.
Distance of muck disposal area(location), from muck generation sources (project area)/River, HFL of proposed muck disposal area.	The muck disposal site is located within about 3.5 km from the project area and at a safe distance from the river. The site is situated above the Highest Flood Level (HFL) to prevent flooding and ensure stability.
Total Muck Disposal Area	13.99 Hectare

Estimate Muck to be generated	1,86,550 Cum
Transportation	Transportation of muck will be carried out by dumpers over a distance of approximately 3.5 km.
Monitoring mechanism for Muck Disposal Transportation	<ul style="list-style-type: none"> <li>➤ Periodic inspection</li> <li>➤ Environmental Monitoring Cell supervision</li> </ul>

• **Land Area Breakup:**

Private land	709.51 Hectare
Government land	587.57 Hectare
Forest Land	72.27 Hectare
Total Land	1369.35 Hectare
Submergence area/Reservoir area	Total Submergence area- 1369.35 Hectare
Additional information (if any)	-

• **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	72.27 Ha forest land involved
National Park	Yes	Kuno National Park within 10 km
Wildlife Sanctuary	-	-
Archaeological sites monuments/historical temples etc	-	-
Additional information (if any)	-	NBWL clearance under process

- **Availability of Schedule-I species in study area :** Present in study area (as per biodiversity study & wildlife plan)

• **Public Hearing (PH) Details**

Advertisement for PH with date	12 <sup>th</sup> June 2025 and 15 <sup>th</sup> June 2025
Date of PH	14 <sup>th</sup> July 2025 and 30 <sup>th</sup> July 2025
Venue	<ul style="list-style-type: none"> <li>◆ Karyalaya Gram Panchayat, Agra, Tehsil Vijaypur, District Sheopur and</li> <li>◆ Near Koh Wale Hanuman Mandir, Rampur Ghati, Gram Rampurkala,</li> </ul>

	Tehsil Sabalgarh, District Morena
Chaired by	<b>District- Sheopur</b> <ul style="list-style-type: none"> <li>◆ Mr. Atendra Singh Gurjar, Additional District Magistrate, Sheopur</li> <li>◆ Mr. R.R. Singh Sengar, Regional Officer.</li> </ul> <b>District- Morena</b> <ul style="list-style-type: none"> <li>◆ Mr. Arvind Kumar Mahour, Sub-Divisional Officer (Revenue), Sabalgarh</li> <li>◆ Mr. R.R. Singh Sengar, Regional Officer.</li> </ul>
Main issues raised during PH	<ul style="list-style-type: none"> <li>· Land acquisition &amp; compensation</li> <li>· Employment opportunities</li> <li>· Irrigation benefits</li> <li>· Infrastructure development</li> <li>· Environmental concerns</li> </ul>
No. of people attended	<b>District- Sheopur</b> 86 persons <b>District- Morena</b> 21 persons

• **Brief of Baseline Environment**

Particulars	Details
Period of baseline data collection/Sampling period.	Dec 2024 – Aug 2025 (Winter Season, Pre-monsoon Season, Monsoon Season)
(Air, noise, water, land)	Within permissible CPCB limits
flora and fauna of the project area,	<ul style="list-style-type: none"> <li>· Mixed dry deciduous vegetation</li> <li>· Presence of mammals, birds, reptiles</li> <li>· Schedule-I species recorded</li> </ul>
aquatic ecology, etc.	River Kunwari supports fish diversity
Brief description on hydrology and water assessment as per the approved Pre-DPR:	<ul style="list-style-type: none"> <li>· Rainfed catchment</li> <li>· Dendritic drainage pattern</li> </ul>
Additional detail (If any)	

• **Court Case Details:** Nil

• **Status of other statutory clearances:**

Particulars	Letter no. and date
Status of Stage- I FC	Under Process
Approval of Central Water Commission	BODHI approval letter no.- 64/BODHI/HYD/443-Y/22 Bhopal on dated- 10/06/2022
Approval of Central Electricity Authority	--
Additional detail (If any)	NBWL clearance under process
<b>Is FRA (2006) done for FC-I</b>	Under Process

• **Details of the EMP:**

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Administrative charges including logistics	0	4
Monitoring Cost	0	33.6
Fisheries Management Plan	75	28
Muck Management	25	0
Labour management Plan	157.52	5
Disaster management Plan	80	1
CAT Plan	634	7
Biodiversity Conservation	18	15.67
Compensatory Afforestation	4.34	0
Green Belt Development Plan	4.5	0.4
Reservoir Rim Treatment Plan	15	1
Landscape and Restoration Plan	41.5	0
Restoration Plan for Quarry Sites	8	1
Command Area Development Plan	16	1
Local Area Development Plan	50	0
Training	16	0
Advocacy and Policy Making	0	4
Miscellaneous	1	0
Dust Management	0	14.4
<b>Total</b>	<b>1145.86</b>	<b>116.07</b>

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

- The Expert Appraisal Committee (EAC) deliberated on the information submitted by the Project Proponent and the details presented during the meeting. The Committee

observed that the proposal pertains to the grant of Environmental Clearance for the Chentikheda Major Irrigation Project (15,300 ha CCA) in an area of 1369.35 located at Aroda, Pachnia, and Garhi etc., Sub-District Vijaypur & Sabalgarh, District Sheopur & Morena, Madhya Pradesh by M/s Water Resource Department Sabalgarh, District Morena, MP.

- The EAC noted that the as per the provisions the project comes under “B1” category as it is a major irrigation project because the CCA lies between  $\geq 10,000$  ha i.e. 15300 Ha. of CCA for which only EMP is required. However, due to presence of Kuno National Park is located within 10 km distance from the project site the project transformed to category ‘A’ project and will be appraised at Central level.
- The Terms of Reference (ToR) for conducting EIA/EMP study and public hearing of the Dulhasti Stage-II HEP was granted by the MoEF&CC vide letter no. J-12011/28/2024-IA.I (R), dated- 28/01/2025.
- The EAC, constituted under the provisions of the EIA Notification, 2006, and comprising expert members/domain experts from various relevant fields, examined the proposal submitted by the Project Proponent. This examination included a review of the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports, which were prepared and submitted by a QCI/NABET-accredited consultant on behalf of the Project Proponent.
- The EAC noted that the Project Proponent has given an undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP reports. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.
- The EAC noted that the proposal is for the construction of a dam on the Kunwari River, a tributary of the Sind River in the Yamuna Basin, in Sheopur district, Madhya Pradesh. The Committee noted that the project aims to provide irrigation to about 15,300 hectares of largely unirrigated agricultural land covering 55 villages in Vijaypur tehsil of Sheopur district and Sabalgarh tehsil of Morena district. The EAC appreciated the potential benefits of the project in terms of enhanced irrigation coverage, improved water use efficiency through sprinkler irrigation, and increased agricultural productivity leading to socio-economic development of the region.
- The EAC noted that the total land requirement of the project is 1369.35ha, comprising 587.57 ha of revenue/government land, 709.51 ha of private land about 72.27 ha of forest land. The Committee observed that the PP has not obtained Stage-I Forest Clearance (FC) for diversion of 72.27 ha of forest land for construction of the proposed project. During the meeting, PP informed to the committee that they have applied vide proposal

no. FP/MP/HYD/IRRIG/502063/2024 dated 03/11/2024 for obtaining Stage-I Forest Clearance for diversion of 72.27 Ha of forest land.

- The EAC noted that the project site is located within 10 km of Kuno National Park, an ecologically sensitive and protected area. In view of the proximity to the National Park, the Committee emphasized the requirement of prior clearance from the National Board for Wildlife (NBWL) under the provisions of the Wildlife (Protection) Act, 1972. The Committee took note that the Project Proponent has applied for wildlife clearance, and the proposal has been registered with reference/application no. WL/MP/IRRIG/541262/2025 for consideration by the NBWL.
- The EAC inquired about the downstream impacts of the project and observed that the dam proposed on
- The EAC opined that the project shall be considered further only after obtaining the requisite wildlife clearance and submission of recommendations of the Standing Committee of NBWL, along with a site-specific Wildlife Conservation Plan addressing potential impacts on fauna, habitat, and ecological connectivity.
- The EAC while discussing the downstream impacts observed that being a seasonal river the Kunwari River, a tributary of the Sind River, which ultimately drains into the Yamuna within the Chambal basin, depends primarily on monsoon rainfall for its flow like most non-Himalayan rivers of peninsular India. As a result, the river carries substantial water during the monsoon season but experiences a significant reduction in discharge—and may even dry up—during the dry months. Most of the downstream monsoon flow remains substantially undisturbed, particularly because the Kunwari itself carries only a comparatively small catchment contribution vis-à-vis the larger downstream river systems up to its confluence with Sindh and the further confluence of Sindh with Yamuna. The proposed project may facilitate in providing sustained water supply in the downstream during non-monsoon season supporting environmental continuity in a more orderly and regulated manner.
- The EAC further opined that the proposed project is an irrigation project of national importance, contributing to the food security of the country, but the project site is close to critical wildlife habitat so the project should be implemented with stringent environmental safeguards.
- The committee observed that the Public Hearing for the proposed project has been conducted by the State Pollution Control Committee on 14th July 2025 at Karyalaya Gram Panchayat, Agra, Tehsil Vijaypur, District Sheopur chaired by Mr. Atendra Singh Gurjar, Additional District Magistrate, Sheopur and 30th July 2025 at Near Koh Wale Hanuman Mandir, Rampur Ghati, Gram Rampurkala, Tehsil Sabalgarh, District Morena chaired by Mr. Arvind Kumar Mahour, Sub-Divisional Officer (Revenue), Sabalgarh.

- The EAC discussed the concerns raised during the Public Hearing (PH) and reviewed the action plan submitted by the PP to address these issues. After detailed deliberation, the Committee found the action plan satisfactory, recognizing that the proposed mitigation measures adequately respond to stakeholders' concerns.
- The EAC noted that the total estimated project cost is ₹539 crore, including an existing investment of ₹5.0 crore. The Committee further observed that a capital cost of ₹1141.52 lakh has been earmarked towards the Environmental Management Plan (EMP), with a recurring operation and maintenance cost of ₹116.07 lakh per annum. The cost earmarked for Compensatory Afforestation shall be excluded from the budget outlay of EMP. The revised EMP details are as under:

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Administrative charges including logistics	0	4
Monitoring Cost	0	33.6
Fisheries Management Plan	75	28
Muck Management	25	0
Labour management Plan	157.52	5
Disaster management Plan	80	1
CAT Plan	634	7
Biodiversity Conservation	18	15.67
Green Belt Development Plan	4.5	0.4
Reservoir Rim Treatment Plan	15	1
Landscape and Restoration Plan	41.5	0
Restoration Plan for Quarry Sites	8	1
Command Area Development Plan	16	1
Local Area Development Plan	50	0
Training	16	0
Advocacy and Policy Making	0	4
Miscellaneous	1	0
Dust Management	0	14.4
<b>Total</b>	<b>1141.52</b>	<b>116.07</b>

**52.3.4** The EAC after examining the information submitted and detailed deliberations **recommended** for grant of Environmental Clearance by the Ministry for the construction of the Chentikheda Major Irrigation Project (15,300 ha CCA) in an area of 1369.35 located at Aroda, Pachnia, and Garhi etc., Sub-District Vijaypur & Sabalgarh, District Sheopur & Morena, Madhya Pradesh by M/s Water Resource Department Sabalgarh, District Morena,

MP, under the provisions of EIA Notification, 2006, as amended subject to compliance of applicable Standard EC conditions along with the following additional conditions:

**[A] Environmental management and Biodiversity conservation:**

- i. PP shall obtain Stage-I Forest Clearance before the grant of Environmental Clearance.
- ii. PP shall obtain recommendations of the Standing Committee of NBWL.
- iii. On-line monitoring system will be installed to measure and record the E-Flow releases.
- iv. Stocking of fish in reservoir should be based on the area and size of fish. It should be implemented in consultation with the central /state department having expertise in reservoir fisheries.
- v. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, the trainings to the youths be incorporated for their appropriate engagements in the Project.
- vi. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines and all commitments made during the Public Hearing shall be fulfilled.
- vii. Six monthly compliance reports shall be submitted by the project proponent to Regional Office, MoEF& CC, Bhopal without fail until completion of the works.
- viii. The Environmental Management Plan (EMP) with total Capital Cost Rs. 1141.52 Lakhs and Recurring cost 116.07 Lakhs shall be strictly adhered to as vetted by the EAC. The budgetary provisions for implementation of EMP, shall be fully utilized and not to be diverted to any other purpose. In case of revision of the project cost or due to price level change, the cost of EMP shall also be updated proportionately.
- ix. The contract clause limiting the No. of vehicles used during excavation and transportation shall followed scrupulously and the same shall informed to the ministry.
- x. Ambient Air Quality Monitoring Stations for real time data to be installed at project site before commencement of the construction, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC.
- xi. Wildlife conservation plan for Schedule -I Species shall be prepared and implemented after approval of the Chief Wildlife Warden of the State. Safe pathways shall be created for free movement of wildlife after detailed study of pattern of movement of wildlife species in the project cover area.

- xii. No vehicle purchase shall be allowed from funds earmarked for implementation of Wildlife Conservation plan. Measures for minimizing the human–animal conflict specially for black bear and leopard be suitably incorporated in the wildlife conservation plan in consultation with State Forest Department.
- xiii. Watershed Management Plan be prepared in consultation with expert government research institute and be implemented in a time bound manner.
- xiv. Native plants shall be planted around the muck disposal area in consultation with Forest Department and the survival of plants shall be reported in the 6 monthly compliance report.
- xv. Plantation of saplings (10000 nos.) shall be carried out as a part of the tree plantation campaign "Ek Ped Ma Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal (<https://merilife.nic.in>).

**[B] Disaster Management:**

- i. Disposal of the excavated muck and its filling on the low-lying area with proper measures for the stabilization and greenery to minimize the impacts of the generated construction muck shall be taken up pari passu with construction work.
- ii. Stabilization of muck disposal sites using biological and engineering measures shall be taken up immediately to ensure that muck does not roll down the slopes and does not pollute the natural streams and water bodies in surrounding area. The plantation on muck disposal site with local species for restoration of ecology and environment of the project site area.
- iii. Necessary control measures such as water sprinkling arrangements, and construction of paved roads leading to muck disposal sites etc. shall be taken up on priority to arrest fugitive dust at all the construction sites.
- iv. Solid waste generated, especially plastic waste, etc. should not be disposed of as landfill material. It should be treated with scientific approach and recycled. Use of single-use plastics may be discouraged.

**[C] Socio-economic:**

- i. Land acquired for the project shall be suitably compensated in accordance with the prevailing guidelines of the state government and provisions under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

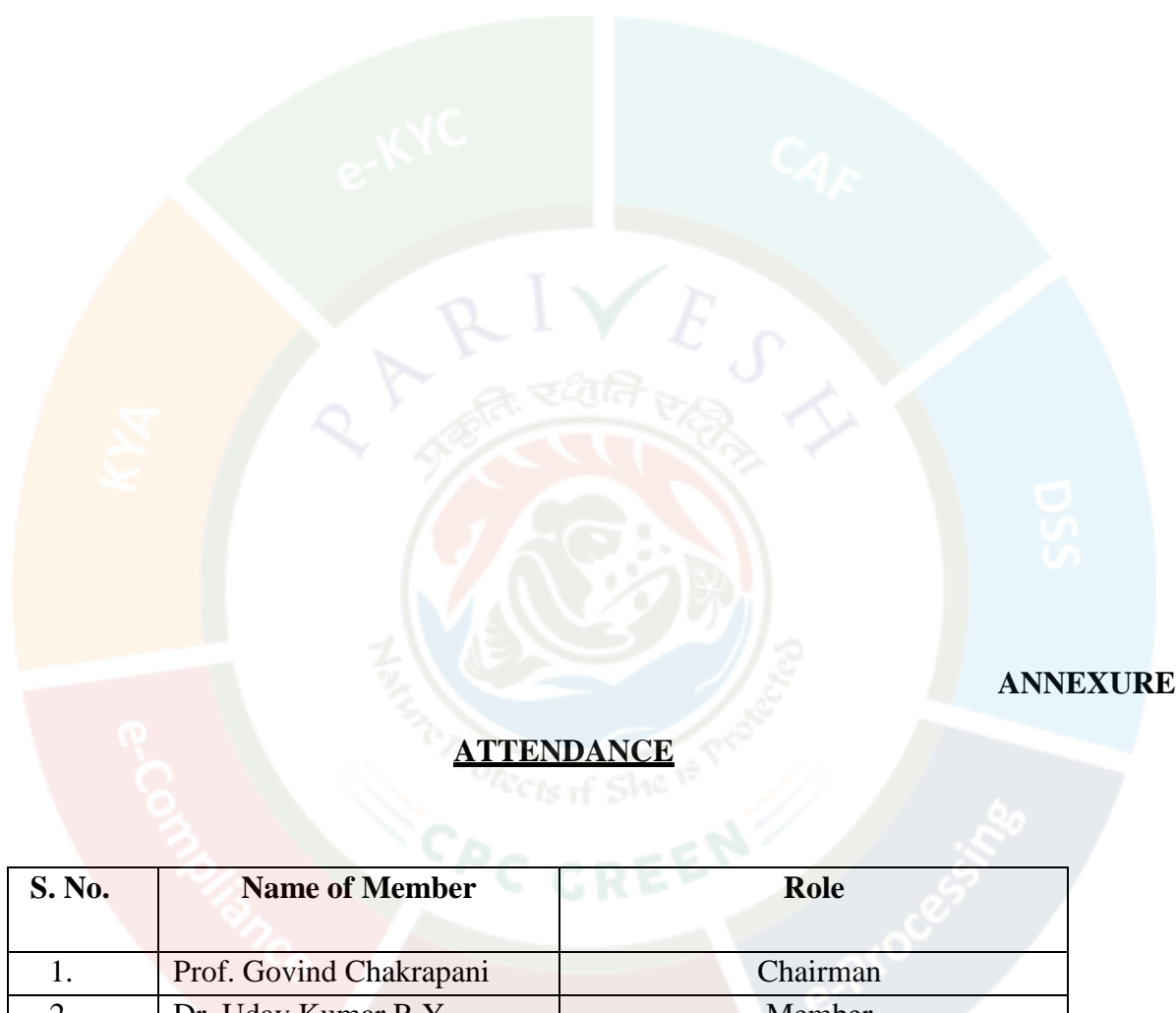
- ii. An institutional mechanism to be developed to ensure the preference of jobs to PAFs and also a policy for preferential treatment for award of sundry works to the PAFs and their dependents.
- iii. Solar panel be provided to the families living in rural areas within 10 km radius of project.
- iv. School up to 12<sup>th</sup> Standard with smart classrooms shall be established to provide quality education for children from project affected villages/Tribal villages.
- v. Skill Development Centre shall be established within 10 km radius of the project and regular training programmes for development and promotion of traditional art/products of tribal/local population.
- vi. The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit once in year. The compliance report of IRO shall be regularly submitted to MoEF&CC.
- vii. Bio-Gas plant shall be installed in the Project affected villages @ per family for Utilizing Cattle waste (Cow Dung) into renewable source of fuel.

**[D] Miscellaneous:**

- i. After 5 years of the commissioning of the project, a study shall be undertaken regarding impact of the project on the environment. The study shall be undertaken by an independent agency.
- ii. PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis.
- iii. A dedicated team to oversee environmental management activities (at project site) shall be set up comprising Environment Manager having post graduate qualification in Environmental Sciences/ Environment Engineering along with other supporting staff. The Environment Manager Shall report to Project Head directly.
- iv. PP shall procure construction material only from those Organizations having all valid legal/statutory clearances/permissions or necessary permission to be obtained for quarrying construction materials for the project as per the EIA Notification, 2006 and as amended thereof.

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

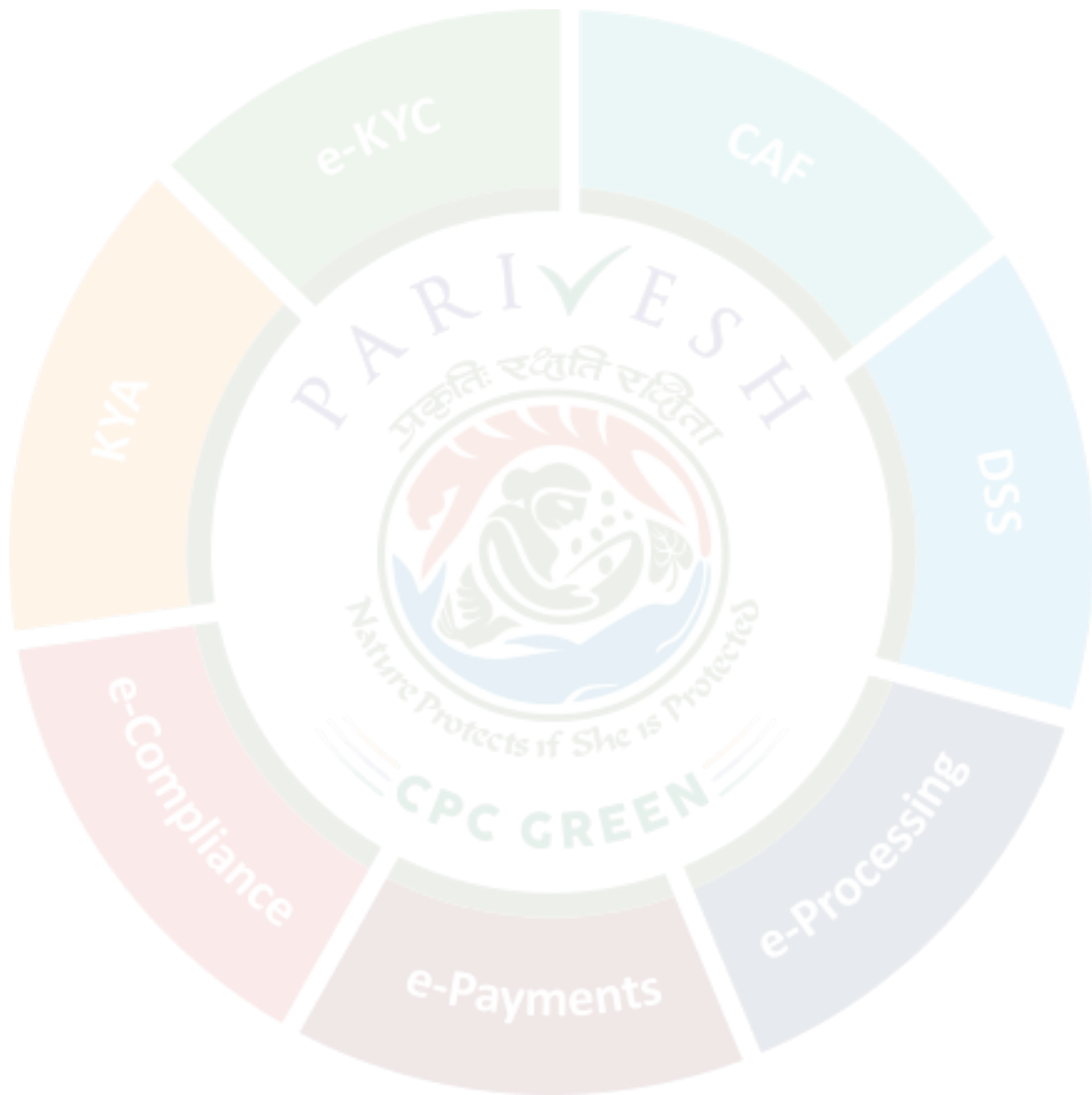
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**ATTENDANCE**

<b>S. No.</b>	<b>Name of Member</b>	<b>Role</b>
1.	Prof. Govind Chakrapani	Chairman
2.	Dr. Uday Kumar R Y	Member
3.	DR. J. V. Tyagi	Member
4.	Shri Ajay Kumar Lal	Member
5.	Shri Balram Kumar	Member Representative of Central Water Commission (CWC)
6.	Shri Rakesh Goyal	Member Representative of Central Electricity Authority (CEA)
7.	Dr. J.A. Johnson	Representative of Wildlife Institute of India (WII)

8.	Dr. A. K. Sahoo	Representative of Central Inland Fisheries Research Institute (CIFRI),
9.	Shri Yogendra Pal Singh	Member Secretary



## APPROVAL OF THE CHAIRMAN

==== Forwarded message =====  
From: chakrapani govind <[chakrapani.govind@gmail.com](mailto:chakrapani.govind@gmail.com)>  
To: "Yogendra Pal Singh" <[yogendra78@nic.in](mailto:yogendra78@nic.in)>  
Cc: "govind chakrapani" <[govind.chakrapani@es.iitr.ac.in](mailto:govind.chakrapani@es.iitr.ac.in)>  
Date: Thu, 23 Apr 2026 18:53:30 +0530  
Subject: Re: Draft MoM of the 52nd EAC (RVHEP) meeting held on 13.04.2026-reg.  
==== Forwarded message =====

Approved.  
Chakrapani

On Thu, 23 Apr, 2026, 6:44 pm Yogendra Pal Singh, <[yogendra78@nic.in](mailto:yogendra78@nic.in)> wrote:

Dear Sir,

Draft MoM of the 52nd EAC (RVHEP) meeting held on 13.04.2026 was circulated to all EAC members. No comments received so far. Accordingly, the same is attached herewith for your approval please.

With Regards,

**Yogendra Pal Singh**  
Scientist 'F'  
**Government of India**  
M/o Environment, Forest and Climate Change  
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