

**MINUTES OF THE 48<sup>TH</sup> MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 26<sup>TH</sup> - 27<sup>TH</sup> JUNE, 2023 FROM 10.30 AM - 05:30 PM THROUGH VIRTUAL MODE.**

The 48<sup>th</sup> meeting of the re-constituted EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 26-27 June, 2023 through virtual mode, under the Chairmanship of Dr. A. K. Malhotra. The list of Members present in the meeting is at **Annexure**.

**Agenda item No.48.1**

Confirmation of the minutes of 47<sup>th</sup> EAC meeting held on 2<sup>nd</sup> June, 2023.

**Day 1: 26<sup>th</sup> June, 2023**

**Agenda item No.48.2**

**Chitravathi (Open loop) Pumped Storage Hydro-Electric Project (500 MW) in an area of 136 ha at Village Peddakotla, Tehsil Tadimarri, District Ananthapuramu, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP) – Environmental Clearance (EC) – reg.**

**[Proposal No. IA/AP/RIV/430371/2023; F. No. J-12011/12/2021-IA.I (R)]**

**48.2.1:** The proposal is for grant of environmental clearance to the project for Chitravathi (Open loop) Pumped Storage Hydro-Electric Project (500 MW) in an area of 136 ha at Village Peddakotla, Tehsil Tadimarri, District Ananthapuramu, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP).

**48.2.2:** The Project Proponent and the accredited Consultant M/s. Aarvee Associates Architects Engineers & Consultants Pvt. Ltd., Hyderabad. made a detailed presentation on the salient features of the project and informed that:

- i. The proposal is for grant of environmental clearance to the project for Chitravathi (Open loop) Pumped Storage Hydro-Electric Project (500 MW) in an area of 136 ha at Village Peddakotla, Tehsil Tadimarri, District Ananthapuramu, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP).
- ii. The project proposal was considered by the Expert Appraisal Committee (Hydro River Valley Sector) in its 17<sup>th</sup> meeting held during 27/09/2021 and recommended for grant of Terms of References (ToRs) for the Project. The ToR has been issued by Ministry vide letter No.J - 12011/12/2021-IA.I; dated 18/10/2021.
- iii. The project is listed at S.N. 1 (c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).
- iv. The proposed project is a New Construction project with a total area of 136 Ha. The land use

in the project area is Unused waste lands. The proposed pumped storage project will have Proposed upper reservoir, Underground structures, Project facilities & Roads. The land use in the project area is Unused waste land and barren lands. Land required for project components 1. Land required for Upper Reservoir and Embankment: 43.71 Ha, Land required for Underground Structure:18.23 Ha. Land required for Project Facilities including plantation: 62.56 Ha. The proposed project does not have any forest land. Project will develop greenbelt in an area of 33 % i.e.,4,60,000 m<sup>2</sup> out of total area of the project. Project will be comprised of two reservoirs. The existing Chitravathi balancing reservoir will be the lower reservoir and a new reservoir to be constructed on the hilltop with embankment of maximum height 57.3m to create the desired storage capacity and used cyclically for energy storage and discharge. Evaporation losses if any will be recouped periodically. This Project envisages non-consumptive re-utilization of 0.216 TMC of water for recirculation among these two reservoirs.

- v. The estimated project cost is Rs. 2,406.42 cr. Total capital cost earmarked towards environmental pollution control measures is Rs 1,923 Lakhs and the Recurring cost (operation and maintenance) will be about Rs. 5.5 lakhs per annum.
- vi. Total Employment will be 220 personnel. Industry proposes to allocate Rs. 2 Cr towards CER (as per Ministry's OM dated 30.09.2020).
- vii. Approval of NOC from GoAP & GoK and an Undertaking from NREDCAP declared vide their letter no. NREDCAP/WE/PSP/Chitravathi/2023, Dated 23.01.2023 suggest that water for utilizing the solar power generated during the daytime will be utilized for pumping of water from lower reservoir to upper reservoir (6.26 MCM (0.22 TMC) i.e. 2.2% of storage capacity of existing lower reservoir Capacity of 283.1MCM (10TMC)) will be utilized.
- viii. There are no National Parks, Wildlife Sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River/ water body Chitravati is flowing at a distance of 431.26 m in East direction.
- ix. Ambient air quality monitoring was carried out at 5 locations during Winter, Pre-Monsoon and Monsoon from December 2021 to November 2022 and the baseline data indicates the ranges of concentrations as: PM10 (49.5-34.6µg/m<sup>3</sup>), PM2.5 (23.3-16.5µg/m<sup>3</sup>), SO<sub>2</sub> (4.9-4µg/m<sup>3</sup>) and NO<sub>2</sub> (14.4-7.8µg/m<sup>3</sup>). No any adverse impact on Air quality during the operation phase.
- x. The project would generate substantial quantity of muck from the excavation of various structures. The total quantity of muck likely to be generated from excavation including construction of roads is about 4.4 Mcum. However, after the utilization of muck for different project components and also considering the swell factor total estimated quantity to be disposed of is about 3 MCum. An area of 30 Ha has been earmarked downstream of the existing reservoir area. The total cost of the project is 2406.62 Cr.
- xi. Public Hearing for the proposed project has been conducted by the State Pollution Control Board on 06.05.2023. The main issues raised during the public hearing are related to employment opportunities.
- xii. Status of Litigation Pending against the proposal, if any. Not Applicable
- xiii. The silent features of the project are as under: -

**Project details:**

Name of the Proposal	Chitravathi Pumped Storage Hydro-Electric Project Sri Sathya Sai District of Andhra Pradesh (2*250=500 MW)
Location (Including coordinates)	State: Andhra Pradesh District: Sri Sathya Sai. The geographical coordinates of the proposed upper reservoir are at Lat. N- 14° 34' 26.74" and Long. E- 77° 56'7.20" and for existing lower reservoir are at Lat. N-14° 33'41" and Long. E-77° 57'32".
Inter- state issue involved	No issue
Seismic zone	II

**Category details:**

Category of the project	A
Provisions	-
Capacity / Cultural command area (CCA)	500 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

**Electricity generation capacity:**

Powerhouse Installed Capacity	500 MW
Generation of Electricity Annually	941.81 MU/year
No. of Units	2
Additional information (if any)	-

**EC Details:**

Cost of project	2406.62 cr
Total area of Project	136
Height of Dam from River Bed (EL)	EL 495 m
Length of Tunnel/Channel	300 m
Details of Submergence area	51 Ha
Types of Waste and quantity of generation during construction/ Operation	Muck waste, 5.13 Mcum

E-Flows for the Project	A certain Environmental Flows is to be maintained in the downstream by releasing of the required water quantity as follows:  <ul style="list-style-type: none"> <li>• Monsoon Season- May to September - 30% of the average flows during 90 % dependable year.</li> <li>• Non-monsoon Non lean Season- October &amp; April - 25% of the average flows during 90% dependable year.</li> </ul>
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then e) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin.  f) If not the E-Flows maintain criteria for sustaining river ecosystem.	<ul style="list-style-type: none"> <li>• Lean Season- November to March - 20% of the average flows during 90% dependable year.</li> </ul>

#### **Muck Management Details:**

No. of proposed disposal area/(type of land-Forest/Pvt. land)	1 site of 30 Ha
Muck Management Plan	Details of muck management plan is provided in EMP.
Monitoring mechanism for Muck Disposal	The muck disposal plan along with Engineering and biological measures; monitoring and compliance; and financial requirements are detailed in the EIA report.

#### **Land Area Breakup:**

Private land	0
Government land	136 Ha (Total required)
Submergence area/Reservoir area	51 Ha
Land required for project components	1. Land required for Upper Reservoir and Embankment: 43.71 Ha 2. Land required for Underground Structure: 18.23 Ha 3. Land required for Project Facilities including plantation : 62.56 Ha
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	No	
National Park	No	
Wildlife Sanctuary	No	

### Court case details:

Court Case	No case
Additional information (if any)	-

### Affidavit/Undertaking details:

Affidavit/Undertaking	Attached as Annexures with the EIA report.
Additional information (if any)	

### Miscellaneous

Particulars	Details
Details of consultant	M/s. Aarvee Associates Architects Engineers & Consultants Pvt. Ltd., Hyderabad
Project Benefits	1. Increase productivity attributable to project 2. An estimated amount of 201.24 cr of benefit due to project
Status of other statutory clearances	--
R&R details	No R&R activity
Additional detail (If any)	-

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

The proposal is for grant of Environmental Clearance to the project for Chitravathi (Open loop) Pumped Storage Hydro-Electric Project (500 MW) in an area of 136 ha at Village Peddakotla, Tehsil Tadimarri, District Ananthapuramu, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP).

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

The ToR has been issued by Ministry vide letter No.J -12011/12/2021-IA.I; dated 18/10/2021. Public Hearing for the proposed project has been conducted by the State Pollution Control Board on 06.05.2023. The main issues raised during the public hearing are related to employment opportunities.

The EAC in the present meeting (48th meeting) deliberated on the information submitted (Form 2, EIA/EMP report, kml file, etc.) and as presented along with consultant M/s. Aarvee Associates Architects Engineers & Consultants Pvt. Ltd.

**48.2.4** The EAC after examining the information submitted and detailed deliberations **recommended** the proposal for grant of Environmental Clearance by the Ministry to Chitravathi (Open loop) Pumped Storage Hydro-Electric Project (500 MW) in an area of 136 ha at Village Peddakotla, Tehsil Tadimarri, District Ananthapuramu, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP), under the provisions of EIA Notification, 2006 and as amended with subject to compliance of applicable Standard EC conditions with the following additional conditions:

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

- i. The water of rainfall yield of self-catchment of the reservoir shall be released to downstream through body of dam/ barrage/ embankment etc.
- ii. The water for filling of reservoir/ recouplement of evaporation and recirculation losses shall be met from a source other than the rainfall yield of catchment of non-perennial stream/ nallah.
- iii. The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP reports. 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.
- iv. The contract clause limiting the No. of vehicles used during excavation and transportation shall followed scrupulously and the same shall informed to the ministry.
- v. Ambient Air Quality Monitoring Stations for real time data to be installed at project site, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC.
- vi. 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.
- vii. 10000 plants shall be planted around the muck disposal area and the survival of plants shall be submitted with the 6 monthly compliance report.
- viii. Watershed development plan shall be prepared in consultation with ICAR/expert Govt. institute and be implemented within 10 km radius of the projects. Implementation status be submitted in the 6 monthly compliance report.
- ix. Plant Nursery for Red Senders (*Pterocarpus santalinus*) shall be developed and 1000 Red Senders saplings/year shall be planted along the watershed areas within 10 km radius of the project.

**[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. The area is ecologically fragile therefore Project Proponent shall ensure that safety measures as mentioned in the EMP shall be fully implemented.

**[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. Bio-Gas plant (Deenn Bandhu Model of Bio-Gas) shall be installed in the Project affected area for Utilizing Cattle waste (Cow Dung) into renewable source of fuel.
- iii. RO plant shall be installed in the nearby 5 villages and the maintenance shall be done by the project Authorities.
- iv. Solar panel be provided to the families living in rural areas within 10 km radius of project.
- v. The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit thrice in year. The compliance report of IRO shall be regularly submitted to MoEF&CC.
- vi. 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.

- vii. 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.

### **Agenda item No.48.3**

**Koyna-Nivakane (Closed loop) Pumped Storage Project (2450 MW) in an area of 312.84 ha at Village Marathwadi, Tehsil Patan, District Satara, Maharashtra by M/s Adani Green Energy Limited – Terms of References (ToR) – reg.**

**[Proposal No. IA/MH/RIV/430730/2023; F. No. J-12011/28/2023-IA.I (R)]**

**48.3.1:** The proposal is for grant of Terms of Reference (ToR) to the project for Koyna-Nivakane (Closed loop) Pumped Storage Project (2450 MW) in an area of 312.84 ha at Village Marathwadi, Tehsil Patan, District Satara, Maharashtra by M/s Adani Green Energy Limited.

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

- i. The proposal is for ToR to the project for Koyna Nivakane Pumped Storage Project located at Village Nivakane, District Satara, Maharashtra by M/s. Adani Green Energy Limited.
- ii. The project is listed at S.N. 1 (c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).
- iii. The estimated project cost is Rs. 8615.28 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).
- iv. Sahyadri Tiger Reserve Boundary is at 0.5 km distance from the project site. River/water body, Koyna Reservoir is at a distance of 3 Km in west direction.
- v. Status of Litigation Pending against the proposal, if any. No
- vi. Various technically feasible alternative layouts have been identified along the Western Ghats mountain ranges near the project site. Based on review of available data, maps, it is found that the area is a home of one tiger Reserve i.e Sahyadri Tiger Reserve and "Koyna Wildlife Sanctuary". However, keeping all these eco sensitivity in mind, the 2450 MW Koyna-Nivakane PSP has been proposed completely outside the Tiger Reserve and Koyna Sanctuary. The identified project has been designed such a way, so that it can well utilize the head available between the upper reservoir, which is a natural basin, located at Kera river basin and lower reservoir proposed, which also a natural valley situated at Nivakane Accordingly, a layout has been identified with an installed capacity of 2450 MW. The project does not affect any settlement.
- vii. By studying all three alternatives, keeping in view of Accessibility, Dam height, Socio economic and Environmental impact, alternative 3 has been emerged as economically the



most viable and most feasible to be constructed among these three sites. However, to keep the Hmax/ Hmin within permissible limits (1.3), the identified reservoirs need to be excavated to minimize the gap between Full Reservoir Level (FRL) and Minimum Drawdown Level (MDDL). Upper Reservoir (FRL- El.1063, MDDL – EL. 1026) and Lower Reservoir (FRL- El.744, MDDL – EL. 694). Conclusively it is advisable not to do further study on Alternative 1 & 2 and it is strongly recommended to do further study for the alternative 3 site named as Koyna- Nivakane PSP.

- viii. The Ground Water requirement during Construction stage is 550 KLD and during operation phase 10 KLD which shall be supplied through pipeline. Area category from Groundwater availability perspective IS safe.
- ix. Project Excavation is 3000000 Cum out of which 15 lakh Cum shall be utilized in construction and 15 lakh Cum shall be disposed in muck disposal site.
- x. The silent features of the project are as under: -

**Project details:**

Name of the Proposal	Koyna Nivakane Pumped Storage Project
Location (Including coordinates)	The proposed project involves creation of upper reservoir are at longitude 73°50'35.47"E and latitude is 17°28'59.66"N and that of lower reservoir are at longitude 73°51'35.32"E and latitude 17°28'52.88"N
Inter- state issue involved	No
Seismic zone	Zone-IV

**Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	2450 MW
Attracts the General Conditions (Yes/No)	Yes
Additional information (if any)	Nil

**Electricity generation capacity:**

Powerhouse Installed Capacity	2450 MW
Generation of Electricity Annually	5091 MU
No. of Units	7 nos. (7 X 350 MW)
Additional information (if any)	Nil

**ToR Details:**

Cost of project	8615.28 Cr.
Total area of Project	312.84 ha
Height of Dam from River Bed (EL)	Lower Dam – 69 m Upper Dam – 53.8 m
Length of Tunnel/Channel	109
Details of Submergence area	146.84 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Off-Stream Closed Loop Pumped Storage Project (PSP)
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 b) EAC as per CIA&CC study of RiverBasin.  If not the E-Flows maintain criteria for sustaining river ecosystem.	No

**Muck Management Details:**

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	130.84 ha Private Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

**Land Area Breakup:**

Government land/Forest Land	No
Submergence area/Reservoir area	146.84 ha
Land required for project components	166 ha
Additional information (if any)	Nil

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

<b>Forest Land/ Protected Area/ Environmental Sensitivity Zone</b>		<b>Details of Certificate / letter/ Remarks</b>
Reserve Forest/Protected Forest Land	--	<ul style="list-style-type: none"> <li>• Project has been kept outside the Koyna WLS and is at a distance of 500m from the boundary of Koyna WLS</li> <li>• Wildlife Clearance will be applicable</li> </ul>
National Park	--	
Wildlife Sanctuary	--	

**Court case details:**

Court Case	Nil
Additional information (if any)	Nil

**Affidavit/Undertaking details:**

Affidavit/Undertaking	Enclosed
Additional information (if any)	Nil

**Miscellaneous**

<b>Particulars</b>	<b>Details</b>
Project Benefits	<ul style="list-style-type: none"> <li>• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-</li> </ul>

	<p>peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions.</p> <ul style="list-style-type: none"> <li>• Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: <ul style="list-style-type: none"> <li>○ Least expensive source of electricity, not requiring fossil fuel for generation</li> <li>○ An emission-free renewable source</li> <li>○ Balancing grid for demand driven variations</li> <li>○ Balancing generation driven variations</li> <li>○ Voltage support and grid stability</li> </ul> </li> </ul> <p>Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.</p>
Status of other statutory clearances	Forest Clearance - Not Applicable Wildlife Clearance –Applicable; yet to apply
R&R details	Details shall be evaluated during EIA/EMP Studies
Additional detail (If any)	Nil

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

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of terms of reference to the project for Koyna-Nivakane (Closed loop) Pumped Storage Project (2450 MW) in an area of 312.84 ha at Village Marathwadi, Tehsil Patan, District Satara, Maharashtra by M/s Adani Green Energy Limited.

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

The proposed project is falling under ESA of Western Ghats. Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration. Areas susceptible to natural hazards which could cause the project to present environmental problems similar effects. Area falls under the zone IV as per the Seismic Zone Map of India and appropriate measures would be taken during the designing of project.

The project site is located just 500 m distance from the boundary of Koyna Wildlife Sanctuary. Sahyadri Tiger Reserve Boundary is at 0.5 km distance. The PP has informed during presentation that proposed upper dam located across a minor rivulet draining into Kera river and lower dam located across a minor rivulet draining into Kera river.

The EAC was of the view that survival of small freshwater streams and rivulets is significant specially in western ghats where no snow feed river system is existing. The Sahyadri Tiger Reserve, Koyna Wildlife Sanctuary and Chandoli National Park within 5km of the project area. The NOC from NBWL will be obtained as per the Wildlife Protection Act 1972.

Since the project site is located in Western Ghats ESA and Sahyadri Tiger Reserve, Koyna Wildlife Sanctuary and Chandoli National Park are in proximity, the EAC decided to conduct site visit before considering the proposal for grant environmental clearance to know the ground conditions and to suggest suitable environmental safeguards accordingly.

**48.3.4** The EAC after detailed deliberation on the information submitted and as presented during the meeting *recommended* for grant of Standard ToR for conducting EIA study for Koyna-Nivakane (Closed loop) Pumped Storage Project (2450 MW) in an area of 312.84 ha at Village Marathwadi, Tehsil Patan, District Satara, Maharashtra by M/s Adani Green Energy Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

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

- i. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs of catchment area, irrigation facilities due to tapping of water for filling reservoir.
- ii. Alternative sites for various components shall be identified in terms of loss of forest area.
- iii. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
- iv. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
- v. Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/ EMP report.
- vi. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir.
- vii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with expert Govt. institutions/ Indian Council of Agriculture Research

- (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
- viii. Source of construction material and its distance from the project site along with detailed transportation plan for construction material.
  - ix. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.
  - x. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
  - xi. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
  - xii. MoU for water uses for the project signed and approved by concerned authority shall be submitted.
  - xiii. Environmental matrix during construction and operational phase needs to be submitted.
  - xiv. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.
  - xv. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.
  - xvi. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component.
  - xvii. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
  - xviii. Stage-I Forest Clearance shall be obtained.
  - xix. Explore the possibilities to reduce Forest area for the construction of proposed project, Muck disposal sites should be outside the forest area.
  - xx. Action plan for survival of the rivulets located in the study area.

#### **[B] Socio-economic Study**

- i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
- ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.
- iii. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F. No. 22-65/2017-IA.III dated 30<sup>th</sup> September, 2020 shall be submitted.
- iv. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.
- v. Details of settlement in 10 km area shall be submitted.

#### **[C] Muck Management/ Disaster Management**

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

**[D] Miscellaneous.**

- i. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
- ii. Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose.
- iii. Both capital and recurring expenditure under EMP shall be submitted.
- iv. The photograph should bear the date, time, latitude & longitude of the monitoring station/ sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyse the samples.
- v. Arial view video of project site shall be recorded and to be submitted.
- vi. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.

**Agenda item No.48.4**

**Gujjili (Closed loop) Pumped Storage Hydro Electric Project (1500 MW) in an area 272.41 ha at Village Duddikonda & Bheemavaram, Taluka Ananthagiri and Araku Valley, District Alluri Sitharama Raju, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP) – Terms of References (ToR) – reg.**

**[Proposal No. IA/AP/RIV/431362/2023; F. No. J-12011/32/2023-IA.I (R)]**

**48.4.1:** The proposal is for grant of Terms of Reference (ToR) to the project for Gujjili (Closed loop) Pumped Storage Hydro Electric Project (1500 MW) in an area 272.41 ha at Village Duddikonda & Bheemavaram, Taluka Ananthagiri and Araku Valley, District Alluri Sitharama Raju, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd.

**48.4.2:** The Project Proponent and the accredited Consultant M/s. Aarvee Associates, Architects and Consultants Private Limited, made a detailed presentation on the salient features of the project and informed that:

- i. The proposal is for grant of ToR to the project for Gujjili Pumped Storage Hydro Electric Project located at Alluri Sitarama Raju District by M/s Aarvee Associates, Architects and Consultants Private Limited.
- ii. The project is listed at S. No: 1(C) of the Schedule to the Environment Impact Assessment (EIA) Notification, 2006 under category ‘A’ and are appraised at Central Level by Expert Appraisal Committee (EAC).

- iii. The total land required for construction of project components, reservoir areas, muck dumping, construction camps and colony, etc., works out to be 272.41 ha (211.37 ha forest land & 61.04 ha Non-Forest land). Total Forest land required in the project is 211.37 Ha towards the project facilities, reservoirs etc.
- iv. The estimated project cost is Rs.6535.34 Crores.
- v. Total Employment will be 2,250 persons as direct & indirect.
- vi. There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site.
- vii. Details of Solid waste/ Hazardous waste generation/ Muck and management:

Source:	Construction Camps/ Labour Camps	
Quantity (TPA):	365	
Mode of disposal:	Nearest Municipal Dumping yards operated and maintained by the respective Municipalities	
Mode of transport:	Road	
<b>Calculation of Solid Waste</b>		
	Waste generated per person in kg/day	0.5
	No. of labours =	2250
	Total waste generated per day in kg	1125
	Total waste generated per day in Tonnes	1.125
	<b>Total waste generated per day in Tonnes per Annum</b>	<b>410.625</b>

Quantity of muck = 1300000 Cum ( for 4 years)  
density of muck = 1300 kg/m<sup>3</sup>  
Quantity of muck in kg = 1690000000 kg for 4 years  
422500000 kg for 1 year  
422500 TPA

- viii. Status of Litigation Pending against the proposal, if any.
- ix. The silent features of the project are as under: -

**Project details:**

Name of the Proposal	Gujjili Hydro-Electric Pumped Storage Project (1500 MW)
Location (Including coordinates)	The proposed Gujjili PSP is located near Duddikonda & Bheemavaram village, Ananthagiri Taluka, Alluri Sitharama Raju district of Andhra Pradesh. The upper dam is located near Dudikonda village, Araku Valley Taluka, Alluri Sitharama Raju district of Andhra Pradesh state having a geographical latitude 18°20'51.20"N and longitude 83° 4'7.14"E. The lower dam is located near Bheemavaram village, Ananthagiri Taluka, Alluri Sitharama Raju district of Andhra Pradesh with



	the geographical latitude 18°20'25.96"N and longitude 83°7'19.69"E.
Inter- state issue involved	No
Seismic zone	As per the seismic zonation map of India, the Project area lies in the seismic zone-II which falls in moderate zone.

**Category details:**

Category of the project	Category A
Provisions	Pumped Storage Project
Capacity / Cultural command area (CCA)	1500 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

**Electricity generation capacity:**

Powerhouse Installed Capacity	1500 MW
Generation of Electricity Annually	3450.38 MU
No. of Units	6 (Each of 250 MW)
Additional information (if any)	Nil

**ToR Details:**

Cost of project	Total Hard Cost of the project is Rs. Rs.653534.00 Lakhs (6535.34 Cr).
	Total cost of the project including IDC is Rs 763829.00 Lakhs (7638.29 Cr)
Total area of Project	272.41 Ha
Height of Dam from Riverbed (EL)	79 m for Upper reservoir dam and 39 m for Lower reservoir dam
Length of Tunnel/Channel	2 nos;7.8 m dia HRT – 2499.61 m (L) 6 nos;4.8 m dia Unit TRT – 100 m (L) 2 nos;7.8 m dia Main TRT – 1846.6 m (L) 2 nos; 5.5 m dia Main Pressure Shaft – 995.5 m (L) 6 nos; 3.6 m dia Branch Pressure Shaft – 532.81 m (L)
Details of Submergence area	The Submergence area of the proposed project area lies in forest area of 79 Ha.
Types of Waste and quantity of generation during construction/ Operation	Sewage and solid waste generated at the construction staff colony/ project colony shall be adequately treated/ disposed to avoid water pollution and associated public health problems. Adequate measures will be undertaken to dispose the sewage and waste generated from the labour camps. Appropriate management measures will be recommended as a part of the Comprehensive EIA

	study.
E-Flows for the Project	Stream flow is not disturbed by the project. The proposed project is an off-stream closed loop project with an installed capacity of 1500MW/9945 MWH.
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. If not the E-Flows maintain criteria for sustaining river ecosystem.	N/A

#### **Muck Management Details:**

No. of proposed disposal area/(type of land-Forest/Pvt. land)	Low Lying Areas
Muck Management Plan	The huge, excavated material shall be utilized in the construction of embankment dam with processing the excavated material. Moreover, the excavated material from underground works of tunnel and powerhouse will also be utilized for processing of aggregates for concrete. Thus, about total 13 Lakh cum of excavated muck will be safely dumped in the designated muck dumping yard to mitigate the environmental hazard. An area of 15 Ha has been earmarked for the Muck Dumping area.
Monitoring mechanism for Muck Disposal	The project authorities have identified suitable muck disposal sites which are not located near the riverbanks.

#### **Land Area Breakup:**

Private land	61.04 Ha
Government land/Forest Land	0 Ha/211.37 Ha
Submergence area/Reservoir area	The Submergence area of the proposed project area lies in forest area of 79 Ha. The proposed project is an off stream closed loop project with an installed capacity of 1500MW/9945 MWH. The land required for the proposed upper reservoir and upper intake is 42.20 ha and the land required for the proposed lower reservoir and lower intake is 36.82 ha.
Land required for project	272.41 Ha

components	
Additional information (if any)	Nil

#### 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	Under process
National Park	No	
Wildlife Sanctuary	No	

#### Court case details:

Court Case	Nil
Additional information (if any)	Nil

#### Affidavit/Undertaking details:

Affidavit/Undertaking	The undertaking by NREDCAP is provided along with this document.
Additional information (if any)	Nil

#### Previous EC compliance and necessary approvals:

Particulars	Letter no. and date
Certified EC compliance report (if applicable)	N/A
Status of Stage- I FC	Under process
Additional detail (If any)	Nil
Is FRA (2006) done for FC-I	Under process

#### Miscellaneous

Particulars	Details
Details of consultant	M/s Aarvee Associates Architects, Engineers and Consultants Pvt Ltd, Hyderabad
Project Benefits	<p>The following benefits are anticipated from the project construction and operation phases:</p> <p>The availability of alternative resources provided by developer in the rural areas will reduce the dependence of the locals on natural resources such as forest.</p> <p>A number of marginal activities and jobs would be available to the locals during construction phase.</p> <p>Developer bringing large scale investment to the area will also invest in local area development and benefit will be reaped by locals.</p>

	Education, medical, transportation, road network and other infrastructure will improve. With increased availability of electricity, small-scale and cottage industries are likely to come up in the area.
Status of other statutory clearances	N/A
R&R details	N/A
Additional detail (If any)	Nil

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

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of terms of reference to the project for Gujjili (Closed loop) Pumped Storage Hydro Electric Project (1500 MW) in an area 272.41 ha at Village Duddikonda & Bheemavaram, Taluka Ananthagiri and Araku Valley, District Alluri Sitharama Raju, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd.

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

The EAC suggested to shift the muck disposal area to non-forest area.

**48.4.4** The EAC after detailed deliberation on the information submitted and as presented during the meeting *recommended* for grant of Standard ToR for conducting EIA study for Gujjili (Closed loop) Pumped Storage Hydro Electric Project (1500 MW) in an area 272.41 ha at Village Duddikonda & Bheemavaram, Taluka Ananthagiri and Araku Valley, District Alluri Sitharama Raju, Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

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

- i. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalaha of catchment area, irrigation facilities due to tapping of water for filling reservoir.
- ii. Action plan for survival of the rivulets in the study area.
- iii. Alternative sites for various components shall be identified in terms of loss of forest area.
- iv. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
- v. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact

- zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
- vi. Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/ EMP report.
  - vii. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir.
  - viii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with expert Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
  - ix. Source of construction material and its distance from the project site along with detailed transportation plan for construction material.
  - x. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.
  - xi. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
  - xii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
  - xiii. MoU for water uses for the project signed and approved by concerned authority shall be submitted.
  - xiv. Environmental matrix during construction and operational phase needs to be submitted.
  - xv. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.
  - xvi. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.
  - xvii. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component.
  - xviii. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
  - xix. Stage-I Forest Clearance shall be obtained.
  - xx. Explore the possibilities to reduce Forest area for the construction of proposed project, Muck disposal sites should be outside the forest area.
  - xxi. Revised the project layout by shifting the muck disposal site to non forest area.
  - xxii. Submit environmental cost-benefit analysis and submit detailed alternate site analysis report, details of tree cutting involved in the project and explore the possibility to reduce the forest area.

## **[B] Socio-economic Study**

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

- ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.
- iii. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F.No.22- 65/2017- IA.III dated 30<sup>th</sup> September, 2020 shall be submitted.
- iv. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.
- v. Details of settlement in 10 km area shall be submitted.

#### **[C] Muck Management/ Disaster Management**

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

#### **[D] Miscellaneous.**

- i. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
- ii. Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose.
- iii. Both capital and recurring expenditure under EMP shall be submitted.
- iv. The photograph should bear the date, time, latitude & longitude of the monitoring station/ sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyse the samples.
- v. Arial view video of project site shall be recorded and to be submitted.
- vi. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.

#### **Agenda item No.48.5**

**Yaganti (Closed loop) Pumped Storage Project (1000 MW) in an area 263.1 ha at Village Katikavanikunta and Pasupula, Taluka Banaganapalli, Nandyal district of Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP) – Terms of References (TOR) – reg.**

**[Proposal No. IA/AP/RIV/432444/2023; F. No. J-12011/30/2023-IA.I (R)]**

**48.5.1:** The proposal is for grant of Terms of Reference (ToR) to the project for Yaganti (Closed loop) Pumped Storage Project (1000 MW) in an area 263.1 ha at Village Katikavanikunta and

Pasupula, Taluka Banaganapalli, Nandyal district of Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP).

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

- i. The proposal is for ToR to the project for Yaganti Pumped Storage Project (1000 MW) located at Pasupula village, Banaganapalli Taluka, Nandyal district of Andhra Pradesh by M/s. New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP)
- ii. The project is listed at S.N. 1(c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).
- iii. The estimated project cost is Rs. 4252.00 Crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).
- iv. There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River Jurreru is flowing at a distance of 1.3 km in southern direction.
- v. Details of Solid waste/ Hazardous waste generation/ Muck and its management will be incorporated in EIA/EMP report.
- vi. Status of Litigation Pending against the proposal, if any. No
- vii. The salient features of the project are as under:-

**Project details:**

Name of the Proposal	Yaganti Pumped Storage Project (1000 MW)
Location (Including coordinates)	The upper dam is located near Katikavanikunta village, Banaganapalli Taluka, Nandyal district of Andhra Pradesh with the geographical latitude of 15°20'39.0" N and longitude of 78°07'53.4" E. The lower dam is located near Pasupula village, Banaganapalli Taluka, Nandyal district of Andhra Pradesh with the geographical latitude of 15°20'16.7" N and longitude of 78°08'56.5" E.
Inter- state issue involved	No
Seismic zone	Zone -II (low intensity and low risk earthquake zone)

**Category details:**

Category of the project	1(c) River Valley Projects
Provisions	
Capacity / Cultural command area (CCA)	1000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

**Electricity generation capacity:**

Powerhouse Installed Capacity	1000 MW
Generation of Electricity Annually	2081 MU
No. of Units	4 nos. (250 MW each)
Additional information (if any)	Nil

**ToR Details:**

Cost of project	4252.00 Cr.
Total area of Project	263.10 Ha
Height of Dam from River Bed (EL)	Upper reservoir, Concrete Gravity – 28.0 m Lower reservoir, Earthen with Clay core – 28.0m
Length of Tunnel/Channel	5076.0 m
Details of Submergence area	219.0 Ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Off-Stream Closed Loop Pumped Storage Project (PSP)
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 RiverBasin. b) If not the E-Flows maintain criteria for sustaining river ecosystem.	No

**Muck Management Details:**

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	One Location of 20.0 Ha in Private/ Revenue Land
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Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

### Land Area Breakup:

Private Land	249.10 ha
Government land/Forest Land	14.0 ha Forest Land
Submergence area/Reservoir area	219.0 ha
Land required for project components	44.10 ha
Additional information (if any)	Total land required – 263.10 ha

### Presence of Environmentally Sensitive areas in the study area

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

### Court case details:

Court Case	Nil
Additional information (if any)	Nil

### Affidavit/Undertaking details:

Affidavit/Undertaking	Enclosed
Additional information (if any)	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	Yet to Apply
Additional detail (If any)	Nil
<b>Is FRA (2006) done for FC-I</b>	Yet to Apply

### Miscellaneous

Particulars	Details
Project Benefits	<ul style="list-style-type: none"> <li>Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity</li> </ul>

Particulars	Details
	<p>by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions.</p> <ul style="list-style-type: none"> <li>• Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: <ul style="list-style-type: none"> <li>○ Least expensive source of electricity, not requiring fossil fuel for generation</li> <li>○ An emission-free renewable source</li> <li>○ Balancing grid for demand driven variations</li> <li>○ Balancing generation driven variations</li> <li>○ Voltage support and grid stability</li> </ul> </li> <li>• Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.</li> </ul>
Status of other statutory clearances	<p><b>Forest Clearance:</b> Online application seeking forest diversion for around 14.0 ha will be submitted after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.</p>
R&R details	Not Applicable
Additional detail (If any)	Nil

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

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of terms of reference to the project for Yaganti (Closed loop) Pumped Storage Project (1000 MW) in an area 263.1 ha at Village Katikavanikunta and Pasupula, Taluka Banaganapalli, Nandyal district of Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP).

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

**48.5.4** The EAC after detailed deliberation on the information submitted and as presented during the meeting *recommended* for grant of Standard ToR for conducting EIA study for Yaganti (Closed loop) Pumped Storage Project (1000 MW) in an area 263.1 ha at Village Katikavanikunta and Pasupula, Taluka Banaganapalli, Nandyal district of Andhra Pradesh by M/s New and Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP), under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

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

- i. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs of catchment area, irrigation facilities due to tapping of water for filling reservoir.
- ii. Action plan for survival of rivulets in the study area.
- iii. Alternative sites for various components shall be identified in terms of loss of forest area.
- iv. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
- v. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
- vi. Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/ EMP report.
- vii. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir.
- viii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with expert Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
- ix. Source of construction material and its distance from the project site along with detailed transportation plan for construction material.
- x. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.
- xi. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
- xii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
- xiii. MoU for water uses for the project signed and approved by concerned authority shall be submitted.

- xiv. Environmental matrix during construction and operational phase needs to be submitted.
- xv. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.
- xvi. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.
- xvii. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component.
- xviii. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
- xix. Stage-I Forest Clearance shall be obtained.
- xx. Explore the possibilities to reduce Forest area for the construction of proposed project, Muck disposal sites should be outside the forest area.

#### **[B] Socio-economic Study**

- i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
- ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.
- iii. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F.No.22- 65/2017- IA.III dated 30<sup>th</sup> September, 2020 shall be submitted.
- iv. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.
- v. Details of settlement in 10 km area shall be submitted.

#### **[C] Muck Management/ Disaster Management**

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

#### **[D] Miscellaneous.**

- i. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
- ii. Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose.
- iii. Both capital and recurring expenditure under EMP shall be submitted.

- iv. The photograph should bear the date, time, latitude & longitude of the monitoring station/ sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyse the samples.
- v. Arial view video of project site shall be recorded and to be submitted.
- vi. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.

**Agenda item No.48.6**

**Hasdeo Bango (Open loop) Pumped Storage Hydro-Electric Project (1200MW) in an area of 195 ha at Village Khirati, Tehsil Podi-Uparoda, District Korba, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited – Terms of References (TOR) – reg.**

**[Proposal No. IA/CG/RIV/430533/2023; F. No. J-12011/27/2023-IA.I (R)]**

**48.6.1:** The proposal is for grant of Terms of Reference (ToR) to the project for Hasdeo Bango (Open loop) Pumped Storage Hydro-Electric Project (1200MW) in an area of 195 ha at Village Khirati, Tehsil Podi-Uparoda, District Korba, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

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

- i. The proposal is for ToR to the project for Hasdeo Bango (Open loop) Pumped Storage Hydro-Electric Project (1200MW) located at Village Khirati, Tehsil Podi-Uparoda, District Korba, Chhattisgarh by M/s. Chhattisgarh State Power Generation Company Limited
- ii. The project is listed at S.N. 1(c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category ‘A’ and are appraised at Central Level by Expert Appraisal Committee (EAC).
- iii. The estimated project cost is Rs 5787.70 crore. Total Employment will be 150 persons as direct. Industry proposes to allocate Rs 14.5 Crore @ of 0.25 % towards CER (as per Ministry’s OM dated 01.05.2018).
- iv. There is Lemru Elephant Reserve, within 10 km distance from the project site. Hasdeo River is flowing at a distance of 1-2 km from Upper dam in South west direction.
- v. Status of Litigation Pending against the proposal, if any. –No
- vi. The salient features of the project are as under: -

**Project details:**

Name of the Proposal	Hasdeo Bango Pumped Storage Hydro-Electric Project (1200 MW)
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Location (Including coordinates)	Near Khirati village in Korba district of Chhattisgarh, India (22°42'43.12"N and 82°42'22.66"E)
Inter- state issue involved	No
Seismic zone	Zone -II

**Category details:**

Category of the project	A
Provisions	-
Capacity / Cultural command area (CCA)	1200 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

**Electricity generation capacity:**

Powerhouse Installed Capacity	4 units of 300 MW each
Generation of Electricity Annually	2479.6 GWh
No. of Units	4
Additional information (if any)	-

**ToR Details:**

Cost of project	Rs. 5787.70 Crores (including IDC)
Total area of Project	195 Hectares
Height of Dam from deepest Foundation Level (EL)	20 m (Upper Reservoir)
Length of Tunnel/Channel	1350 m
Details of Submergence area	88 hectares(Upper Reservoir)
Types of Waste and quantity of generation during construction/ Operation	Sewage generated from Labour camps 400 KLD per day approx..
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 e) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. f) If not the E-Flows maintain criteria for sustaining river ecosystem.	NA

**Muck Management Details:**

No. of proposed disposal area/ (type of land - Forest/Pvt. land)	10-15 hectares (approx.)
Muck Management Plan	Will be prepared during DPR

Monitoring mechanism for Muck Disposal	Will be prepared during DPR
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### Land Area Breakup:

Private land	0
Government land/Forest Land	195 Hectares
Submergence area/Reservoir area	88 Hectares (Upper Reservoir)
Land required for project components	150 Hectares
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
Protected Forest Land	Yes	
National Park	-	
Wildlife Sanctuary	-	

Lemru Elephant Reserve boundary - 5.3 km (Shortest distance from the project boundary)

### Miscellaneous

Particulars	Details
Details of consultant	WAPCOS Limited
Project Benefits	Hydro-electric power and Employment generation
Status of other statutory clearances	-
R&R details	Nil
Additional detail (If any)	-

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

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of terms of reference to the project for Hasdeo Bango (Open loop) Pumped Storage Hydro-Electric Project (1200MW) in an area of 195 ha at Village Khirati, Tehsil Podi-Uparoda, District Korba, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

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

It was observed that the proposed site comes under dense forest area with abundance of Sal trees (*Shorea Robusta* L). The Lemaru Elephant Reserve is in proximity. The Hasdeo river Valley has ecological significance being a home to a diverse ecology and Adivasi communities. This pristine ecosystem is very much required for survival of the Hasdeo river which is good source water for local population even for thermal power plants situated in the vicinity. The EAC after detailed

deliberation was of the view that it is not advisable to disturb this biodiversity rich area and suggested to explore other area for developing the project.

The proposal therefore decided to *return* the proposal on the above lines.

**Day 2: 27<sup>th</sup> June, 2023**

**Agenda item No.48.7**

**Palamuru Rangareddy Lift Irrigation Scheme (Phase II: Irrigation) in Districts of Mahbubnagar, Rangareddy & Nalgonda, Telangana by M/s Irrigation and CAD Department, Government of Telangana – Reconsideration Environmental Clearance (EC) - reg.**

**[Proposal No. IA/TG/RIV/289525/2017; F. No. J-12011/31/2017-IA.I (R)]**

**48.7.1:** The proposal is for grant of environmental clearance to the project for Palamuru Rangareddy Lift Irrigation Scheme (Phase II: Irrigation) in Districts of Mahbubnagar, Rangareddy & Nalgonda, Telangana by M/s Irrigation and CAD Department, Government of Telangana.

**48.7.2:** The proposal was earlier considered by the EAC in its 34th EAC Meeting held on 14.9.2022. The EAC after detailed deliberations found that the project involves violation of the provisions of the EIA Notification, 2006 and project will be appraised as per the SoP issued vide OM dated 7.07.2021 for consideration of Violation cases under EIA Notification, 2006, as amended. Point wise replies to queries raised in EAC meeting dated 14.9.2022 further reiterated in the 40<sup>th</sup> EAC meeting dated 25.1.2023, are submitted in tabular form hereunder:

S. No.	Additional Information sought by the EAC	Reply
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1	<p>The project proponent shall be required to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority. The bank guarantee shall be released after successful implementation of the EMP, followed by recommendations of the EAC and approval of the regulatory authority.</p>	<p>The Project Proponent hereby undertake to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan, as recommended by the EAC and finalized by the regulatory authority, with the SPCB prior to the grant of EC.</p>
2	<p>Assessment of ecological damage with respect to air, water, land and other environmental attributes shall be carried out by the accredited consultant of the PP. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.</p>	<p>The detailed damage assessment of environmental attributes has been elaborated in Section 13.7 and its sub section in the report and damage cost has been arrived as Rs 142.49 lakh as enumerated in Table-13.26 of the report. Monitoring of ambient air quality, surface and ground water quality, soil quality as well as noise levels measurements were conducted. The summary of results of monitoring/sampling along with interpretation of results has been discussed in section 13.5.1 through 13.5.4 of the EIA report.</p>
3	<p>The PP has to obtain clearance from inter-state aspect from the designated authorities as per Procedure.</p>	<p>PP agrees for statutory requirement. The DPR of PRLIS, submitted to the CWC, New Delhi on 15.09.2022, is being scrutinized in different Directorates of the CWC, New Delhi.</p>
4	<p>Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation to be done.</p>	<p>The remediation plan and the natural and community resource augmentation plan costing Rs 142.49 Crore have been prepared. The consolidated cost of EMPs and remediation plan along with natural and community resource augmentation plan has been worked out as Rs. 612436.66 lakh.</p>

5	The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.	The remediation plan and the natural and community resource augmentation plan costing Rs 14249 lakh have been prepared and added as an independent Chapter-13 in the EIA report.
6	Socio-Economic Study following standard procedures to be included, impacts due to project activities need to be assessed and remedial measures to be proposed based on the Field Study and issues raised during Public Hearing.	Impacts due to project activities on various environmental attributes including socio-economic aspects have been assessed elaborately under Section Chapter-4. Nonetheless, these have been brought out in brief in section 13.10 of the report. Apart from this the gist of issues raised and the replies of the project proponent are described in Table 7.1 through Table 7.6 of the report. Nonetheless, the main issues raised in brief were reiterated in Section13.11. As per provision under O.M. F.No.22-65/2017-IA.III, dated 30th September,2020, concerns raised during public hearing and which were committed for addressal by the project proponent, have been included under Section 10.19, by earmarking Rs 4400 lakhs.
7	As the area is on fluoride affected zone, therefore, provisions should be made to recharge the groundwater through proposed reservoirs to dilute fluoride levels.	In study area besides some Mandals of Nalgonda few mandals of Mahbubnagar, and Ranga Reddy districts also have fluoride content above 1.5mg/l. It is pertinent to mention here that recharge due to reservoir seepage after completion of the scheme shall be 24.42MCM. Keeping in view the groundwater recharge potential in the project area accruing from implementation of project, it is proposed to construct some rainwater structures like Check dams (85 No.) and percolation tanks (46No.) in the area at a cost of Rs 1370 lakh.

**48.7.3:** The EAC further considered the Directions of the Hon'ble NGT in the matter of OA No. 212 along with OA No. 148 of 2021 regarding alleged illegal and unauthorized construction of Palamuru Rangareddy Lift Irrigation Scheme (PR LIS) & Dindi Lift Irrigation Scheme (Dindi LIS) in its meeting held on 25<sup>th</sup> January, 2023. Wherein, the EAC noted that the said matter was disposed of on 22.12.2022, by the Hon'ble National Green Tribunal (NGT), Southern Bench at Chennai, with the following directions:

*“In the above circumstances, we are not in agreement with the argument of the State of Telangana that it is only for the drinking purpose and that it does not attract Environmental Clearance. Without the Environmental Clearance, having completed the construction of at least 90% of the entire project, the State of Telangana has to be assessed for the Environmental Compensation for the mitigation purposes. In the light of the above, the Original Applications are disposed of on the following:*

- i. The State of Telangana should not proceed with the project without following the procedure for obtaining Environmental Clearance, namely, Screening, Scoping, Public Consultation and Appraisal.
- ii. Being a new project, they are directed to submit the project report before the KRMB and get their appraisal done and get the approval/sanction of the Apex Council.
- iii. Since, the Tribunal is of the prima-facie view that the component of irrigation is envisaged in the project and the same could not have been proceeded without the prior Environmental Clearance, the project proponent is not entitled to proceed with the project and he is restrained from proceeding with the work without getting the Environmental Clearance.
- iv. The project proponent, namely, the State of Telangana shall pay Environmental Compensation of Rs. 528 crores i.e. 1.5% of the total cost of the project (1.5% of project Cost i.e. Rs. 35,200 crores) in respect of PR LIS.
- v. Similarly, the State of Telangana shall also pay Environmental Compensation of Rs. 92.85 crores i.e. 1.5% of the total cost of the project (1.5% of project cost i.e. Rs. 6190 crores) in respect of Dindi LIS.
- vi. The above amounts of Environmental compensation shall be paid by the concerned project proponent/State of Telangana within three months to the Krishna River Management Board. On such payments, the same shall be utilised for remediation activities in the project site and for Krishna River Restoration activities under the guidance and supervision of an Oversight Committee comprising of Senior Officers above the rank of Joint Secretary to Government of India from MoEF&CC, Ministry of Jal Shakti, Central Pollution Control Board and Krishna River Management Board. KRMB will be the nodal agency. The aforesaid Committee shall be constituted within one month from the date of the judgement. Plan of Krishna River Restoration covering all the riparian States shall be prepared by involving expert agencies such as NEERI. It is open to the authorities to consult any expert in the fields of river basin development, pollution abatement and riparian vegetation development. The proposed works should be implemented for the entire Krishna River on the lines of ‘Namami Gange’ programme with flexibility to incorporate new site specific components also. Once the project plan is prepared and approved by the Committee, Ministry of Jal Shakti may entrust execution of the project to KRMB and obtain necessary approvals, if any, from the Central Government in this regard.
- vii. As it is reported already that more than 75% of the project is completed without EIA study and Environmental Clearance, the MoEF&CC is directed to constitute a Committee from EAC members having expertise to go into the matter regarding mitigation, restoration and rehabilitation measures.
- viii. Both the PR LIS as well as Dindi LIS shall not be continued unless otherwise the required Environmental Clearance and other permissions/clearances/consents are obtained under the relevant laws from the competent authorities.
- ix. Let the compliance report be filed by the Oversight Committee within one year.

### **Observation and recommendation of the EAC in the present meeting (40<sup>th</sup> meeting)**

The EAC in its 40<sup>th</sup> meeting held on 25.01.2023 noted the Hon'ble NGT has directed Ministry to constitute a Committee from EAC members having expertise to go into the matter regarding mitigation, restoration and rehabilitation measures. It was also noted that the proposal for grant of Environmental Clearance to Palamuru Rangareddy Lift Irrigation Scheme (Phase II: Irrigation) in Districts of Mahbubnagar, Rangareddy & Nalgonda, Telangana by M/s Irrigation and CAD Department, Government of Telangana, was submitted to the Ministry under the provisions of the EIA Notification 2006, as amended. The proposal was considered by the EAC in its 34<sup>th</sup> meeting held on 14<sup>th</sup> September, 2022. It was observed by the EAC that the project involves violation of the provisions of the EIA Notification, 2006 and project will be appraised as per the SoP issued vide OM dated 7.07.2021 for consideration of Violation cases under EIA Notification, 2006, as amended. The EAC further co-opted Shri K. Gowarappan, ex-member of the Violation Committee, MoEF&CC for calculating/ revisiting damage cost as per SoP after submission of information on following points: -

- i. The project proponent shall be required to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority. The bank guarantee shall be released after successful implementation of the EMP, followed by recommendations of the EAC and approval of the regulatory authority.
- ii. Assessment of ecological damage with respect to air, water, land and other environmental attributes shall be carried out by the accredited consultant of the PP. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.
- iii. The PP has to obtain clearance from inter-state aspect from the designated authorities as per procedure.
- iv. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation to be done.
- v. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.
- vi. Socio Economic Study following standard procedures to be included, impacts due to project activities need to be assessed and remedial measures to be proposed based on the Field Study and issues raised during Public Hearing.
- vii. As the area is on fluoride affected zone, therefore, provisions should be made to recharge the groundwater through proposed reservoirs to dilute fluoride levels.

The EAC opined that since Shri K. Gowarappan has already been co-opted as Member of the EAC for ecological damage assessment in Palamuru Rangareddy Lift Irrigation scheme, he can be included in the committee being constituted for achieving the work specified by the Hon'ble NGT

within the time frame. Accordingly, the EAC nominated the following members as expert members for the said Committee and recommended the Ministry to constitute the said Committee:

i.	Dr. A. Malhotra	:	Chairman
ii.	Shri K Gowarappan	:	Member
iii.	Shri Ashok Kharya	:	Member
iv.	Dr. N. Lakshman	:	Member
v.	Dr. Amiya Sahoo	:	Member
vi.	Dr. J.A. Johnson	:	Member

**48.7.4** The Project Proponent and the accredited Consultant M/s Voyants Solutions Private Limited, made a detailed presentation on the salient features of the project and informed that:

- i. The proposal is for environmental clearance to the project for Palamuru Rangareddy Lift Irrigation Scheme of Culturable Command Area of 497976 ha located in districts of Mahbubnagar, Nagar Kurnool, Narayanpet, Rangareddy, Vikarabad and Nalgonda, Telangana, by Irrigation and CAD Department, Government of Telangana. Public Hearing was conducted by Telangana State Pollution Control Board on 10th August, 2021 simultaneously in six districts. The notice for conducting of public hearing was published in 'Namesthe Telangana', Telugu Newspaper and in 'Telangana Today' English Newspaper on 10.07. 2021. All meetings were presided by the District Collector and Magistrate of respective district. The main issues raised were
  - Adequate amount of compensation
  - Compensation for land to be released at the earliest.
  - To complete the project as early as possible to get the benefits of the project.
  - Construction of small check dams, rainwater harvesting pits to increase the ground water level
  - Promotion of solar energy in villages.
  - The cattle may be provided for development of Women Associations.
  - Empowerment of Women
  - Plantation in the area specially along the canal.
  - Facilities should be provided to farmers for drawing water from the borewells
- ii. The project proposal was considered by the Expert Appraisal Committee (Hydro River Valley Sector) in its 8th meeting held during 22.9.2017 and recommended for grant of Terms of References (ToRs) for the Project. The ToR has been issued by Ministry vide letter No. J-12011/31/2017-IA-1 (R), dated 11.10.2017.
- iii. The project is listed at S.N.1(c) (ii) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and is appraised at Central Level by Expert Appraisal Committee (EAC).
- iv. The estimated project cost is Rs. 55,086.57 Crores including existing investment of Rs. 21200 crores. Total capital cost earmarked towards environmental pollution control measures is Rs 587670.71 lakh. and the Recurring cost (operation and maintenance) will be about Rs 24765.95 lakh to be spent in five years (Average annual: Rs.4953.19 lakh).

- v. Total Employment will be 13500 persons as direct. PP proposes to allocate Rs 4400 lakh for implementing issues raised during public hearing towards CER (As per Ministry's O.M. F.No.22-65/2017-IA.III, dated 30th September,2020, CER cost is not based on percentage cost of project).
- vi. There are no National Parks, Wildlife Sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc., within 10 km distance from the project site.
- vii. Ambient air quality monitoring was carried out at 6 locations during monsoon 2019, post-monsoon 2019 and pre-monsoon 2020 and the baseline data indicates the ranges of concentrations as: PM10 (18.3 - 49.3  $\mu\text{g}/\text{m}^3$ ), PM2.5 (9.9 - 26.9  $\mu\text{g}/\text{m}^3$ ), SO2 (4.0 - 7.4  $\mu\text{g}/\text{m}^3$ ) and NO2 (7.5 - 18.3 $\mu\text{g}/\text{m}^3$ ). AAQ modelling study for point source emissions indicates that the maximum incremental GLCs after the proposed project would be 10.74  $\mu\text{g}/\text{m}^3$ , 1.07  $\mu\text{g}/\text{m}^3$  and 5.78 $\mu\text{g}/\text{m}^3$  with respect to PM10, SO2 and NOx. The resultant concentrations are within the National Ambient Air Quality Standards (NAAQS).
- viii. Details of Solid waste/ Hazardous waste generation/ Muck and its management:
  - a) MSW-166.08 Ton/annum during construction and 82.12 Ton/annum during operation. The municipal solid waste shall be managed as per Solid Wastes Management Rules, 2016. Hazardous waste inter alia includes burnt mobile oil from vehicles and construction machinery and equipment, batteries and like items shall be handled and disposed as per Hazardous and other Wastes (Management &Transboundary Movement) Rules,2016.
  - b) Muck &its management
 

To be generated: 2479.61 lakh cum  
Consumed on work: 1122.13 lakh cum  
To be disposed on spoil banks:1357.48 lakh cum

About 582.13 lakh cum balance muck from reservoirs and water conductor system shall be disposed at designated area (1996 ha) acquired for the muck disposal purpose. About 775.35 lakh cum balance muck shall be disposed on Spoil banks by laying on either bank in approximately 360km length of main canals. and shall be within the boundary of land acquired of canal.
- ix. Public Hearing for the proposed project has been conducted by the State Pollution Control Board on 10th August, 2021.The main issues raised during the public hearing are related to: -
  - Adequate amount of compensation
  - Compensation for land to be released at the earliest.
  - To complete the project as early as possible to get the benefits of the project.

- Construction of small check dams, rainwater harvesting pits to increase the ground water level
- Promotion of solar energy in villages.
- The cattle may be provided for development of Women Associations.
- Empowerment of Women
- Plantation in the area specially along the canal.
- Facilities should be provided to farmers for drawing water from the borewells.

x. Status of Litigation Pending against the proposal, if any

Court Case	Case Matter	Present Stage of Case
Before NGT Southern Bench at Chennai O.A No.148/2021 with OA No212 /2021 D. Chandramouleswara Reddy & 8 Others Vs Union of India & 5 Others	Construction of Palamuru Rangareddy Lift Irrigation Scheme, State of Telangana in violation of the provisions of the environmental laws and against the undertaking given by them in the earlier proceedings.	<u>Final order</u> For the wilful violations of the orders of National Green Tribunal a penalty of Rs. 300 crores is imposed on the State which also has to be paid to KRMB within 03 months. The amount should be used for Krishna River Restoration activities as indicated in Para 72(vi) supra. In view of the above findings and disposal of the Original Applications, the I.A. No. 35 of 2022 also stand disposed of.
Before Hon'ble Supreme Court of India Civil Appeal Nos. 751-752/2023 State of Telangana Vs D. Chandramouleswara Reddy & Others	Exemption from filing c/c of the Impugned Judgment and IA No.23493/2023-Stay Application)	<u>Interim Order</u> Till the next date of hearing, there will be stay of recovery of compensation and penalty amount. We also direct that the appellant will not continue with the construction of the infrastructure project, except for providing drinking water to <i>enroute</i> villages to the extent of 7.15 thousand Million Cubic (TMC) feet of water.
Additional information (if any)		-

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

Salient Features of works under Phase-I (Water Supply)

S.	Reservoir	Reservoir Details	Lift Details
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No.		Length (km)	Max. Height (m)	FRL	Live Storage (TMC)	Open canal (km)	Tunnel (km)	Number Of Pumps	Q of each pump (cumec)	Static Head (m)	Power (MW)
1.	Anjanagiri	11.020	74.00	345.00	7.950	2.205	0.876	8+1	85	104	1160
2.	Veeranjaneya	12.400	38.00	445.00	5.955	8.575	15.891	9+1	75	124	1305
3.	Venkatadri	15.230	57.00	542.00	16.24	6.400	21.475	9+1	75	121	1305
4.	Kurumurthiyaya	14.125	61.00	531.00	16.63	12.050	0.0	-	-	0.00	0.0
5.	Udandapur	15.825	57.995	629.00	15.58	1.435	8.935	5	75	122	725
6.	KP Lakshmidivipally	6.050	51.00	670.00	2.26	19.825	14.400	3	55	87.5	225
<b>Total</b>		<b>74.650</b>				<b>50.49</b>	<b>61.577</b>	<b>34+3</b>		<b>558.5</b>	<b>4720</b>

Salient Features of works under Phase-II (Irrigation Component)

S.N.	Features	Description				
1	Gross Command Area (GCA)	8,83,945 ha				
2	Culturable Command Area (CCA)	4,97,976 ha				
3	District wise GCA /CCA/number of villages					
(i)	Mahabubnagar	178743ha / 95271 ha/247				
(ii)	Rangareddy	242,358ha / 145,363ha/330				
(iii)	Vikarabad	253,015ha / 138,442ha/417				
(iv)	Nagarkurnool	69,839ha / 41,858ha/61				
(v)	Nalgonda	20,827ha/ 11,878ha/16				
(vi)	Narayanpet	119162 ha/65164 ha/155				
4	Number of Village/ Mandal Benefitted	1226/70				
5	Existing Cropping Pattern					
(i)	Kharif	3,56,944 ha (71.68%)				
(ii)	Rabi	44,660ha (8.97%)				
(iii)	Annual	4,01,604ha (80.65%)				
6	Proposed Cropping Pattern					
(i)	Kharif	4,95,835ha (99.57%)				
(ii)	Rabi	77,887 ha (15.64%)				
(iii)	Annual	5,73,722ha (115.20%)				
7	Canals					
(i)	Type of Canals	Lined Canals				
(ii)	Nunber of Main canals/Length	13No./915.47 km				
(iii)	Canal wise length/CCA/					
	<b>Name of CANAL</b>	<b>Length (km)</b>	<b>CCA (ha)</b>	<b>Q (cumec)</b>	<b>B.W. (m)</b>	<b>FSD (m)</b>
	Venkatadri Low Level Canal	29.60	6,478	7.035	5.80	1.30
	Venkatadri Main Canal	152	47,368	47.84	14.40	2.80
	Kurumurthyraya High Level Canal	108	61,134	62.68	16.50	3.00



(iv)	Kurumurthyraya Left Low Level	36	12,551	12.99	7.75	1.55
	Hanwada Canal	22.74	11775	8.02	3.10	1.90
	Madur Canal	113.2	69601	68.75	15.50	3.00
	Udandapur 1R-Main Canal	4.6	3,644	3.887	5.00	1.20
	Udandapur 2R-Main Canal	72	57,490	63.04	11.00	3.60
	Udandapur Left Main Canal	137.73	48,583	130.61	17.00	5.00
	Udandapur South Main Canal	25	12,146	15.000	6.00	1.75
	KPL East Main Canal	106	81,296	97.712	14.00	4.10
	KPL North Main Canal	89	72,065	72.832	13.00	3.37
	KPL South Main Canal	19.6	13,846	15.04	5.25	2.10
<b>8</b>	<b>Project Cost &amp; BC Ratio</b>					
(i)	Total Cost	Rs. 55,086.57 Crores				
(ii)	B.C. Ratio	1.26:1				

### EAC Meeting Details:

EAC meeting/s	48 <sup>th</sup> Meeting (River Valley Projects)
Date of Meeting/s	27.6.2023
Date of earlier EAC meetings	14.9.2022

### Project Details

Name of the Proposal	Palamuru Rangareddy Lift Irrigation Scheme, Telangana
Location (Including Coordinates)	Mahabubnagar, Narayanpet, Nagarkurnool, Rangareddy, Vikarabad and Nalgonda Districts of Telangana State. Head works - Near Yellur (V), Kollapur(M), Mahubnagar (D). Head works : 16 <sup>05</sup> 'N, 78 <sup>054</sup> ' E
Inter- state issue involved	No
Seismic zone	Zone II (Low Damage Risk Zone)

### Category Details

Category of the project	A
Capacity / Cultural command area (CCA)	4,97,976 ha
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

### Electricity generation capacity

Powerhouse Installed Capacity	Nil
Generation of Electricity Annually	Nil
No. of Units	None

**ToR/EC Details**

Cost of project	Rs. 55,086.57 Crores
Total area of Project	28273 ha
Height of Dam from River Bed (EL)	6 earthen bunds with maximum height varying from 51m to 74m
Length of Tunnel/Channel	Total length of five tunnels :61.577km Length of open canal IN lift system:6No./50.49 km Length of Canals in command: 13No./915.47 km
Details of submergence area	10,036.64 ha
Types of Waste and quantity of generation during construction/ Operation	MSW-166.08 Ton/annum during construction and 82.12 Ton/annum during operation
E-Flows for the Project	No new tapping of rivers is conceived in PRLIS Phase-II works as the project activities shall involve construction of main canal, branches and distribution system, the case for release of environmental flow from canals does not arise.
Is Project earlier studied in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes then c) E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin. d) If not the E-Flows maintain criteria for sustaining river ecosystem.	No  Not applicable  Water from foreshore of Srisaillam Reservoir shall be lifted in monsoon, when river discharges are of higher order.

**Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt land)	1996 ha (private land)
Muck Management Plan	The excavated hard rock shall be recycled as stone for revetment works and also for pitching on slope of embankment of reservoir. The height of muck piles on plain or almost plain / gently sloping ground shall be limited to 12m and these shall be laid with outer slope 2.1 from stability consideration. In between two muck piles a gap of 5m should be maintained for the purpose of making garland drains. Stabilization of spoil banks must be ensured. The dumped material in spoil banks is

	generally not nutrient rich. In order to make it suitable for the plantation it will be provided bio treatment. The work plan will be formulated for re-vegetation of the dumping sites through Integrated Biotechnological Approach. The plantation can be carried out in lines across the slopes. Grass and herb species would be used in the inter space of tree species.
Monitoring mechanism for Muck Disposal	The project authorities shall erect a barrier to regulate to and fro movement of traffic from the excavation site. Entry of all vehicles passing the barrier and the information regarding quantities of earth material being transported to spoil banks site shall be properly arrayed in a register in a transparent manner and shall be liable to be made public by the project authorities as and when required. Proper e-challan shall be issued.

#### Land Area Breakup:

Private land	22600 ha
Forest Land	205.48 ha
Government land	5466.52 ha
Submergence area/Reservoir area	10,036.64 ha
Land required for project components	28273 ha

#### Presence of Environmentally Sensitive areas in the study area:

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter/Remarks
Reserve Forest/Protected Forest Land.	Yes	
National Park	No	The nearest distance of the Phase-I project component is 11.95km from Amarabad WLS and 2.56 km from buffer area of Amarabad Tiger reserve (Rc.No.6531/2016/FCA-1/TS, dt; 20.12.2016).
Wildlife Sanctuary	Yes	

#### Court case details:

Court Case	Case Matter	Present Stage of Case
Before NGT Southern Bench at Chennai O.A No.148/2021 with OA No212 /2021 D. Chandramouleswara Reddy & 8 Others Vs Union of India & 5 Others	Construction of Palamuru Rangareddy Lift Irrigation Scheme, State of Telangana in violation of the provisions of the environmental laws and against the	<u>Final order</u> For the wilful violations of the orders of National Green Tribunal a penalty of Rs. 300 crores is imposed on the

	undertaking given by them in the earlier proceedings.	State which also has to be paid to KRMB within 03 months. The amount should be used for Krishna River Restoration activities as indicated in Para 72(vi) supra. In view of the above findings and disposal of the Original Applications, the I.A. No. 35 of 2022 also stand disposed of.
Before Hon'ble Supreme Court of India Civil Appeal Nos. 751-752/2023 State of Telangana Vs D. Chandramouleswara Reddy & Others	Exemption from filing c/c of the Impugned Judgment and IA No.23493/2023-Stay Application)	<u>Interim Order</u> Till the next date of hearing, there will be stay of recovery of compensation and penalty amount. We also direct that the appellant will not continue with the construction of the infrastructure project, except for providing drinking water to <i>enroute</i> villages to the extent of 7.15 thousand Million Cubic (TMC) feet of water.
Additional information (if any)		-

**Affidavit/Undertaking details:**

Affidavit/Undertaking	Attached
Additional information (if any)	-

**Previous EC compliance and Necessary approvals**

Particulars	Letter no. and date
Certified EC compliance report (if applicable)	Not applicable
Status of Stage- I FC	Stage-I and Stage-II Clearances have been accorded by MoEF&CC vide F.N.8-43/2017-FC, dated 3.4.2018 and vide F.N.8-43/2017-FC, dated 25.1.2019 respectively
Additional detail (If any)	---
Is FRA (2006) done for FC-I	Yes

**Miscellaneous**

Particulars	Details
Details of Consultants	M/s Voyants Solutions Pvt. Ltd., Gurugram – 122001, Haryana. (NABET Certificate No: NABET/EIA/1821/RA 0114, Dated:

	December 30, 2021, Valid till- September 14, 2024)
Project Benefits	Project benefits inter alia shall include the benefits like (i)7.15 TMC of drinking water supply; (ii) Irrigation potential shall be created in area (4,97,976ha), (iii) Improved Market Facilities (70 No. Market Sheds) and road, (iv)Employment Potential (Temporary employment during construction 13500; Permanent employment during operation 300 and Temporary employment during operation 200), (v) Sustained Water Availability for Agriculture (82.515 TMC), (vi) Increased Green cover by planting 15.22 lakh saplings along canal bank.
Status of other Statutory clearances	The DPR of PRLIS, submitted to the CWC, New Delhi on 15.09.2022 is being scrutinized in different directorates of the CWC, New Delhi.
	E&M Aspects have been cleared by Central Electricity Authority
R&R details	Total Private land to be acquired; 22600.60 ha. Displaced families: 5139 Land Acquisition Cost: Rs 409141lakh R&R Grants: Rs 53583.00 lakh Infra-structure Development: Rs 25492 lakh Total: Rs 488216 lakh
Additional detail (If any)	It is a violation case. Therefore, EAC (RVHP) in the minutes of 34th meeting held on 14.9.2022, observed that project will be appraised as per the SoP issued vide OM dated 7.07.2021 for consideration of Violation cases under EIA Notification, 2006, Assessment of ecological damage with respect to air, water, land and other environmental attributes has been carried out and based on that remediation plan, natural and community resource augmentation plans have been prepared and added as an independent Chapter -13 in the EIA report.

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

The proposal is for grant of environmental clearance to the project for Palamuru Rangareddy Lift Irrigation Scheme (Phase II: Irrigation) in Districts of Mahbubnagar, Rangareddy & Nalgonda, Telangana by M/s Irrigation and CAD Department, Government of Telangana.

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

The total land requirement under complete project shall be 28273 ha comprising of Patta land (22600 ha) Revenue (5466.52ha) and Forest (205.48ha).

The project proponent submitted the Environmental Damage Cost as under: -

S.N.	Environment Attributes	Damage cost (Rs lakh)
1	Land Environment	
(i)	Cost Compensation due to Improper Implementation of Muck Management	520.78
(ii)	Cost Compensation due to incomplete Implementation of Green Belt	1773.40
(iii)	Cost Compensation due to Partial Management of Solid Waste	368.00
2	Air Environment	
(i)	Damage Cost due to emission from excavation/Quarrying	5087.86
(ii)	Damage Cost due to emission from Dozing (Heavy Construction)	667.32
(iii)	Damage Cost due to emission from Transportation of construction Material	2383.33
3	Noise and Vibration	342.72
4	Wildlife Conservation and Biodiversity Plan	82.00
5	Water Environment (Compensation for Non-Provision of STP)	155.88
6	Cost Saving from Partial Implementation of Provision Under Sanitation Plan	230.19
7	Cost Saving from Partial Implementation of Fuel Wood Saving Devices	182.24
8	Cost Saving from Partial Implementation of Provision under OHS	191.77
9	Avoidance/Substitution cost saved in respect of other EMP	2262.00
<b>Total</b>		<b>14247.49</b>

The gross command area under Phase -II of PRLIS is 883945 ha which is sprawled over in 1226 villages of 70 mandals of six districts. Maximum GCA is covered under Vikarabad district 253015 ha (28.62%) followed by districts Rangareddy 242358 (27.42%), Mahabubnagar 178743 ha (20.22%), Narayanpet 119162 ha (13.44%), Nagarkurnool 69839 ha (7.90%) and Nalgonda 20827 ha (2.36%) respectively.

The terms of reference was granted by the Ministry vide letter No. J-12011/31/2017-IA-1 (R), dated 11.10.2017. Public Hearing was conducted by Telangana State Pollution Control Board on 10th August, 2021.

The EAC during deliberations noted that the project proponent has not calculated the damage cost appropriately as per the SOP. The EAC suggested to revise the environmental damage cost, Remediation Plan and Community Augmentation plan. Also bring all calculations in one table.

The EAC therefore decided to deferred the proposal for want of above mentioned additional information.

The proposal is therefore **deferred**.

### **Agenda item No.48.8**

**Shoma (Closed loop) Pumped Storage Project (2400 MW) in an area 335.82 ha at Village Bhitari and Shoma, Tehsil Robertsganj, District Sonbhadra, Uttar Pradesh by M/s Torrent Power Limited – Terms of References (TOR) - reg.**

**[Proposal No. IA/UP/RIV/432817/2023; F. No. J-12011/31/2023-IA.I (R)]**

**48.8.1:** The proposal is for grant of Terms of Reference (ToR) to the project for Shoma (Closed loop) Pumped Storage Project (2400 MW) in an area 335.82 ha at Village Bhitari and Shoma, Tehsil Robertsganj, District Sonbhadra, Uttar Pradesh by M/s Torrent Power Limited.

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

- i. The proposal is for ToR to the project for Shoma Pumped Storage Project located at Village Bhitari & Shoma, Tehsil Robertsganj, District Sonbhadra, Uttar Pradesh by M/s. Torrent Power Limited.
- ii. The project is listed at S.N. 1 (c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).
- iii. The estimated project cost is Rs 8414.35 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).
- iv. There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River/ water body, Sone River is flowing in east-northeast direction.
- v. Details of Solid waste/ Hazardous waste generation/ Muck and its management will

be covered in EIA report.

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

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

**EAC Meeting Details:**

EAC meeting/s	48 <sup>th</sup> Meeting
Date of Meeting/s	27.06.2023
Date of earlier EAC meetings	Nil

**Project details:**

Name of the Proposal	Shoma Pumped Storage Project
Location (Including coordinates)	The proposed project involves creation of upper reservoir at longitude 83°21'54.41"E and latitude 24°32'16.29"N and that of lower reservoir at longitude 83°21'43.70"E and latitude 24°31'18.93"N
Inter- state issue involved	3.5 km (Jharkhand State Boundary)
Seismic zone	Zone-III

**Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	2400 MW
Attracts the General Conditions (Yes/No)	Yes
Additional information (if any)	Nil

**Electricity generation capacity:**

Powerhouse Installed Capacity	2400 MW
Generation of Electricity Annually	4993.2 MU
No. of Units	11 nos. (9 X 240 MW + 2 X 120 MW)
Additional information (if any)	Nil

**ToR Details:**

Cost of project	8414.35 Cr.
Total area of Project	335.82 ha
Height of Dam from River Bed (EL)	Lower Dam – 52 m Upper Dam – 49 m



Length of Tunnel/Channel	1341.58 m
Details of Submergence area	289.13 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Off-Stream Closed Loop Pumped Storage Project (PSP)
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then  c) E-flow with TOR /Recommendation by d) EAC as per CIA&CC study of RiverBasin.  If not the E-Flows maintain criteria for sustaining river ecosystem.	No

#### **Muck Management Details:**

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	9.98 ha Private Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

#### **Land Area Breakup:**

Government land/Forest Land	276.42
Submergence area/Reservoir area	289.14 ha
Land required for project components	46.68 ha
Additional information (if any)	Nil

#### **Presence of Environmentally Sensitive areas in the study area**

<b>Forest Land/ Protected Area/ Environmental Sensitivity Zone</b>		<b>Details of Certificate / letter/ Remarks</b>
Reserve Forest/Protected Forest Land	--	There is no Protected Area in the vicinity of the proposed project. Kaimur WLS is about 10.80 km from site, is the nearest protected area
National Park	--	
Wildlife Sanctuary	--	

#### **Court case details:**

Court Case	Nil
Additional information (if any)	Nil

**Affidavit/Undertaking details:**

Affidavit/Undertaking	Enclosed
Additional information (if any)	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	Yet to Apply
Additional detail (If any)	Nil
<b>Is FRA (2006) done for FC-I</b>	Yet to Apply

**Miscellaneous**

Particulars	Details
Project Benefits	<ul style="list-style-type: none"> <li>• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 75%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being</li> </ul>

	<p>met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions.</p> <ul style="list-style-type: none"> <li>• Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: <ul style="list-style-type: none"> <li>○ Least expensive source of electricity, not requiring fossil fuel for generation</li> <li>○ An emission-free renewable source</li> <li>○ Balancing grid for demand driven variations</li> <li>○ Balancing generation driven variations</li> <li>○ Voltage support and grid stability</li> </ul> </li> </ul> <p>Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.</p>
Status of other statutory clearances	<p>Forest Clearance - Online application shall be made seeking forest diversion for around 276.42 Ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.</p>
R&R details	<p>Details shall be evaluated during EIA/EMP Studies</p>
Additional detail (If any)	<p>Nil</p>

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

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of terms of reference to the project for Shoma (Closed loop) Pumped Storage Project (2400 MW) in an area 335.82 ha at Village Bhitari and Shoma, Tehsil Robertsganj, District Sonbhadra, Uttar Pradesh by M/s Torrent Power Limited.

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

**48.8.4** The EAC after detailed deliberation on the information submitted and as presented during the meeting **recommended** for grant of Standard ToR for conducting EIA study for Shoma (Closed loop) Pumped Storage Project (2400 MW) in an area 335.82 ha at Village Bhitari and Shoma,

Tehsil Robertsganj, District Sonbhadra, Uttar Pradesh by M/s Torrent Power Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

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

- i. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs of catchment area, irrigation facilities due to tapping of water for filling reservoir.
- ii. Action plan for survival of the rivulets in the study area.
- iii. Alternative sites for various components shall be identified in terms of loss of forest area.
- iv. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
- v. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
- vi. Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/ EMP report.
- vii. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir.
- viii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with expert Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
- ix. Source of construction material and its distance from the project site along with detailed transportation plan for construction material.
- x. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.
- xi. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
- xii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
- xiii. MoU for water uses for the project signed and approved by concerned authority shall be submitted.
- xiv. Environmental matrix during construction and operational phase needs to be submitted.
- xv. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.
- xvi. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.

- xvii. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component.
- xviii. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
- xix. Stage-I Forest Clearance shall be obtained.
- xx. Explore the possibilities to reduce Forest area for the construction of proposed project, Muck disposal sites should be outside the forest area.

#### **[B] Socio-economic Study**

- i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
- ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.
- iii. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F.No.22- 65/2017- IA.III dated 30<sup>th</sup> September, 2020 shall be submitted.
- iv. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.
- v. Details of settlement in 10 km area shall be submitted.

#### **[C] Muck Management/ Disaster Management**

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

#### **[D] Miscellaneous.**

- i. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
- ii. Undertaking need to be submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose.
- iii. Both capital and recurring expenditure under EMP shall be submitted.
- iv. The photograph should bear the date, time, latitude & longitude of the monitoring station/ sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyse the samples.
- v. Aerial view video of project site shall be recorded and to be submitted.
- vi. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.

**Agenda No. 48.9**

**Saidongar (Closed loop) Pumped Storage Project (1200 MW+3000 MW) in an area 412.28 ha at Village Dhak, Kusun and Pali T. Kothal Khalathi, Tehsil Mawal and Karjat, District Raigad, Maharashtra by M/s Torrent Power Limited – Terms of References (ToR) – reg.**

**[Proposal No. IA/MH/RIV/433000/2023; F. No. J-12011/33/2023-IA.I (R)]**

**48.9.1:** The proposal is for grant of Terms of Reference (ToR) to the project Saidongar (Closed loop) Pumped Storage Project (1200 MW+3000 MW) in an area 412.28 ha at Village Dhak, Kusun and Pali T. Kothal Khalathi, Tehsil Mawal and Karjat, District Raigad, Maharashtra by M/s Torrent Power Limited.

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

- i. The proposal is for ToR to the project for Saidongar Pumped Storage Project located (4200 MW) at Village Dhak, Kusun and Pali, Taluka Kothal & Mawal, District Raigad & Pune, Maharashtra by M/s. Torrent Power Limited.
- ii. The project is listed at S.N. 1 (c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category ‘A’ and are appraised at Central Level by Expert Appraisal Committee (EAC).
- iii. The estimated project cost is Rs 12024.24 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).
- iv. There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River/ water body, Thokaradi reservoir at the distance of 2 km in west direction.
- v. Details of Solid waste/ Hazardous waste generation/ Muck and its management will be covered in EIA report.
- vi. Status of Litigation Pending against the proposal, if any. No
- vii. The silent features of the project are as under:-

Project details:

Name of the Proposal	Saidongar Pumped Storage Project
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Location (Including coordinates)	Upper Reservoir(1200 MW) : 73°26'50"E; 18°53'60"N Upper Reservoir(3000 MW): 73°24'32"E; 18°54'15"N Lower Reservoir : 73°25'34"E; 18°54'37"N
Inter- state issue involved	No
Seismic zone	Zone-III

**Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	4200 MW (3000 MW + 1200 MW)
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil

**Electricity generation capacity:**

Powerhouse Installed Capacity	4200 MW
Generation of Electricity Annually	9198 MU
No. of Units	16 nos. (9X300+2X150) + (3X300+2X150)
Additional information (if any)	Nil

**ToR/EC Details:**

Cost of project	12024.24 Cr.
Total area of Project	412.28 ha
Height of Dam from River Bed (EL)	Lower Dam – 67 m Upper Dam (1200 MW) – 31.1 m Upper Dam (3000 MW) – 33 m
Length of Tunnel/Channel	4650 m
Details of Submergence area	337.92 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
E-Flows for the Project	Not Applicable, as this is Off-Stream Closed Loop Pumped Storage Project (PSP)
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then	No
E-flow with TOR /Recommendation by	

EAC as per CIA&CC study of River Basin.  If not the E-Flows maintain criteria for sustaining river ecosystem.	
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**Muck Management Details:**

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	14.97 ha Private Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

**Land Area Breakup:**

Government land/Forest Land	No
Submergence area/Reservoir area	337.92 ha
Land required for project components	74.36 ha
Additional information (if any)	Nil

**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	--	There is no Protected Area in the vicinity of the proposed project. Bhimashankar WLS is about 15.0 Km from site, is the nearest protected area.
National Park	--	
Wildlife Sanctuary	--	

**Court case details:**

Court Case	Nil
Additional information (if any)	Nil

**Affidavit/Undertaking details:**

Affidavit/Undertaking	Enclosed
Additional information (if any)	Nil

**Miscellaneous:**

Particulars	Details
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<p>Details of consultant</p>	<p>M/s. R S Envirolink Technologies Pvt. Ltd.  (RSET) (<i>NABET Accredited Consultant Organization</i>)  Certificate No :  NABET/EIA/2225/RA0274  Validity : August 15, 2025  Contact Person : Mr. Ravinder Bhatia  Name of Sector : River Valley and  Hydroelectric Projects  Category : A  MoEF Schedule : I(C)  Address : 403, Bestech Chambers,  Block-B, Sushant Lok  Phase I, Sector 43,  Gurugram, Haryana -  122009  E-mail :  ravi@rstechologies.co.in  Land Line : (0124) 4295383  Cellular : (+91) 9810136853</p>
<p>Project Benefits</p>	<ul style="list-style-type: none"> <li>• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at</li> </ul>

	<p>inefficient performance levels that increase the release of greenhouse gas emissions.</p> <ul style="list-style-type: none"> <li>• Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: <ul style="list-style-type: none"> <li>○ Least expensive source of electricity, not requiring fossil fuel for generation</li> <li>○ An emission-free renewable source</li> <li>○ Balancing grid for demand driven variations</li> <li>○ Balancing generation driven variations</li> <li>○ Voltage support and grid stability</li> </ul> </li> </ul> <p>Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.</p>
Status of other statutory clearances	Forest Clearance - Online application seeking forest diversion for around 234.16 Ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies
Additional detail (If any)	Nil

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

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of terms of reference to the project for Saidongar (Closed loop) Pumped Storage Project (1200 MW+3000 MW) in an area 412.28 ha at Village Dhak, Kusur and Pali T. Kothal Khalathi, Tehsil Mawal and Karjat, District Raigad, Maharashtra by M/s Torrent Power Limited.

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

The project location comes under ESA of Western Ghats and the location is very sensitive wrt dense forest point of view. It was also observed that the project design involves creation of two

separate upper reservoirs with individual water conductor system and power house for both upper reservoirs, though the lower reservoir is same for feeding the water to two upper reservoirs. The EAC was of the view that as per the proposed project design the proposal may not be considered as single project. The PP should consult with Central Electricity Authority to look into the design aspect and submit the proposal accordingly.

The proposal therefore *deferred* on the above lines.

### **Agenda Item No. 48.10**

**Chikni (Open loop) Pumped Storage Project Pumped Storage Project (325 MW) in an area of 31.1 ha at Village Chinki, Tehsil Oudgi, District Surajpur, Chhattisgarh by M/s Chikini Energy Private Limited– Terms of References (ToR) – reg.**

**[Proposal No. IA/CG/RIV/432001/2023; F. No. J-12011/29/2023-IA.I (R)]**

**48.10.1:** The proposal is for grant of Terms of Reference (ToR) to the project Chikni (Open loop) Pumped Storage Project Pumped Storage Project (325 MW) in an area of 31.1 ha at Village Chinki, Tehsil Oudgi, District Surajpur, Chhattisgarh by M/s Chikini Energy Private Limited.

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

- i. The proposal is for ToR to the project for Chikni Pumped Storage Project located at Village Chikni, Tehsil Oudgi, District Surajpur, Chhattisgarh by M/s Chikini Energy Private Limited.
- ii. The project is listed at S.N. 1 (c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).
- iii. The estimated project cost is Rs 1543.59 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).
- iv. Tamoringla WLS is at 1.8 km distance from the project site. Existing Mahan III SHEP reservoir will be used as Lower Reservoir. Mahan River flows in southwest direction.
- v. Details of Solid waste/ Hazardous waste generation/ Muck and its management will be covered in EIA report.
- vi. Status of Litigation Pending against the proposal, if any. No
- vii. The silent features of the project are as under:-

**Project details:**

Name of the Proposal	Chikni Pumped Storage Project
Location (Including coordinates)	Upper reservoir: 82°58'25"E; 23°29'16"N (Proposed) Lower reservoir: 82°58'27"E; 23°30'28"N (Existing)
Inter- state issue involved	No
Seismic zone	Zone-II

**Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	325 MW
Attracts the General Conditions (Yes/No)	Yes
Additional information (if any)	Nil

**Electricity generation capacity:**

Powerhouse Installed Capacity	325 MW
Generation of Electricity Annually	711.75 MU
No. of Units	3 nos. (3 X 108.33 MW)
Additional information (if any)	Nil

**ToR Details:**

Cost of project	1356.11 Cr.
Total area of Project	31.0 ha
Height of Dam from River Bed (EL)	Upper Dam – 23 m
Length of Tunnel/Channel	250 m
Details of Submergence area	14.3 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
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
E-flow with TOR /Recommendation by	

EAC as per CIA&CC study of RiverBasin. If not the E-Flows maintain criteria for sustaining river ecosystem.	
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**Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt. land)	2.0 ha Private Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

**Land Area Breakup:**

Government land/Forest Land	No
Submergence area/Reservoir area	14.3 ha
Land required for project components	16.70 ha
Additional information (if any)	Nil

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

Forest Land/ Protected Area/ Environmental Sensitivity Zone		Details of Certificate / letter/ Remarks
Reserve Forest/Protected Forest Land	--	Tamorpingla WLS is at 1.8 Km distance from project site.
National Park	--	
Wildlife Sanctuary	--	

**Court case details:**

Court Case	Nil
Additional information (if any)	Nil

**Affidavit/Undertaking details:**

Affidavit/Undertaking	Enclosed
Additional information (if any)	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	Yet to Apply
Additional detail (If any)	Nil
<b>Is FRA (2006) done for FC-I</b>	Yet to Apply

## Miscellaneous

Particulars	Details
Project Benefits	<ul style="list-style-type: none"> <li>● Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions.</li> <li>● Further, pumped storage projects are critical to the national economy and overall energy reliability because it's:               <ul style="list-style-type: none"> <li>○ Least expensive source of electricity, not requiring fossil fuel for generation</li> <li>○ An emission-free renewable source</li> <li>○ Balancing grid for demand driven variations</li> <li>○ Balancing generation driven variations</li> <li>○ Voltage support and grid stability</li> </ul> <p>Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.</p> </li> </ul>
Status of other statutory clearances	Forest Clearance - Online application seeking forest diversion for 27.0 Ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies

Additional detail (If any)	Nil
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#### **48.10.3 The EAC during deliberations noted the following:**

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of terms of reference to the project for Chikni (Open loop) Pumped Storage Project Pumped Storage Project (325 MW) in an area of 31.1 ha at Village Chinki, Tehsil Oudgi, District Surajpur, Chhattisgarh by M/s Chikini Energy Private Limited.

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

**48.10.4** The EAC after detailed deliberation on the information submitted and as presented during the meeting *recommended* for grant of Standard ToR for conducting EIA study for Chikni (Open loop) Pumped Storage Project Pumped Storage Project (325 MW) in an area of 31.1 ha at Village Chinki, Tehsil Oudgi, District Surajpur, Chhattisgarh by M/s Chikini Energy Private Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

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

- i. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs of catchment area, irrigation facilities due to tapping of water for filling reservoir.
- ii. Action plan for survival of rivulets in the study area.
- iii. Alternative sites for various components shall be identified in terms of loss of forest area.
- iv. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
- v. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
- vi. Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/ EMP report.
- vii. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir.
- viii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with expert Govt. institutions/ Indian Council of Agriculture Research

- (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
- ix. Source of construction material and its distance from the project site along with detailed transportation plan for construction material.
  - x. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.
  - xi. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
  - xii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
  - xiii. MoU for water uses for the project signed and approved by concerned authority shall be submitted.
  - xiv. Environmental matrix during construction and operational phase needs to be submitted.
  - xv. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.
  - xvi. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.
  - xvii. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component.
  - xviii. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
  - xix. Stage-I Forest Clearance shall be obtained.
  - xx. Explore the possibilities to reduce Forest area for the construction of proposed project, Muck disposal sites and approach roads should be outside the forest area.

#### **[B] Socio-economic Study**

- i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
- ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.
- iii. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F.No.22- 65/2017- IA.III dated 30<sup>th</sup> September, 2020 shall be submitted.
- iv. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.
- v. Details of settlement in 10 km area shall be submitted.

#### **[C] Muck Management/ Disaster Management**



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

**[D] Miscellaneous.**

- i. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
- ii. Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose.
- iii. Both capital and recurring expenditure under EMP shall be submitted.
- iv. The photograph should bear the date, time, latitude & longitude of the monitoring station/ sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyse the samples.
- v. Arial view video of project site shall be recorded and to be submitted.
- vi. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.

**Agenda Item No. 48.11**

**Arunachalam (Closed loop) Pumped Storage Project (900 MW) in an area 70 ha at Taluk Harur and Thandrampet, district Dharmapuri and Tiruvannamalai, Tamil Nadu by M/s Volthills Private Limited – Terms of References (TOR) – reg.**

**[Proposal No. IA/TN/RIV/433374/2023; F. No. J-12011/34/2023-IA.I (R)]**

**48.11.1:** The proposal is for grant of Terms of Reference (ToR) to the project for Arunachalam (Closed loop) Pumped Storage Project (900 MW) in an area 70 ha at Taluk Harur and Thandrampet, district Dharmapuri and Tiruvannamalai, Tamil Nadu by M/s Volthills Private Limited.

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

- i. The proposal is for ToR to the project for Arunachalam Pumped Storage Project located at Taluk Harur and Thandrampet, District Dharmapuri and Tiruvannamalai, Tamil Nadu by M/s Volthills Private Limited.
- ii. The project is listed at S.N. 1 (c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category ‘A’ and are appraised at Central Level by Expert Appraisal Committee (EAC).

- iii. The estimated project cost is Rs 4771.56 crore. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).
- iv. Koundinya WLS is at 75.0 km distance from the project site. Kallar River flows in south to north direction.
- v. Details of Solid waste/ Hazardous waste generation/ Muck and its management will be covered in EIA report.
- vi. Status of Litigation Pending against the proposal, if any. No
- vii. The silent features of the project are as under:-

**Project details:**

Name of the Proposal	Arunachalam Pumped Storage Project
Location (Including coordinates)	Upper reservoir: 78°42'18"E; 12°01'09"N Lower reservoir: 78°41'02"E; 12°01'09"N
Inter- state issue involved	No
Seismic zone	Zone-II

**Category details:**

Category of the project	A
Provisions	
Capacity / Cultural command area (CCA)	900 MW
Attracts the General Conditions (Yes/No)	Yes
Additional information (if any)	Nil

**Electricity generation capacity:**

Powerhouse Installed Capacity	900 MW
Generation of Electricity Annually	1971.00 MU
No. of Units	4 nos. (4 X 225.0 MW)
Additional information (if any)	Nil

**ToR Details:**

Cost of project	4771.56 Cr.
Total area of Project	70.0 ha
Height of Dam from River Bed (EL)	Upper Dam – 13 m

Length of Tunnel/Channel	250 m
Details of Submergence area	31.0 ha
Types of Waste and quantity of generation during construction/ Operation	Muck from excavation, solid waste from labour colony and construction waste
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  e) E-flow with TOR /Recommendation by f) EAC as per CIA&CC study of River Basin.  If not the E-Flows maintain criteria for sustaining river ecosystem.	No

#### **Muck Management Details:**

No. of proposed disposal area/ (type of land-Forest/Pvt. land)	2.0 ha Private Land
Muck Management Plan	Will be Provided in EIA/EMP report
Monitoring mechanism for Muck Disposal	Will be Provided in EIA/EMP report

#### **Land Area Breakup:**

Government land/Forest Land	No
Submergence area/Reservoir area	31.0 ha
Land required for project components	39.0 ha
Additional information (if any)	Nil

#### **Presence of Environmentally Sensitive areas in the study area**

ForestLand/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate / letter/ Remarks
Reserve Forest/Protected Forest Land	--	Proposed project is located around 75 km away from boundary of Koundinya WLS boundary
National Park	--- --	
Wildlife Sanctuary	--- --	

#### **Court case details:**

Court Case	Nil
Additional information (if any)	Nil

**Affidavit/Undertaking details:**

Affidavit/Undertaking	Enclosed
Additional information (if any)	Nil

**Previous EC compliance and necessary approvals:**

<b>Particulars</b>	<b>Letter no. and date</b>
Certified EC compliance report (if applicable)	Not Applicable
Status of Stage- I FC	Yet to Apply
Additional detail (If any)	Nil
<b>Is FRA (2006) done for FC-I</b>	Yet to Apply

**Miscellaneous**

<b>Particulars</b>	<b>Details</b>
Project Benefits	<ul style="list-style-type: none"> <li>• Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions.</li> <li>• Further, pumped storage projects are critical to the national economy and overall energy reliability because it's: <ul style="list-style-type: none"> <li>○ Least expensive source of electricity, not requiring fossil fuel for generation</li> <li>○ An emission-free renewable source</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Balancing grid for demand driven variations</li> <li>○ Balancing generation driven variations</li> <li>○ Voltage support and grid stability</li> </ul> <p>Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.</p>
Status of other statutory clearances	Forest Clearance - Online application seeking forest diversion for 20.0 Ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.
R&R details	Details shall be evaluated during EIA/EMP Studies
Additional detail (If any)	Nil

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

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of terms of reference to the project for Arunachalam (Closed loop) Pumped Storage Project (900 MW) in an area 70 ha at Taluk Harur and Thandrapet, district Dharamapuri and Tiruvannamalai, Tamil Nadu by M/s Volthills Private Limited.

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

**48.11.4** The EAC after detailed deliberation on the information submitted and as presented during the meeting *recommended* for grant of Standard ToR for conducting EIA study for Arunachalam (Closed loop) Pumped Storage Project (900 MW) in an area 70 ha at Taluk Harur and Thandrapet, district Dharamapuri and Tiruvannamalai, Tamil Nadu by M/s Volthills Private Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

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

- i. Cumulative Impact of project on carrying capacity and sustainability of Reservoir/ nalahs of catchment area, irrigation facilities due to tapping of water for filling reservoir.
- ii. Action plan for survival of rivulets in the study area.
- iii. Alternative sites for various components shall be identified in terms of loss of forest area.
- iv. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Standard ToR shall be collected

- for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.
- v. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.
  - vi. Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/ EMP report.
  - vii. Identify the sand mining/ quarrying sites in submergence area and downstream of reservoir.
  - viii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with expert Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
  - ix. Source of construction material and its distance from the project site along with detailed transportation plan for construction material.
  - x. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.
  - xi. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.
  - xii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Govt. institutions/ Indian Council of Agriculture Research (ICAR)and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.
  - xiii. MoU for water uses for the project signed and approved by concerned authority shall be submitted.
  - xiv. Environmental matrix during construction and operational phase needs to be submitted.
  - xv. Matrix formulated on the basis of detailed study and field survey of flora and Fauna methodology used shall be mentioned in the EIA report.
  - xvi. Endemic plant and animal species found in the area concerned shall be provided instead listing entire endemic species found in the State.
  - xvii. Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature of the tree species required to be felled for reservoir creation and other project component.
  - xviii. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.
  - xix. Stage-I Forest Clearance shall be obtained.
  - xx. Explore the possibilities to reduce Forest area for the construction of proposed project, Muck disposal sites and approach roads should be outside the forest area.

## **[B] Socio-economic Study**

- i. Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project.
- ii. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.
- iii. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F.No.22- 65/2017- IA.III dated 30<sup>th</sup> September, 2020 shall be submitted.
- iv. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.
- v. Details of settlement in 10 km area shall be submitted.

**[C] Muck Management/ Disaster Management**

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

**[D] Miscellaneous.**

- i. Pre-DPR Chapters viz. Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
- ii. Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose.
- iii. Both capital and recurring expenditure under EMP shall be submitted.
- iv. The photograph should bear the date, time, latitude & longitude of the monitoring station/ sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyse the samples.
- v. Arial view video of project site shall be recorded and to be submitted.
- vi. Detailed plan to restore wider roads and convert them into narrow upto 10m after construction of the project.

The meeting ended with vote of thanks to the Chair.

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**ANNEXURE****ATTENDANCE LIST**

<b>S. No</b>	<b>Name&amp; Address</b>	<b>Role</b>	<b>Attendance</b>
1.	Dr. A. K. Malhotra	<b>Chairman</b>	P
2.	Dr. Uday Kumar R.Y	Member	P
3.	Dr. N. Lakshman	Member	P
4.	Shri Sharvan Kumar	Member (Representative of CEA)	P
5.	Mr. P. Dorje Gyamba	Representative of CWC	P
6.	Dr. Amiya Sahoo	Representative of CIFRI	P
7.	Dr. J. A. Johnson	Member of WII	P
8.	Shri K. Gowrappan	Member (Co-Opted for agenda item No. 48.7)	P
9.	Shri Yogendra Pal Singh	Member Secretary	P



## **APPROVAL OF THE CHAIRMAN**

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**From:** [ajitkumarmalhotra463@gmail.com](mailto:ajitkumarmalhotra463@gmail.com)

**To:** "Yogendra Pal Singh" <[yogendra78@nic.in](mailto:yogendra78@nic.in)>

**Sent:** Tuesday, July 11, 2023 9:17:23 PM

**Subject:** Re: Draft minutes of the 48th EAC (RV&HEP) meeting held on 26.06.2023 and 27.06.2023

I have gone through the MoM and find them in order and as such give my approval for the same.

Dr. A.K.Malhotra