सत्यमेव जयते

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

Minutes of 33RD MEETING OF THE EXPERT APPRAISAL COMMITTEE meeting River Valley and Hydroelectric Projects held from 17/06/2025 to 17/06/2025 **Date:** 30/06/2025

MoM ID: EC/MOM/EAC/970076/6/2025

Agenda ID: EC/AGENDA/EAC/970076/6/2025

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

17/06/2025	10:30 AM	05:30 PM

1. Opening remarks

The 33rd meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 17th June, 2025 through Virtual mode, under the Chairmanship of Prof. G. J. Chakrapani.

2. Confirmation of the minutes of previous meeting

The Minutes of the Meeting held on 32nd EAC meeting on 29th May, 2025 were confirmed.

3. Details of proposals considered by the committee

Day 1 -17/06/2025

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Polavaram Banakacherla Link Project (PBLP) by **BANOTHU RAMBABU** located at **ELURU,ANDHRA PRADESH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/AP/RIV/540417/2025	J-12011/23/2025-IA.I(R)	05/06/2025	River Valley/Irrigation projects (1(c))

3.1.2. Project Salient Features

33.2.1 The proposal is for grant of Terms of References (ToR) to the project for Polavaram Banakacherla Link Project (PBLP) with 300000 Ha CCA and 400 MW in an area of 24064 Ha in Sub district Rajupalem, Pedavegi, Amaravathi, etc., District East Godavari, West Godavari, Eluru, Krishna, NTR, Palnadu, Prakasam, Nandyala by M/s Water Resource Department, Government of Andhra Pradesh, Vijayawada.

33.2.2 The Project Proponent and the accredited Consultant M/s SV Enviro Labs & Consultants, made a detailed presentation on the salient features of the project and informed that:

i. The Government of Andhra Pradesh (GoAP) proposes to formulate a scheme for transfer of flood waters from Polavaram Dam to Banakacherla Regulator on Srisailam Right Main Canal through a link canal to utilize flood waters.

ii. The project is expected to drought-proof the State through sustainable water resources development and fulfills water demand for irrigation, drinking water and industrial needs in all water shortage districts in the State. The quantity of water proposed for diversion is 5663 Mcum (200 TMC) @ 656 Cumec per day (2TMC/day).

iii. The project is expected to provide drinking water to about 80 lakh people, irrigation to new ayacut of about 3.00 Lakh hectares, supplementation to about 9.14 Lakh hectares and provide 566 M.cum (20 TMC) of water to industries. The preliminary cost of the project is estimated at Rs.81,900 crores at 2025-26 Price Level. It is pertinent to note that the development of new I.P of 3.0 lakh hectares is not under the scope of this project. The cost estimate of the project does not include the cost of creation of infra-structure of new ayacut.

iv. The main purpose of this scheme is to divert the flood water from Godavari basin (Polavaram Dam) to the deficit basins of the State. As evident from the below mentioned hydrological studies, the River Godavari has 90 - 120 days of surplus water after meeting upstream and downstream riparian rights. As such, the success of the scheme requires a transit balancing reservoir which can store up to 150- 200 TMC of water to meet the crop water requirements spread up to month of January and the drinking and industrial needs round the year. The construction of a reservoir of that magnitude is very expensive due to cost of land acquisition and relief & rehabilitation operations to be taken up for submerging habitations . Fortunately, the Bollapalli hill series in Palnadu district enroute to Banakacherla regulator can be utilized as an online storage reservoir with a capacity of 4899 M.cum (173.00 TMC) by just closing seven gaps in between the Bollapalli hill range.

v. The main objective of this project isto supply water to all water deficit districts of the State, which are also the most backward areas of the State. The major portion of the Rayalaseema region lies in the Pennar River basin, whose catchment is predominantly a rain shadow area. In order to meet the water needs of the Rayalaseema districts, several irrigation projects have already been grounded, for which SRMC (Srisailam Right Main Canal) is the main source, duly drawing water from Pothireddipadu Regulator located on the right flank of foreshore of Srisailam Reservoir. From this Regulator, an approach canal was constructed for a length of 17.50 km, which terminates into the Banakacherla Cross Regulator complex (here in after called as Banakacherla Regulator), which is considered as "Gateway of Rayalaseema Projects" as the needs of most of Rayalaseema projects are served from here. Some of the important projects are:

    1. SRBC (Srisailam Right Bank Canal).
    2. GNSS (Galeru Nagari Srujala Sravanthi).
    3. TGP (Telugu Ganga Project).
    4. KC Canal Link (Kurnool Kadapa Canal).
    5. Supplementation to Somasila Project through TGP.

vi. It is pertinent to mention here that the above projects receive contemplated water from Srisailam reservoir less than 50% rate, leading to drought conditions and crop wilting conditions in drought years. In the year 2015, the water drawn is less than 1.0 TMC and as such, GoAP conveyed the water from Vijayawada City (Prakasam Barrage) to Ananthapuram district through railway tankers to serve the drinking needs of human and live stockab. This exemplifies the dire status of the Rayalaseema region, where failure of monsoon is more the rule than an exception.

vii. Taking these factors into account, the GoAP has envisaged this project to link Godavari River

(Polavaram dam) to Banakacherla Regulator, transferring flood water by means of open canals, lifts, underground pipelines and finally through a 19.50 km & 6.60 Km (twin) long tunnels passing through Nallamala Hill series.

viii. The geographical co-ordinate of the project are

Polavaram Dam 17°15'10.54"N

81°37'7.32"E

Banakacherla Regulator: 15°50'16.85"N

78°31'11.60"E

ix. The Polavaram Banakacherla (PBLP) Project envisages construction of 376 km open canal, 19.50 Km TBM tunnel, 6.60 Km conventional tunnel, 9 Nos of pumphouses with Sub-stations, 17.28Km underground pipeline and two Hydel power stations each 200 MW.

x. **Land requirement:**

Non-Forest land = 16885 Ha

Forest Land =7179 Ha

Total =24064 Ha

xii. **Project Cost:** The estimated project cost is Rs.81,900 Crores as per PFR.

xiii. **Project Benefits:**

1. Provides Drinking Water to 80 Lakh People.
2. The project is intended to create a new ayacut of 3.00 Lakh Ha
3. To stabilize an ayacut of 9.14 Lakh Ha.
4. Supply of 20TMC water to the industrial uses.

xiv. **Environmental Sensitive area:** The underground tunnel (19.50 Km) of the project passes through Nagarjuna Sagar Srisailam tiger reserve.

xv. **Alternative Studies:**

Segment1:

- Alternative-1: Lifting water from Polavaram Dam and transfer water through a new flood flow canal, which involves about 300 MW of power
- Alternative -2:Widening of existing RMC duly increasing it's carrying capacity to 1005 Cumecs, which mandates the demolishing of most of the existing structures (255 Nos) including laid CC lining.
- Alternative-3: Construct a New parallel Canal along the RMC with a capacity of 510 Cumecs which run adjacent to the RMC.
- Alternative-4:Another option of crossing Krishna River by means of an aqueduct is also critically examined but found unviable, because of construction of a 8.50 Km Tunnel in the Kondapalli Hill range and other technical intricacies involved apart from extra cost of about Rs. 8000 Cr.

After weighing all the pros and cons of the above three alternatives, Alternative-3 is found techno economically viable & better choice from environmental angle, as flood water joins river Krishna by gravity **without any lift and with minimum interference of existing infrastructure.**

Segment 2:

- Two alternatives are examined before water is let out into Bollapalli reservoir,
- Alternative1: Through a tunnel of 1.20 Km length
- Alternative2 :Without a tunnel but through an underground pipe line

Alternative-2 is chosen to avoid tunnel besides having other advantages

Segment 3:

- *Alternative-1*: Crossing Nallamala hill range through a Tunnel of 34 Km length.
- As the tunnel passing through 'Tiger Reserve', construction with Tunnel Boring Machines

(TBM) to achieve zero ecological disturbances for Tiger and other wildlife population living there.

- *Alternative-2:* Crossing Nallamala hill range reducing TBM tunnel length to 19.50 km.
- Breaking the tunnel immediate after the Tiger reserve boundary, and emptying into existing Siddapuram tank, thereby limiting the TBM tunnel length to 19.50 Km. Before that, a storage is created to meet the required elevation to negotiate with Siddapuram tank FTL.
- Alternative -2 is a better choice from environmental angle and due care is taken that the entry & exit points of tunnel are located outside the Tiger zone area.

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

Solid Waste from labor camps -2567 TPA

Muck from tunnel excavation -4759871 Cum

Muck from Canal excavation: 375708051 Cum

Name of the Proposal	Polavaram Banakacherla Link Project (PBLP)
Location (Including coordinates)	Linear project encompassing 8 districts of Andhra P radesh Canal take off Point Coordinate: 17°15'10.54"N 81°37'7.32"E Banakacherla Regulator: 15°50'16.85"N 78°31'11.60"E
Inter- state issue involved	No
Seismic zone	II/III as per seismic zonation map of India
Category of the project	1(c)
Provisions	--
Capacity / Cultural command area (CCA)	3 Lakh Ha
Attracts the General Conditions (Yes/No)	Yes, Due to alignment (underground Tunnel) passa ge through the Nagarjuna Sagar Srisailam tiger rese rve
Additional information (if any)	Nil
Powerhouse Installed Capacity	400 MW (2 X 200 MW)
Generation of Electricity Annually-No of Units	5760 MU
Additional information (if any)	60% operation is considered
Cost of project	Rs. 81, 900 Crores
Total area of Project	

Height of Dam from River Bed (EL)	79.00 m
Length of Tunnel/Channel	26.10 Kms (Tunnel-1= 19.50 Kms - TBM, Tunnel-2= 6.60 Kms - Conventional)
Details of Submergence area	Bollapalle reservoir -15245.00 Ha Yeguvacherlopalli – 625.80 Ha
Types of Waste and quantity of generation during construction/ Operation	Solid Waste from labor camps -2567 TPA Muck from tunnel excavation -4759871 cum Muck from Canal excavation: 375708051 cum
E-Flows for the Project	15%
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which pr oject located. If yes, then	No
a) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin.	15%
b) If not the E-Flows maintain criteria f or sustaining river ecosystem.	15%
No. of trees/saplings proposed in view of ‘E k Ped Maa Ke Naam’ campaign	Details will be furnished in EIA Report

Private land	16883
Government land	
Forest Land	7179
Total Land	24062
Submergence area/Reservoir area	Bollapalle reservoir -15245 Ha Yeguvacherlopalli - 626 Ha
Additional information (if any)	-

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate/letter/Remarks**
Reserve Forest/Protected Forest Land	Yes	Unguturu No 2 RF, Adavinekkalam RF, Koppukonda RF, Kakirala RF Nagarjuna Sagar Srisailam tiger reser ve
National Park	No	
Wildlife Sanctuary	Yes	

Particulars	Letter no. and date
Certified EC compliance report (if applicable)	No
Status of Stage- I FC	Filing application is under process
Additional detail (If any)	Nil
Is FRA (2006) done for FC-I	--

Particulars	Details
Details of consultant	SV Enviro Labs & Research Private Limited (formerly known as SV Enviro Labs & Consultants) :B1-Block –B, IDA Auto Nagar, Visakhapatnam- 530012 NABET Certificate No: NABET/EIA/25-28/RA 0394
Project Benefits	1. Provides Drinking Water to 80 Lakh People. 2.The project is intended to create a new ayacut of 3.00 Lakh Ha 3. To stabilize an ayacut of 9.14 Lakh Ha. 4. Supply of 20TMC water to the industrial uses. 5. 400 MW power generation.
Status of other statutory clearances	Shall be obtained
R&R details	Studies Under Process
Additional detail (If any)	Nil

3.1.3. Deliberations by the committee in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

33.1.3 The EAC during deliberations noted the following:

The Expert Appraisal Committee (EAC) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR for conducting EIA/EMP and Public hearing for Polavaram Banakacherla Link Project (PBLP) with 300000 Ha CCA and 400 MW in an area of 24064 Ha in Sub district Rajupalem, Pedavegi, Amaravathi, etc., District East Godavari, West Godavari, Eluru, Krishna, NTR, Palnadu, Prakasam, Nandyala by M/s Water Resource Department, Government of Andhra Pradesh, Vijayawada.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The projected benefits of the Polavaram Banakacherla Link Project include provision of drinking water

to approximately 80 lakh people, creation of a new irrigation ayacut of 3.00 lakh hectares, stabilization of an existing ayacut of 9.14 lakh hectares, supply of 20 TMC of water for industrial use, and development of 400 MW of hydropower generation capacity.
The EAC noted that the proposed scheme aims to divert floodwaters from the Godavari basin (Polavaram Dam) to the water-deficit basins within the State. The EAC further observed that Environmental Clearance (EC) for the Indira Sagar Polavaram Multipurpose Project on the Godavari River, located at Polavaram in Andhra Pradesh, was granted by the Ministry on 25th January 2005. However, due to submergence-related issues in the States of Odisha and Chhattisgarh, the matter remains sub-judice.
Accordingly, the Committee recommended that the PP should comprehensively assess the availability of floodwaters in consultation with the Central Water Commission (CWC). Furthermore, the EAC noted that several representations have been received via email, alleging that the proposed scheme may be in violation of the Godavari Water Disputes Tribunal Award, 1980. In view of this, it is imperative that the PP should approach Central Water Commission (CWC) for examining the inter-state issues and granting necessary clearance/permission before submitting the proposal for framing the TOR for conducting EIA study.
The EAC decided to ***return*** the proposal on the above lines.

3.1.5. Recommendation of EAC

Returned in present form

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Proposed Kandhaura Pumped Storage Project (1680 MW) at Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh by M/s. JSW Energy PSP Six Limited. by **JSW ENERGY PSP SIX LIMITED** located at **SONBHADRA,UTTAR PRADESH**

Proposal For		Amendment in ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/UP/RIV/488779/2025	J-12011/62/2023-IA.I (R)	07/06/2025	River Valley/Irrigation projects (1(c))

3.2.2. Project Salient Features

33.2.1 The proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Kandhaura Pumped Storage Project (1680 MW) in an area of 584.57Ha in Village Sasnai, Markuri & Cherue, Sub District Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited.
33.2.2 The Project Proponent and the accredited Consultant M/s. J.M. EnviroNet Pvt. Ltd., made a detailed presentation on the salient features of the project and informed that:

i. Proposed Pumped Storage Project (PSP) is Off-Stream Closed Loop pumped storage development, proposed with an installed capacity of 1680MW/10668.00 MWH. The Project comprises of development of upper & lower reservoirs with a gross storage capacity of 15.16 MCM (0.535 TMC) & 17.19 MCM (0.607 TMC) respectively, out of which upper reservoir to be constructed with maximum dam height of 48.00 m (from deepest bed level) to create the desired storage capacity while the lower reservoir will have maximum height of 34.32 m (from deepest bed level) constructed at the downhill.

ii. The scheme of operation for the project is with 6.35 Hours of peak hour generation per day and 7.22 Hours for pumping back the water to the upper reservoir. Water will be used cyclically for energy storage and discharge. Evaporation losses if any will be recouped periodically from its self-catchment or Sone River.

iii. The proposal is for amendment in the Terms of Reference granted by the Ministry vide File No: J-12011/62/2023-IA.I(R) dated on 16.04.2024 which was further amended vide TOR Identification No. TO24A0000UP5301547A dated 21.10.2024 for the project "Proposed Kandhaura Pumped Storage Project (1680 MW) at Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh in favour of M/s. JSW Energy PSP Six Limited"

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

SN	**Description**	**Reference (as per Para of ToR issued by MoEF&CC dated 21.10.2024)**	**Existing details (as per ToR dated 21.10.2024)**	**Proposed/ Amendment**	**Reason for Amendment in ToR**
	Total area of the Project and its breakup.	Ø Subject & Para 1 of Page 1; Ø Para 4 & 7 of Page 2; Ø Amendment log at Page 16, 17 & 18, of Annexure 2	584.57 Ha (Forest land: 493.51 Ha, Govt. Land: 14.14 Ha, Private land: 76.92 Ha)	569.707 Ha (Forest land: 493.51 Ha, Govt. Land: 11.66 Ha, Private land: 64.537 Ha)	Following the Minutes of the Meeting held under the chairmanship of the Chairperson, CEA, dated 02.04.2025, the Hydel Civil Design (HCD) Directorate of the Central Water Commission (CWC) proposed the revision of layout to reduce the cut height of the surface powerhouse. As a result, the design features have been updated to align with the modified HCD aspects.
	Muck Disposal Area	Amendment log at Page 17 of Annexure 2	54.88 Ha Lower Muck Dumping site: 34.07 ha)	50.475 Ha (Upper Muck Dumping Site: 18.446 ha; Lower Muck Dumping site: 32.029 ha)	
	Total Submergence Area	Amendment log at Page 17 of Annexure 2	Total Submergence Area: 179.92Ha 1. Forest Land: 176.52 Ha 2. Private Land: 3.41 Ha 3. Government Land: 0.00 Ha	Total Submergence Area: 178.67 ha 1. Forest Land: 177.695Ha 2. Private Land: 0.015 Ha	
	Water Requireme	Amendment log at P	12.41 MCM	13.16 MCM	The water requirement has been revised as per

SN	Description	Reference (as per Para of ToR issued by MoEF&CC dated 21.10.2024)	Existing details (as per ToR dated 21.10.2024)	Proposed/ Amendment	Reason for Amendment in ToR
	nt	age 16 of Annexure 2			reassessment of technical parameters.
	Gross Storage Capacity of Upper & Lower Reservoir	Amendment log at Page 19 of Annexure 2	The Project comprises of upper & lower reservoirs with a gross storage capacity of 13.30 MCM & 15.40 MCM respectively.	The Project comprises of upper & lower reservoirs with a gross storage capacity of 15.16 MCM & 17.19 MCM respectively.	The storage requirements have been revised as per the Hydel Civil Design (HCD aspects).
	Maximum dam ht. of Upper & Lower Reservoir	Amendment log at Page 19 of Annexure 2	Upper reservoir: 35 m Lower reservoir: 34.20 m	Upper reservoir: 48 m Lower reservoir: 34.32 m	The configuration of Dam have been revised as per the Hydel Civil Design (HCD aspects).
	Generation of Electricity Annually	Amendment log at Page 18 of Annexure 2	3542.62 MU Energy generation	3679.71 MU Energy generation	The Generation of Electricity has been revised in accordance with reassessment of technical parameters.
	Scheme of operation	Amendment log at Page 19 of Annexure 2	The scheme of operation for the project is with 6.08 Hours of peak power per day and 6.86 Hours for pumping back of the water to the upper reservoir.	The scheme of operation for the project is with 6.35 Hours of peak power per day and 7.22 Hours for pumping back of the water to the upper reservoir.	The Scheme of operation has been revised in accordance with reassessment of technical parameters.
	Coordinates of the Project site	Amendment log at Page 16 of Annexure 2	P1: North (24°31'37.46"N 83°7'53.65"E) P2: West (24°31'11.32"N 83° 7'26.71"E) P3: East (24°30'2.57"N 83°11'44.56"E) P4: South (24°28'13.08"N 83°10'1.14"E)	P1: North (24°31'37.46"N 83°7'53.65"E) P2: West (24°31'11.32"N 83° 7'26.71"E) P3: East (24°30'2.57"N 83°11'44.56"E) P4: South (24°28'13.08"N 83°10'1.14"E)	In accordance with the Updated Layout.

EAC meetings	33rd Meeting of Expert Appraisal Committee (River Valley & Hydro-Electric Projects) for Ame

	ndment in ToR.
Date of Meeting/s	17.06.2025
Date of earlier EAC meetings	Earlier 5th meeting of EAC (River Valley & Hydro-Electric

	Projects) held on 19.12.2023 for To RA pprai sal and Recons idered a gain in the 8th meetin

	held on 28.02.2024 & 9th EAC meeting held on 20.03.2024. Accordingly, 14th meeting

	of EAC (River Valley & Hydro-Electric Projects) for Amendment in To Rheld on 31.08.2024.

<table>
<tr><td>Name of the Proposal</td><td>Proposed Kandhaura Pumped Storage Project (1680 MW) at Village: Sashnai, Taluka: Obra and Villages: Markuri & Cheruе, Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh</td></tr>
<tr><td>Proposal No.</td><td>IA/UP/RIV/488779/2025</td></tr>
<tr><td>Location (Including Coordinates)</td><td>At Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh
<table>
<tr><th>Piller No.</th><th>Direction</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>P1</td><td>North</td><td>24° 31' 37.46" N</td><td>83° 7' 53.65" E</td></tr>
<tr><td>P2</td><td>West</td><td>24° 3</td><td>83° 7'</td></tr>
</table>
</td></tr>
</table>

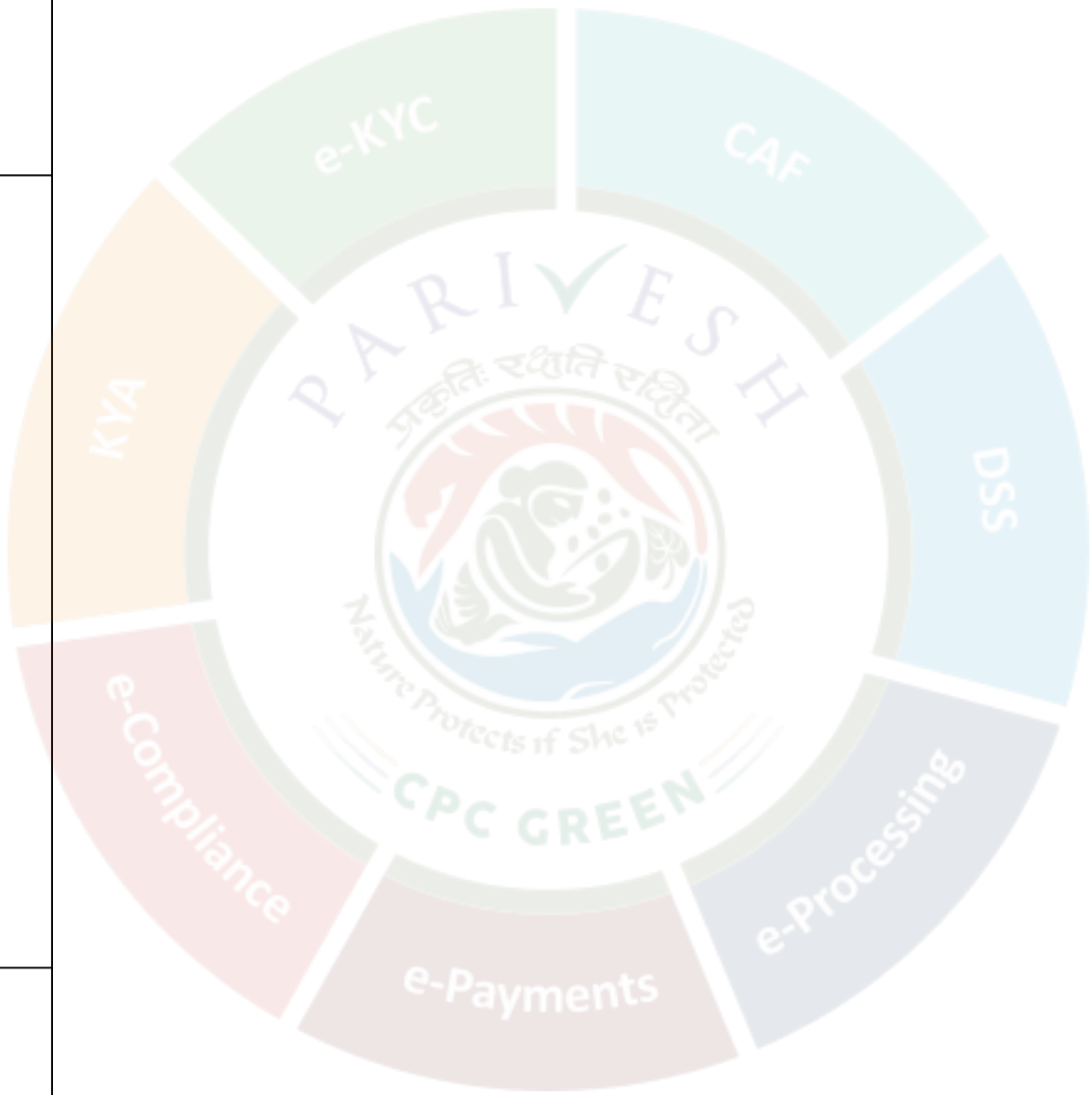
		1'11.32"N	26.71"E
P3	East	24°30'2.57"N	83°11'44.56”E
P4	South	24°28'13.08"N	83°10'1.14"E

Company’s Name	M/s. JSW Energy PSP Six Limited
CIN no. of Company/u	U35101MH2023PLC403659

service agency	
Accredited Consultant, Validity and certificate no.	J.M. EnviroNet Pvt. Ltd. Registered EIA Consultant by NABET (QCI) (Certificate no.: - NABET/EIA/2326/RA 0308, Valid till August 07, 2026)
Project loc	**Piler No.** / **Direction** / **Latitude** / **Longitude**

ation (Coordinates/ River/ Reservoir)	P1	North	24° 31' 37.46" N	83° 7' 53.65" E
	P2	West	24° 31' 11.32" N	83° 7' 26.71" E
	P3	East	24° 30' 2.57" N	83° 11' 44.56” E
	P4	South	24° 28' 13.08" N	83° 10' 1.14" E
Inter-state issue involv	No			

ed	
Category of the project	**A**
Capacity / Cultural commandarea (CCA)	
Attracts the General Con	



ditions (Yes/ No)	
Additional information (if any)	**NA**
Cost of project	Rs. 11278.55 Crore (Total Hard Cost: Rs.

	9942.29 Cr. and IDC: Rs. 1336.26 Cr.)
Total area of Project	569.7077 ha
Date of online application for amendm	

ent in To R/ EC was	
Details of CTE/ CTO	This is the proposal for Amendment in To R for Greenfield Project
No. of tree	2500N

s/saplingsproposedinviewof‘EkPedMaaKeNaam’campaign	os.
Powerhouse Installed Capacity	

Generation of Electricity Annually	
No. of Units	7 No's. (5 X 280 MW & 2 X 140 MW)

6. Detail reason for amendment in ToR/EC:

Following the Minutes of the Meeting held under the chairmanship of the Chairperson, CEA, dated 02.04.2025, the Hydel Civil Design (HCD) Directorate of the Central Water Commission (CWC) proposed the revision of layout to reduce the cut height of the surface powerhouse. As a result, project layout has been re-evaluated w.r.t. area & layout. Accordingly, alignment of water conductor system and location of powerhouse has been changed resulting in reduction in project area from 584.57 Ha to 569.707 Ha.

3.2.3. Deliberations by the committee in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

33.2.3 The EAC during deliberations noted the following:

The proposal is for grant of amendment in Terms of References (TOR) to the project for Kandhaura Pumped Storage Project (1680 MW) in an area of 584.57Ha in Village Sasnai, Markuri & Cherue, Sub District Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited.

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).

The Terms of Reference granted by the Ministry vide letter dated 16.04.2024 for the project Proposed Kandhaura Pumped Storage Project (1680 MW) at village: Sashnai,Taluka: Obra, and Villages: Markuri & Cherue, Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh in favour of M/s JSW Energy PSP Six Limited. Subequently, amendment in ToR was accorded by the Ministry on 21.10.2024.

The EAC deliberated on the request of the project proponent seeking amendments in the Terms of Reference (ToR) for the project. The Committee noted that the proposed changes primarily stem from revisions in the project layout based on the recommendations of the Central Water Commission (CWC), particularly the Hydel Civil Design (HCD) Directorate, to reduce cut heights and optimise design parameters. As a result, the total project area is revised from 584.57 Ha to 569.707 Ha, including corresponding reductions in government and private land. The muck disposal area has also been marginally reduced from 54.88 Ha to 50.475 Ha, while the submergence area has been re-assessed as 178.67 Ha, reflecting minor changes in land classification. Water requirement has been updated from 12.41 MCM to 13.16 MCM, and the gross storage capacities of the upper and lower reservoirs have increased to 15.16 MCM and 17.19 MCM, respectively. Additionally, the maximum dam height for the upper reservoir is revised from 35 m to 48 m. The estimated annual energy generation is enhanced to 3679.71 MU, and the operational hours for peak generation and pumping have also been revised. The EAC found the amendments to be justified based on technical re-assessments and optimised project design.

The project proponent has confirmed that the modified/re-aligned water conductor system does not cross, intersect, or cause any damage to natural drainage features such as nallahs, rivers, reservoirs, or other water bodies.

3.2.5. Recommendation of EAC

Recommended

3.2.6. Details of Terms of Reference

3.2.6.1. Specific

Additional conditions	
1.	All ToR points mentioned in the ToR letter dated 16.04.2024 and amendment in ToR dated 21.10.2024 shall remain unchanged.
2.	EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout.

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

Kalai II Hydro Electric Project by **THDC INDIA LIMITED** located at **ANJAW,ARUNACHAL PRADESH**			
Proposal For		Application for amendment in ToR (for categories A & B1)/Amendment in EC (for category B2)- Form-3	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/AR/RIV/539430/2025	J-12011/40/2009-IA-I(R)	13/06/2025	River Valley/Irrigation projects (1(c))

3.3.2. Project Salient Features

33.3.1 The proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.

33.3.2 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 Kalai-II Hydro Electric Project (HEP) is a significant energy initiative situated in the picturesque Anjaw District of Arunachal Pradesh. This ambitious project aims to harness the abundant water resources of the Lohit River, a tributary of the Brahmaputra River, with a gross head of approximately 125m positioned strategically upstream of Hutong-II HEP and downstream of Kalai-I HEP on the same river.

ii. The project is located in the vicinity of the Chingwanti bridge near Hawai Town. THDCIL has signed a Memorandum of Agreement (MoA) with Govt. of Arunachal Pradesh on 30.12.2023 for the execution of 1200 MW Kalai-II Hydroelectric Project located in Anjaw District of Arunachal Pradesh.

iii. The proposal is for amendment in the Terms of Reference granted by the Ministry vide letter dated 07.08.2024 for the project Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW located at District Anjaw, Arunachal Pradesh in favour of M/s THDC India Limited.

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

S. No.	**Para of ToR issued by MoEF&CC**	**Details as per the ToR**	**To be revised/ read as**	**Justification/ reasons**
1.	**Page 1, Subject**	Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited – Terms of Reference - reg	Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 869.3503 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited – Terms of Reference - reg.	Reduction in Land requirement due to Re-optimization of land including abandoning of Dump yard 5 falling within 100m HFL of the river and 02 nos. Project roads are now part of NHIDC

2.	**Page 1, Para - 1**	This is in reference to your online application No. IA/AR/RIV/466561/2024 dated 10/04/2024 submitted to this Ministry for Grant of Terms of Reference to the project Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited, under the provision of the EIA Notification 2006.	This is in reference to your online application No. IA/AR/RIV/466561/2024 dated 10/04/2024 submitted to this Ministry for Grant of Terms of Reference to the project Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 869.3503 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited, under the provision of the EIA Notification 2006.	L & BRO road plan.
3.	**Page 2, Point 5.**	Subsequently, the proposal was further considered by EAC in its 11th Meeting dated 27.06.2024. The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.), additional details and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located in Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.	Subsequently, the proposal was further considered by EAC in its 11th Meeting dated 27.06.2024. The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.), additional details and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 869.3503 Ha located in Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.	
4.	**Page 19, The details of the project: - Point (iii)**	**Land requirement:**1100 Ha (as per DPR)	**Land requirement:** 869.3503Ha	
5.	**Page 20, ToR Detail**	**Total area of Project:** 1100 Ha (As per DPR)	**Total area of Project:** 869.3503Ha	

	s:			
6.	**Page 22, Land Area Break up**	**Land required for project components:** 1100 Ha (As per DPR)	**Land required for project components:** 869.3503Ha	

v. The salient features of the project are as follows:

1. Project Details:

Name of the Proposal	Proposal for seeking Amendment in Terms of Reference (ToR) for Kalai-II (1200 MW) Hydroelectric Project located in District Anjaw of Arunachal Pradesh by M/s THDC India Limited
Proposal No.	IA/AR/RIV/539430/2025
Location (Including Coordinates)	Anjaw District, Arunachal Pradesh Lat: 27054’ 20” Long 96048’16”
Company’s Name	THDC India LImited
CIN no. of Company/user agency	U45203UR1988GOI009822
Accredited Consultant, Validity and certificate no.	NABET/EIA/24-27/RA 0360
Project location (Coordinates /River/ Reservoir)	Anjaw District, Arunachal Pradesh Lat: 27054’ 20” Long 96048’16
Inter- state issue involved	No
Earlier EC Proposal No.	J-12011/40/2009-IA-I(R)
Earlier EAC meeting date	27.06.2024
ToR Letter No.	J-12011/40/2009-IA-I(R)
ToR grant Date	07.08.2024
Cost of project	13758.64 Crore
Total area of Project	869.3503 Ha
Date of online application for amendment in ToR was	13.06.2025
Details of CTE/CTO	NA
No. of trees/saplings proposed in v	NA

iew of ‘Ek Ped Maa Ke Naam’ ca mpaign	

Powerhouse Installed Capacity	1200 MW
Generation of Electricity Annually	4852.95 GWh
No. of Units	6*190 MW + 1*60 MW (07 units)

S No.	Total Land Requirement as per DPR – 1100 Ha	Reduction of land from 1100 Ha –
1	963.764 Ha – Forest Land identified by e arlier developer	136.236 Ha – Not required
2	136.236 Ha – Under identification by ear lier developer	
3		49.3056 Ha – Alternate Road proposed on left bank of Lohit River from Chunyu Brid ge to Hawai Town is under construction by NHIDCL in its own plan.
4		36.5017 Ha – Road proposed on right bank of Lohit River from Chunyu Bridge to Sam dul village is under construction by BRO i n its own plan.
230.6497 Ha – Total reduction in Land requirement.		
Present Requirement – 869.3503 Ha		

Court case details: Nil

3.3.3. Deliberations by the committee in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

33.3.3 The EAC during deliberations noted the following:

The proposal is for grant of amendment in Terms of References (TOR) to the project for Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.

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).

The Terms of Reference granted by the Ministry vide letter dated 07.08.2024 for the project Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India
Limited.

The EAC deliberated on the request for amendment in the Terms of Reference (ToR) for the Kalai II Hydro Electric Project (1200 MW) by M/s THDC India Limited. The Committee noted that the project area is proposed to be revised from 1100 Ha to 869.3503 Ha due to re-optimization of land use, including abandonment of Dump Yard 5 falling within 100 m HFL of the river, and exclusion of two roads now covered under NHIDCL and BRO plans.

3.3.5. Recommendation of EAC

Recommended

3.3.6. Details of Terms of Reference

3.3.6.1. Specific

Additional conditions	
1.	All ToR points mentioned in the ToR letter dated 07.08.2024 shall remain unchanged.
2.	EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout.

4. Any Other Item(s)

N/A

5. List of Attendees

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

MINUTES OF THE 33RD MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 17TH JUNE 2025 THROUGH VIDEO CONFERENCE

The 33rd meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 17th June, 2025 through Virtual mode, under the Chairmanship of Prof. G. J. Chakrapani. The list of Members present in the meeting is at **Annexure**.

Confirmation of the Minutes of the 32nd EAC meeting:

The Minutes of the Meeting held on 32nd EAC meeting on 29th May, 2025 were confirmed.

Agenda Item No. 33.1

Polavaram Banakacherla Link Project (PBLP) with 300000 Ha CCA and 400 MW in an area of 24064 Ha in Sub district Rajupalem, Pedavegi, Amaravathi, etc., District East Godavari, West Godavari, Eluru, Krishna, NTR, Palnadu, Prakasam, Nandyala by M/s Water Resource Department, Government of Andhra Pradesh, Vijayawada - Terms of Reference (ToR) – reg

[Proposal No. IA/AP/RIV/540417/2025; F. No. J-12011/23/2025-IA.I(R)]

33.2.1 The proposal is for grant of Terms of References (ToR) to the project for Polavaram Banakacherla Link Project (PBLP) with 300000 Ha CCA and 400 MW in an area of 24064 Ha in Sub district Rajupalem, Pedavegi, Amaravathi, etc., District East Godavari, West Godavari, Eluru, Krishna, NTR, Palnadu, Prakasam, Nandyala by M/s Water Resource Department, Government of Andhra Pradesh, Vijayawada.

33.2.2 The Project Proponent and the accredited Consultant M/s SV Enviro Labs & Consultants, made a detailed presentation on the salient features of the project and informed that:

i. The Government of Andhra Pradesh (GoAP) proposes to formulate a scheme for transfer of flood waters from Polavaram Dam to Banakacherla Regulator on Srisailam Right Main Canal through a link canal to utilize flood waters.

ii. The project is expected to drought-proof the State through sustainable water resources development and fulfills water demand for irrigation, drinking water and industrial needs in all water shortage districts in the State. The quantity of water proposed for diversion is 5663 Mcum (200 TMC) @ 656 Cumec per day (2TMC/day).

iii. The project is expected to provide drinking water to about 80 lakh people, irrigation to new ayacut of about 3.00 Lakh hectares, supplementation to about 9.14 Lakh hectares and provide 566 M.cum (20 TMC) of water to industries. The preliminary cost of the project is estimated at Rs.81,900 crores at 2025-26 Price Level. It is pertinent to note that the development of new I.P of 3.0 lakh hectares is not under the scope of this project. The cost estimate of the project does not include the cost of creation of infra-structure of new ayacut.

iv. The main purpose of this scheme is to divert the flood water from Godavari basin (Polavaram Dam) to the deficit basins of the State. As evident from the below mentioned hydrological studies, the River Godavari has 90 - 120 days of surplus water after meeting upstream and downstream riparian rights. As such, the success of the scheme requires a transit balancing reservoir which can store up to 150- 200 TMC of water to meet the crop water requirements spread up to month of January and the drinking and industrial needs round the year. The construction of a reservoir of that magnitude is very expensive due to cost of land acquisition and relief & rehabilitation operations to be taken up for submerging habitations . Fortunately, the Bollapalli hill series in Palnadu district enroute to Banakacherla regulator can be utilized as an online storage reservoir with a capacity of 4899 M.cum (173.00 TMC) by just closing seven gaps in between the Bollapalli hill range.

v. The main objective of this project isto supply water to all water deficit districts of the State, which are also the most backward areas of the State. The major portion of the Rayalaseema region lies in the Pennar River basin, whose catchment is predominantly a rain shadow area. In order to meet the water needs of the Rayalaseema districts, several irrigation projects have already been grounded, for which SRMC (Srisailam Right Main Canal) is the main source, duly drawing water from Pothireddipadu Regulator located on the right flank of foreshore of Srisailam Reservoir. From this Regulator, an approach canal was constructed for a length of 17.50 km, which terminates into the Banakacherla Cross Regulator complex (here in after called as Banakacherla Regulator), which is considered as "Gateway of Rayalaseema Projects" as the needs of most of Rayalaseema projects are served from here. Some of the important projects are:

1. SRBC (Srisailam Right Bank Canal).
2. GNSS (Galeru Nagari Srujala Sravanthi).
3. TGP (Telugu Ganga Project).
4. KC Canal Link (Kurnool Kadapa Canal).
5. Supplementation to Somasila Project through TGP.

vi. It is pertinent to mention here that the above projects receive contemplated water from Srisailam reservoir less than 50% rate, leading to drought conditions and crop wilting

conditions in drought years. In the year 2015, the water drawn is less than 1.0 TMC and as such, GoAP conveyed the water from Vijayawada City (Prakasam Barrage) to Ananthapuram district through railway tankers to serve the drinking needs of human and live stockab. This exemplifies the dire status of the Rayalaseema region, where failure of monsoon is more the rule than an exception.

vii. Taking these factors into account, the GoAP has envisaged this project to link Godavari River (Polavaram dam) to Banakacherla Regulator, transferring flood water by means of open canals, lifts, underground pipelines and finally through a 19.50 km & 6.60 Km (twin) long tunnels passing through Nallamala Hill series.

viii. The geographical co-ordinate of the project are

Polavaram Dam	17°15'10.54"N
	81°37'7.32"E
Banakacherla Regulator:	15°50'16.85"N
	78°31'11.60"E

ix. The Polavaram Banakacherla (PBLP) Project envisages construction of 376 km open canal, 19.50 Km TBM tunnel, 6.60 Km conventional tunnel, 9 Nos of pumphouses with Sub-stations, 17.28Km underground pipeline and two Hydel power stations each 200 MW.

x. **Land requirement:**

Non-Forest land = 16885 Ha
Forest Land =7179 Ha
Total =24064 Ha

xi. **Water requirement:** 1750.70 KLD

xii. **Project Cost:** The estimated project cost is Rs.81,900 Crores as per PFR.

xiii. **Project Benefits:**

1. Provides Drinking Water to 80 Lakh People.
2. The project is intended to create a new ayacut of 3.00 Lakh Ha
3. To stabilize an ayacut of 9.14 Lakh Ha.
4. Supply of 20TMC water to the industrial uses.
5. Developing Hydel power of 400 MW.

xiv. **Environmental Sensitive area:** The underground tunnel (19.50 Km) of the project passes through Nagarjuna Sagar Srisailam tiger reserve.

xv. **Alternative Studies:**

Segment1:

- Alternative-1: Lifting water from Polavaram Dam and transfer water through a new flood flow canal, which involves about 300 MW of power
- Alternative -2:Widening of existing RMC duly increasing it's carrying capacity to 1005 Cumecs, which mandates the demolishing of most of the existing structures (255 Nos) including laid CC lining.
- Alternative-3: Construct a New parallel Canal along the RMC with a capacity of 510 Cumecs which run adjacent to the RMC.
- Alternative-4:Another option of crossing Krishna River by means of an aqueduct is also critically examined but found unviable, because of construction of a 8.50 Km Tunnel in the Kondapalli Hill range and other technical intricacies involved apart from extra cost of about Rs. 8000 Cr.

  After weighing all the pros and cons of the above three alternatives, Alternative-3 is found techno economically viable & better choice from environmental angle, as flood water joins river Krishna by gravity **without any lift and with minimum interference of existing infrastructure.**

Segment 2:

- Two alternatives are examined before water is let out into Bollapalli reservoir,
- Alternative1: Through a tunnel of 1.20 Km length
- Alternative2 :Without a tunnel but through an underground pipe line

  Alternative-2 is chosen to avoid tunnel besides having other advantages

Segment 3:

- *Alternative-1*: Crossing Nallamala hill range through a Tunnel of 34 Km length.
- As the tunnel passing through 'Tiger Reserve', construction with Tunnel Boring Machines (TBM) to achieve zero ecological disturbances for Tiger and other wildlife population living there.
- *Alternative-2:* Crossing Nallamala hill range reducing TBM tunnel length to 19.50 km.
- Breaking the tunnel immediate after the Tiger reserve boundary, and emptying into existing Siddapuram tank, thereby limiting the TBM tunnel length to 19.50 Km. Before that, a storage is created to meet the required elevation to negotiate with Siddapuram tank FTL.
- Alternative -2 is a better choice from environmental angle and due care is taken that the entry & exit points of tunnel are located outside the Tiger zone area.

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

Solid Waste from labor camps -2567 TPA
Muck from tunnel excavation -4759871 Cum
Muck from Canal excavation: 375708051 Cum

xvii. The salient features of the project are as under:

1. Project Details:

Name of the Proposal	Polavaram Banakacherla Link Project (PBLP)
Location (Including coordinates)	Linear project encompassing 8 districts of Andhra Pradesh Canal take off Point Coordinate: 17°15'10.54"N 81°37'7.32"E Banakacherla Regulator: 15°50'16.85"N 78°31'11.60"E
Inter- state issue involved	No
Seismic zone	II/III as per seismic zonation map of India

2. Category Details:

Category of the project	1(c)
Provisions	--
Capacity / Cultural command area (CCA)	3 Lakh Ha
Attracts the General Conditions (Yes/No)	Yes, Due to alignment (underground Tunnel) passage through the Nagarjuna Sagar Srisailam tiger reserve
Additional information (if any)	Nil

3. Electricity Generation Capacity:

Powerhouse Installed Capacity	400 MW (2 X 200 MW)
Generation of Electricity Annually-No of Units	5760 MU
Additional information (if any)	60% operation is considered

4. ToR/EC Details

Cost of project	Rs. 81, 900 Crores
Total area of Project	
Height of Dam from River Bed (EL)	79.00 m
Length of Tunnel/Channel	26.10 Kms (Tunnel-1= 19.50 Kms - TBM, Tunnel-2= 6.60 Kms - Conventional)
Details of Submergence area	Bollapalle reservoir -15245.00 Ha Yeguvacherlopalli – 625.80 Ha
Types of Waste and quantity of generation during construction/ Operation	Solid Waste from labor camps -2567 TPA Muck from tunnel excavation -4759871 cum Muck from Canal excavation: 375708051 cum
E-Flows for the Project	15%
Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then	No
a) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin.	15%
b) If not the E-Flows maintain criteria for sustaining river ecosystem.	15%
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	Details will be furnished in EIA Report

5. Land Area Break-up:

Private land	16883
Government land	
Forest Land	7179
Total Land	24062
Submergence area/Reservoir area	Bollapalle reservoir -15245 Ha Yeguvacherlopalli - 626 Ha

Additional information (if any)	-

6. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/No**	**Details of Certificate/letter/Remarks**
Reserve Forest/Protected Forest Land	Yes	Unguturu No 2 RF, Adavinekkalam RF, Koppukonda RF, Kakirala RF Nagarjuna Sagar Srisailam tiger reserve
National Park	No	
Wildlife Sanctuary	Yes	

7. Court Case Details: Nil

8. Previous EC compliance and necessary approvals:

Particulars	**Letter no. and date**
Certified EC compliance report (if applicable)	No
Status of Stage- I FC	Filing application is under process
Additional detail (If any)	Nil
Is FRA (2006) done for FC-I	--

9. Miscellaneous

Particulars	**Details**
Details of consultant	SV Enviro Labs & Research Private Limited (formerly known as SV Enviro Labs & Consultants) :B1-Block –B, IDA Auto Nagar, Visakhapatnam- 530012 NABET Certificate No: NABET/EIA/25-28/RA 0394
Project Benefits	1. Provides Drinking Water to 80 Lakh People. 2.The project is intended to create a new ayacut of 3.00 Lakh Ha 3. To stabilize an ayacut of 9.14 Lakh Ha. 4. Supply of 20TMC water to the industrial uses. 5. 400 MW power generation.

Status of other statutory clearances	Shall be obtained
R&R details	Studies Under Process
Additional detail (If any)	Nil

33.1.3 The EAC during deliberations noted the following:

The Expert Appraisal Committee (EAC) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR for conducting EIA/EMP and Public hearing for Polavaram Banakacherla Link Project (PBLP) with 300000 Ha CCA and 400 MW in an area of 24064 Ha in Sub district Rajupalem, Pedavegi, Amaravathi, etc., District East Godavari, West Godavari, Eluru, Krishna, NTR, Palnadu, Prakasam, Nandyala by M/s Water Resource Department, Government of Andhra Pradesh, Vijayawada.

The project/activity falls under Category A of item 1(c), 'River Valley Projects,' as per the Schedule of the Environmental Impact Assessment Notification, 2006, and requires appraisal at the central level by the sectoral EAC in the Ministry.

The projected benefits of the Polavaram Banakacherla Link Project include provision of drinking water to approximately 80 lakh people, creation of a new irrigation ayacut of 3.00 lakh hectares, stabilization of an existing ayacut of 9.14 lakh hectares, supply of 20 TMC of water for industrial use, and development of 400 MW of hydropower generation capacity.

The EAC noted that the proposed scheme aims to divert floodwaters from the Godavari basin (Polavaram Dam) to the water-deficit basins within the State. The EAC further observed that Environmental Clearance (EC) for the Indira Sagar Polavaram Multipurpose Project on the Godavari River, located at Polavaram in Andhra Pradesh, was granted by the Ministry on 25th January 2005. However, due to submergence-related issues in the States of Odisha and Chhattisgarh, the matter remains sub-judice.

Accordingly, the Committee recommended that the PP should comprehensively assess the availability of floodwaters in consultation with the Central Water Commission (CWC). Furthermore, the EAC noted that several representations have been received via email, alleging that the proposed scheme may be in violation of the Godavari Water Disputes Tribunal Award, 1980. In view of this, it is imperative that the PP should approach Central Water Commission (CWC) for examining the inter-state issues and granting necessary clearance/permission before submitting the proposal for framing the TOR for conducting EIA study.

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

Agenda Item No. 33.2

Kandhaura Pumped Storage Project (1680 MW) in an area of 584.57 Ha in Village Sasnai, Markuri & Cherue, Sub District Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited – Amendment in Terms of Reference (TOR) – reg.

[Proposal No. IA/UP/RIV/488779/2025; F. No. J-12011/62/2023-IA.I (R)]

33.2.1 The proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Kandhaura Pumped Storage Project (1680 MW) in an area of 584.57Ha in Village Sasnai, Markuri & Cherue, Sub District Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited.

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

i. Proposed Pumped Storage Project (PSP) is Off-Stream Closed Loop pumped storage development, proposed with an installed capacity of 1680MW/10668.00 MWH. The Project comprises of development of upper & lower reservoirs with a gross storage capacity of 15.16 MCM (0.535 TMC) & 17.19 MCM (0.607 TMC) respectively, out of which upper reservoir to be constructed with maximum dam height of 48.00 m (from deepest bed level) to create the desired storage capacity while the lower reservoir will have maximum height of 34.32 m (from deepest bed level) constructed at the downhill.

ii. The scheme of operation for the project is with 6.35 Hours of peak hour generation per day and 7.22 Hours for pumping back the water to the upper reservoir. Water will be used cyclically for energy storage and discharge. Evaporation losses if any will be recouped periodically from its self-catchment or Sone River.

iii. The proposal is for amendment in the Terms of Reference granted by the Ministry vide File No: J-12011/62/2023-IA.I(R) dated on 16.04.2024 which was further amended vide TOR Identification No. TO24A0000UP5301547A dated 21.10.2024 for the project "Proposed Kandhaura Pumped Storage Project (1680 MW) at Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh in favour of M/s. JSW Energy PSP Six Limited"

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

SN	Description	Reference (as per Para of ToR issued by MoEF&CC dated 21.10.2024)	Existing details (as per ToR dated 21.10.2024)	Proposed/ Amendment	Reason for Amendment in ToR
1.	Total area of the Project and its breakup.	➢ Subject & Para 1 of Page 1; ➢ Para 4 & 7 of Page 2; ➢ Amendment log at Page 16, 17 & 18, of Annexure 2	584.57 Ha (Forest land: 493.51 Ha, Govt. Land: 14.14 Ha, Private land: 76.92 Ha)	569.707 Ha (Forest land: 493.51 Ha, Govt. Land: 11.66 Ha, Private land: 64.537 Ha)	Following the Minutes of the Meeting held under the chairmanship of the Chairperson, CEA, dated 02.04.2025, the Hydel Civil Design (HCD) Directorate of the Central Water Commission (CWC) proposed the revision of layout to reduce the cut height of the surface powerhouse. As a result, the design features have been updated to align with the modified HCD aspects.
2.	Muck Disposal Area	Amendment log at Page 17 of Annexure 2	54.88 Ha (Upper Muck Dumping Site: 20.81 ha; Lower Muck Dumping site: 34.07 ha)	50.475 Ha (Upper Muck Dumping Site: 18.446 ha; Lower Muck Dumping site: 32.029 ha)	
3.	Total Submergence Area	Amendment log at Page 17 of Annexure 2	Total Submergence Area: 179.92Ha 1. Forest Land: 176.52 Ha 2. Private Land: 3.41 Ha 3. Government Land: 0.00 Ha	Total Submergence Area: 178.67 ha 1. Forest Land: 177.695Ha 2. Private Land: 0.015 Ha 3. Government Land: 0.96 Ha	
4.	Water Requirement	Amendment log at Page 16 of Annexure 2	12.41 MCM	13.16 MCM	The water requirement has been revised as per reassessment of technical parameters.
5.	Gross Storage Capacity of Upper &	Amendment log at Page 19 of Annexure 2	The Project comprises of upper & lower reservoirs with a	The Project comprises of upper & lower reservoirs with a	The storage requirements have been revised as per the Hydel Civil

SN	Description	Reference (as per Para of ToR issued by MoEF&CC dated 21.10.2024)	Existing details (as per ToR dated 21.10.2024)	Proposed/ Amendment	Reason for Amendment in ToR
	Lower Reservoir		gross storage capacity of 13.30 MCM & 15.40 MCM respectively.	gross storage capacity of 15.16 MCM & 17.19 MCM respectively.	Design (HCD aspects).
6.	Maximum dam ht. of Upper & Lower Reservoir	Amendment log at Page 19 of Annexure 2	Upper reservoir: 35 m Lower reservoir: 34.20 m	Upper reservoir: 48 m Lower reservoir: 34.32 m	The configuration of Dam have been revised as per the Hydel Civil Design (HCD aspects).
7.	Generation of Electricity Annually	Amendment log at Page 18 of Annexure 2	3542.62 MU Energy generation	3679.71 MU Energy generation	The Generation of Electricity has been revised in accordance with reassessment of technical parameters.
8.	Scheme of operation	Amendment log at Page 19 of Annexure 2	The scheme of operation for the project is with 6.08 Hours of peak power per day and 6.86 Hours for pumping back of the water to the upper reservoir.	The scheme of operation for the project is with 6.35 Hours of peak power per day and 7.22 Hours for pumping back of the water to the upper reservoir.	The Scheme of operation has been revised in accordance with reassessment of technical parameters.
9.	Coordinates of the Project site	Amendment log at Page 16 of Annexure 2	P1: North (24°31'37.46"N 83°7'53.65"E) P2: West (24°31'11.32"N 83° 7'26.71"E)	P1: North (24°31'37.46"N 83°7'53.65"E) P2: West (24°31'11.32"N 83° 7'26.71"E)	In accordance with the Updated Layout.

SN	Description	Reference (as per Para of ToR issued by MoEF&CC dated 21.10.2024)	Existing details (as per ToR dated 21.10.2024)	Proposed/ Amendment	Reason for Amendment in ToR
			P3: East (24°30'2.57"N 83°11'44.56"E) P4: South (24°28'13.08"N 83°10'1.14"E)	P3: East (24°30'2.57"N 83°11'44.56"E) P4: South (24°28'13.08"N 83°10'1.14"E)	

iv. The salient features of the project are as follows:

1. EAC Meeting Details:

EAC meeting/s	33rd Meeting of Expert Appraisal Committee (River Valley & Hydro-Electric Projects) for Amendment in ToR.
Date of Meeting/s	17.06.2025
Date of earlier EAC meetings	Earlier 5th meeting of EAC (River Valley & Hydro-Electric Projects) held on 19.12.2023 for ToR Appraisal and Reconsidered again in the 8th meeting held on 28.02.2024 & 9th EAC meeting held on 20.03.2024. Accordingly, 14th meeting of EAC (River Valley & Hydro-Electric Projects) for Amendment in ToR held on 31.08.2024.

2. Project details:

Name of the Proposal	Proposed Kandhaura Pumped Storage Project (1680 MW) at Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue, Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh
Proposal No.	IA/UP/RIV/488779/2025
Location (Including Coordinates)	At Village: Sashnai, Taluka: Obra and Villages: Markuri & Cherue Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh

Piller No.	Direction	Latitude	Longitude
P1	North	24°31'37.46"N	83°7'53.65"E
P2	West	24°31'11.32"N	83° 7'26.71"E
P3	East	24°30'2.57"N	83°11'44.56”E

	P4	South	24°28'13.08"N	83°10'1.14"E
Company's Name	M/s. JSW Energy PSP Six Limited			
CIN no. of Company/user agency	U35101MH2023PLC403659			
Accredited Consultant, Validity and certificate no.	J.M. EnviroNet Pvt. Ltd. Registered EIA Consultant by NABET (QCI) (Certificate no.: - NABET/EIA/2326/RA 0308, Valid till August 07, 2026)			
Project location (Coordinates /River/ Reservoir)	**Piller No.**	**Direction**	**Latitude**	**Longitude**
	P1	North	24°31'37.46"N	83°7'53.65"E
	P2	West	24°31'11.32"N	83° 7'26.71"E
	P3	East	24°30'2.57"N	83°11'44.56"E
	P4	South	24°28'13.08"N	83°10'1.14"E
Inter- state issue involved	No			

3. Category details:

Category of the project	**A**
Capacity / Cultural command area (CCA)	1680 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	**NA**

4. ToR/ Details:

Cost of project	Rs. 11278.55 Crore (Total Hard Cost: Rs. 9942.29 Cr. and IDC: Rs. 1336.26 Cr.)
Total area of Project	569.707 ha
Date of online application for amendment in ToR / EC was	Amendment in ToR: 05.06.2025
Details of CTE/CTO	This is the proposal for Amendment in ToR for Greenfield Project
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	2500 Nos.

5. Electricity generation capacity:

Powerhouse Installed Capacity	1680 MW
Generation of Electricity Annually	3679.71 MU
No. of Units	7 No's. (5 X 280 MW & 2 X 140 MW)

6. Detail reason for amendment in ToR/EC:

Following the Minutes of the Meeting held under the chairmanship of the Chairperson, CEA, dated 02.04.2025, the Hydel Civil Design (HCD) Directorate of the Central Water Commission (CWC) proposed the revision of layout to reduce the cut height of the surface powerhouse. As a result, project layout has been re-evaluated w.r.t. area & layout. Accordingly, alignment of water conductor system and location of powerhouse has been changed resulting in reduction in project area from 584.57 Ha to 569.707 Ha.

33.2.3 The EAC during deliberations noted the following:

The proposal is for grant of amendment in Terms of References (TOR) to the project for Kandhaura Pumped Storage Project (1680 MW) in an area of 584.57Ha in Village Sasnai, Markuri & Cherue, Sub District Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited.

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).

The Terms of Reference granted by the Ministry vide letter dated 16.04.2024 for the project Proposed Kandhaura Pumped Storage Project (1680 MW) at village: Sashnai,Taluka: Obra, and Villages: Markuri & Cherue, Taluka: Robertsganj, District: Sonbhadra, Uttar Pradesh in favour of M/s JSW Energy PSP Six Limited. Subequently, amendment in ToR was accorded by the Ministry on 21.10.2024.

The EAC deliberated on the request of the project proponent seeking amendments in the Terms of Reference (ToR) for the project. The Committee noted that the proposed changes primarily stem from revisions in the project layout based on the recommendations of the Central Water Commission (CWC), particularly the Hydel Civil Design (HCD) Directorate, to reduce cut heights and optimise design parameters. As a result, the total project area is revised from 584.57 Ha to 569.707 Ha, including corresponding reductions in government and private land. The muck disposal area has also been marginally reduced from 54.88 Ha to 50.475 Ha, while the submergence area has been re-assessed as 178.67 Ha, reflecting minor changes in land classification. Water requirement has been updated from 12.41 MCM to 13.16 MCM, and the gross storage capacities of the upper and lower reservoirs have increased to 15.16 MCM and 17.19

MCM, respectively. Additionally, the maximum dam height for the upper reservoir is revised from 35 m to 48 m. The estimated annual energy generation is enhanced to 3679.71 MU, and the operational hours for peak generation and pumping have also been revised. The EAC found the amendments to be justified based on technical re-assessments and optimised project design.

The project proponent has confirmed that the modified/re-aligned water conductor system does not cross, intersect, or cause any damage to natural drainage features such as nallahs, rivers, reservoirs, or other water bodies.

33.2.4 The EAC after examining the information submitted and detailed deliberations recommended the proposal grant of amendment in Terms of References as proposed by the PP to Kandhaura Pumped Storage Project (1680 MW) in an area of 569.707 Ha in Village Sasnai, Markuri & Cherue, Sub District Robertsganj, District Sonbhadra, Uttar Pradesh by M/s JSW Energy PSP Six Limited, under the provisions of EIA Notification, 2006 and as amended with subject to the following additional conditions:

i. All ToR points mentioned in the ToR letter dated 16.04.2024 and amendment in ToR dated 21.10.2024 shall remain unchanged.
ii. EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout.

Agenda Item No. 33.3

Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited – Amendment in Terms of Reference (TOR) – reg.

[Proposal No.IA/AR/RIV/539430/2025; F. No. J-12011/40/2009-IA-I(R)]

33.3.1 The proposal is for grant of Amendment in Terms of Reference (ToR) to the project for Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.

33.3.2 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 Kalai-II Hydro Electric Project (HEP) is a significant energy initiative situated in the picturesque Anjaw District of Arunachal Pradesh. This ambitious project aims to harness the abundant water resources of the Lohit River, a tributary of the Brahmaputra River, with a

gross head of approximately 125m positioned strategically upstream of Hutong-II HEP and downstream of Kalai-I HEP on the same river.

ii. The project is located in the vicinity of the Chingwanti bridge near Hawai Town. THDCIL has signed a Memorandum of Agreement (MoA) with Govt. of Arunachal Pradesh on 30.12.2023 for the execution of 1200 MW Kalai-II Hydroelectric Project located in Anjaw District of Arunachal Pradesh.

iii. The proposal is for amendment in the Terms of Reference granted by the Ministry vide letter dated 07.08.2024 for the project Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW located at District Anjaw, Arunachal Pradesh in favour of M/s THDC India Limited.

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

S. No.	Para of ToR issued by MoEF&CC	Details as per the ToR	To be revised/ read as	Justification/ reasons
1.	**Page 1, Subject**	Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited – Terms of Reference - reg	Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 869.3503 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited – Terms of Reference - reg.	Reduction in Land requirement due to Re-optimization of land including abandoning of Dump yard 5 falling within 100m HFL of the river and 02 nos. Project roads are now part of NHIDCL & BRO road plan.
2.	**Page 1, Para - 1**	This is in reference to your online application No. IA/AR/RIV/466561/2024 dated 10/04/2024 submitted to this Ministry for Grant of Terms of Reference to the project Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town,	This is in reference to your online application No. IA/AR/RIV/466561/2024 dated 10/04/2024 submitted to this Ministry for Grant of Terms of Reference to the project Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 869.3503 Ha located at Village Kamdi, Tehsil Hawai Town,	

		District Anjaw, Arunachal Pradesh by M/s THDC India Limited, under the provision of the EIA Notification 2006.	District Anjaw, Arunachal Pradesh by M/s THDC India Limited, under the provision of the EIA Notification 2006.	
3.	**Page 2, Point 5.**	Subsequently, the proposal was further considered by EAC in its 11th Meeting dated 27.06.2024. The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.), additional details and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located in Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.	Subsequently, the proposal was further considered by EAC in its 11th Meeting dated 27.06.2024. The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.), additional details and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 869.3503 Ha located in Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.	
4.	**Page 19, The details of the project: - Point (iii)**	**Land requirement:**1100 Ha (as per DPR)	**Land requirement:** 869.3503Ha	
5.	**Page 20, ToR Details:**	**Total area of Project:** 1100 Ha (As per DPR)	**Total area of Project:** 869.3503Ha	
6.	**Page 22, Land Area Breakup**	**Land required for project components:** 1100 Ha (As per DPR)	**Land required for project components:** 869.3503Ha	

v. The salient features of the project are as follows:

1. Project Details:

Name of the Proposal	Proposal for seeking Amendment in Terms of Reference (ToR) for Kalai-II (1200 MW) Hydroelectric Project located in District Anjaw of Arunachal Pradesh by M/s THDC India Limited
Proposal No.	IA/AR/RIV/539430/2025
Location (Including Coordinates)	Anjaw District, Arunachal Pradesh Lat: 27054' 20" Long 96048'16"
Company's Name	THDC India LImited
CIN no. of Company/user agency	U45203UR1988GOI009822
Accredited Consultant, Validity and certificate no.	NABET/EIA/24-27/RA 0360
Project location (Coordinates /River/ Reservoir)	Anjaw District, Arunachal Pradesh Lat: 27054' 20" Long 96048'16
Inter- state issue involved	No

2. ToR Details:

Earlier EC Proposal No.	J-12011/40/2009-IA-I(R)
Earlier EAC meeting date	27.06.2024
ToR Letter No.	J-12011/40/2009-IA-I(R)
ToR grant Date	07.08.2024
Cost of project	13758.64 Crore
Total area of Project	869.3503 Ha
Date of online application for amendment in ToR was	13.06.2025
Details of CTE/CTO	NA
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	NA

3. Electricity generation capacity:

Powerhouse Installed Capacity	1200 MW
Generation of Electricity Annually	4852.95 GWh
No. of Units	6*190 MW + 1*60 MW (07 units)

4. Detail reason for amendment in ToR:

S No.	Total Land Requirement as per DPR – 1100 Ha	Reduction of land from 1100 Ha –
1	963.764 Ha – Forest Land identified by earlier developer	136.236 Ha – Not required
2	136.236 Ha – Under identification by earlier developer	8.6064 Ha – Dumpyard No. 5 falling within 100m from HFL of the river has been abandoned
3		49.3056 Ha – Alternate Road proposed on left bank of Lohit River from Chunyu Bridge to Hawai Town is under construction by NHIDCL in its own plan.
4		36.5017 Ha – Road proposed on right bank of Lohit River from Chunyu Bridge to Samdul village is under construction by BRO in its own plan.
230.6497 Ha – Total reduction in Land requirement.		
Present Requirement – 869.3503 Ha		

5. Court case details: Nil

33.3.3 The EAC during deliberations noted the following:

The proposal is for grant of amendment in Terms of References (TOR) to the project for Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.

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).

The Terms of Reference granted by the Ministry vide letter dated 07.08.2024 for the project Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 1100 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh by M/s THDC India Limited.

The EAC deliberated on the request for amendment in the Terms of Reference (ToR) for the Kalai II Hydro Electric Project (1200 MW) by M/s THDC India Limited. The Committee noted that the project area is proposed to be revised from 1100 Ha to 869.3503 Ha due to re-optimization of land use, including abandonment of Dump Yard 5 falling within 100 m HFL of the river, and exclusion of two roads now covered under NHIDCL and BRO plans.

33.3.4 The EAC after examining the information submitted and detailed deliberations recommended the proposal grant of amendment in Terms of References as proposed by the PP to Kalai II Hydro Electric Project (Run-of-the-River) of 1200 MW in an area of 869.3503 Ha located at Village Kamdi, Tehsil Hawai Town, District Anjaw, Arunachal Pradesh, under the provisions of EIA Notification, 2006 and as amended with subject to the following additional conditions:

i. All ToR points mentioned in the ToR letter dated 07.08.2024 shall remain unchanged.
ii. EIA/EMP, collection of baseline data, other statuary clearance and the public hearing shall be carried out as per revised layout.

Agenda Item No. 33.4

Cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Yamuna River Basin in Uttarakhand by Indian Council of Forestry Research and Education (ICFRE), Dehradun.

The Indian Council of Forestry Research and Education (ICFRE), Dehradun along with its partner institutions made a presentation before the EAC (River Valley and Hydroelectric Projects) on the status of study report of Cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Yamuna River Basin in Uttarakhand state. The ICFRE, Dehradun informed in EAC meeting that:

Bacground

i. ICFRE in association with study partner institutions (viz. DHRE, IITR; ICAR-DCFR, Bhimtal; WII-SACON, Coimbatore) conducted and submitted draft study report to UJVNL, GoUK on 18.11.2015 and the same was presented before SEIAA & SEAC on 28.07.2016.

ii. In addition, a study Report was presented before 22nd EAC meeting held on dated 27.02.2019 for River Valley & Hydroelectric Projects of MoEF&CC, GoI, New Delhi. The EAC in its 22nd meeting observed the following and suggested to compile the information before submission of draft final report:

    a. No river cross sections have been used for quantification of E-flow. E-flow study should be carried out by using data of river cross sections downstream (d/s) of projects or other

suitable locations and after carrying out simulation analysis. Further, depth requirement for umbrella fish species should be taken for lean, non-monsoon, non lean & monsoon seasons separately. 25 cm is too less depth of water for E-flow estimation considering umbrella fish species viz., Trout and Mahaseer. The recommended Environmental Flow Rate (EFR) is required to be relooked based on the actual river cross sections, water depth requirement specific to the umbrella fish species and other downstream uses. In addition, the lower stretch of the Yamuna River is having high fish abundance, catch and the river being flat compared to middle and upper stretch of Yamuna River, would require different Environment Flow Requirement (EFR) for hydro-electric projects falling in these stretches. EFR recommendations should be based on analysis of actual data.

b. Plankton/Benthic diversity should be grouped based on zonal, Periphyton group must be included in the site of trout zones. Depth & velocity requirement for ToR sp. must be revised seasonally. Report on Phyto-diversity (algae, Lichens, bryophytes Pteridophytes, gymnosperms & angiosperms) endemism, RET species, species from CITES list based on primary and secondary data needs to be provided. Criteria for estimation of riparian distance to be maintained between projects in cascade shall be relooked by considering all relevant parameters in addition to water quality.

c. The recommendations should be specific in nature and linked with presented data and the impacts assessed. Recommendations regarding hydroelectric projects proposed to be considered/ dropped should be firmly supported with scientific data like extent of threat to habitat, migration routes, breeding sites, and other parameters etc. as per the provisions of prevailing regulations in the country. The HEPs proposed to be considered/ dropped based on their proximity to Protected Areas and ESZ should also be relooked as per above criteria.

d. Proper linking be made between data, observations vis-à-vis recommendations. The Environmental Action Plan should be specific and aimed at mitigation of the adverse impacts due to hydro-electric projects.

e. EAC noted that the river basin study should not be limited to a particular State, it has to consider the complete basin or sub-basin. Thus, the hydroelectric projects located in the State of Himachal Pradesh in the Yamuna river basin should be included in the CIA & CC study. Hence, all the hydro-electric projects in Yamuna river basin up to Paonta Sahib in Sirmour district of Himachal Pradesh should be included in the study.

f. To that end, a proposal detailing revised scope of work, Terms of Reference, time frame, cost estimates, deliverables is required to be invited for completing the study in Yamuna river basin as above.

g. The total number of hydro-electric projects (operational, under construction and proposed) to be considered in the RBS shall be finalized and frozen in consultation with the both the state governments. No other HEPs shall be considered once the RBS has been finalized.

iii. Accordingly, ICFRE, Dehradun was requested by MoEF & CC vide letter dated 24.06.2019 to submit a proposal detailing revised scope of work, ToR, time frame, cost estimates deliverables for additional study of Hydroelectric projects in Yamuna River basin falling in Himachal Pradesh.

iv. In this context, Directorate of Energy (DoE), Govt. of Himachal Pradesh (GoHP) was requested by the ICFRE, Dehradun vide letter dated 03.07.2019 to provide details of all hydroelectric projects falling in Himachal Pradesh part of Yamuna river basin. The UJVNL Uttarakhand was also requested vide letter dated 04.07.2019 to share updated details of hydroelectric projects in Uttarakhand part of Yamuna river basin.

v. A list of about 94 HEPs falling in Yamuna river basin in the part of Himachal Pradesh was received from HIMURJA through DoE, GoHP vide email dated 17.02.2020 to CIFRE, Dehradun.

vi. Proposal for CEIA Study of Hydroelectric Projects in Yamuna River Basin including Himachal Pradesh part (i.e. up to Paonta Sahib in Sirmour district) was submitted to the Ministry by ICFRE letter dated 10.12.2020.

vii. CIA&CCS proposal was presented and deliberated in 41st EAC (RV&HEP) of MoEF&CC held on 15.02.2023. The EAC in its meeting dated 05.03.2023 suggested additional ToR along with ToR as proposed by ICFRE.

viii. In the EAC (reconstituted) 1st meeting held during 17th - 18th October, 2023, the EAC desired that a comprehensive report be submitted based on scientific, technological, biological, agro-forestry, ecological and socio-impact assessment and implications be submitted. The same report may pave way for other river basin studies and for future and planning of river basin management and sustainable development. The committee also suggested to expedite the collection of River X- section data from concerned authority and finalize the draft report on Cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Yamuna River Basin in Uttarakhand at earliest. EAC members also suggested for one season base line data to be collected to finalize the draft report on Cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Yamuna River Basin in Uttarakhand.

ix. A revised comprehensive proposal incorporating HEPs in Yamuna river basin falling in Uttarakhand and Himachal Pradesh part was submitted to the Ministry by ICFRE vide email dated 18.03.2024. Subsequently, the Ministry vide its email dated 29.03.2024 advised to the ICFRE to segregate the proposed budget/expenditure and baseline studies with respect to both the states separately and resubmit the proposal for consideration by the Ministry.

- Proposal for CIA&CC Study of Hydroelectric Projects in Yamuna River Basin in Uttarakhand submitted to the Ministry vide letter dated 22.04.2024.

- Cumulative Impact Assessment (CIA) and Carrying Capacity (CC) Study of Hydroelectric Projects in Yamuna River Basin falling in Himachal Pradesh (up to Paonta Sahib in Sirmour district) submitted to the Ministry vide letter dated 22.04.2024.

Deliberations in 12th EAC meeting held on 18.07.2024 to 19.07.2024

x. In light of submission by the ICFRE, the desired information was considered by the EAC in its 12th meeting held on from 18.07.2024 to 19.07.2024 wherein its was recommended that there will be no additional study wrt. CIA & CC Study of Yamuna River basin in Uttarakhand is required. The EAC also suggested that the additional CIA&CCS study of Yamuna river basin in Himachal Pradesh as observed by the EAC in its 22nd meeting held on 27.02.2019 may be decided after submission of the CIA&CCS report on whatever have been accomplished. The earlier report need to be revised in the light of suggestions from 22nd EAC (RV& HEP) of MoEF&CC held on 27.02.2019 and submitted to the Ministry. During the deliberations ICFRE informed that they have received River X- section data of the Uttarakhand region from the State Government. Further, UJVNL stated, that in response to the query on delay in submission of data it was informed that Pre-Feasibility Reports were prepared for the Techno- Economic Viable projects in the basin considering the various aspects such as altitude (below snow line), riparian distance between two cascade projects, proximity to protected areas/ National Part/ Wild life sanctuary /ESZ etc. The total number of HEPs proposed in the basin are now 38 instead of 46 HEPs proposed in the earlier draft report.

xi. Compliance to Observations/ Comments of 22nd EAC (RV&HEP) MoEF&CC held on 27.02.2019 w.r.t. CIA&CCS of HEPs in Yamuna River basin in Uttarakhand are as under:

SN	Observations/ Comments of 22nd EAC (RV&HEP) MoEF&CC	Compliance
1	No river cross sections have been used for quantification of E-flow. E-flow study should be carried out by using data of river cross sections d/s of projects or other suitable locations and after carrying out simulation analysis. Further, depth requirement for umbrella fish species should be taken for lean, non-monsoon non lean & monsoon seasons separately. 25 cm is too less depth of water for E-flow estimation considering umbrella fish species viz., Trout and Mahseer. The recommended	• E-Flow has been calculated using actual river cross section and water depth requirement of umbrella fish species data. Monthly EFR of the HEPs has been provided in Table 5.57 of Chapter 5, Section 5.4.4 at page no. 445-453. • HEP wise recommended Environmental Flow Rate (EFR) for Lean, Monsoon, Non Lean and Non Monsoon seasons has been provided in

	Environmental Flow Rate (EFR) is required to be relooked based on the actual river cross sections, water depth requirement specific to the umbrella fish species and other downstream uses. In addition, the lower stretch of the Yamuna River is having high fish abundance, catch and the river being flat compared to middle and upper stretch of Yamuna River, would require different EFR for hydroelectric projects falling in these stretches. EFR recommendations should be based on analysis of actual data.	Table 5.58 of Chapter 5, Section 5.4.4 at page no. 454-455.
2	Plankton/benthic diversity should be grouped based on zonal, Periphyton group must be included in the site of trout zones. Depth & velocity requirement for Tor sp. must be revised seasonally.	▪ Zone wise planktonic and benthic diversity has been grouped and presented in Chapter 5, Table 5.37 page no. 390 and Table 5.43, page no. 395 respectively. ▪ Periphyton in the trout zone (i.e. Snow trout) has been presented in Chapter 5 under section 5.3.5.2 (e) page no.398. ▪ Depth & velocity requirement for aquatic life has been given in Table 5.54 & 5.55 Chapter-5 page 425-428.
3	Report on phyto-diversity (algae, lichens, bryophytes pteridophytes, gymnosperms & angiosperms) endemism, RET species, species from CITES list based on primary and secondary data needs to be provided.	▪ Phyto-diversity (algae, lichens, bryophytes pteridophytes, gymnosperms & angiosperms) provided in Section 5.1.7 and Table 1-24 of Annexure- 5.1a in Vol II of the report. ▪ Endemism provided in Chapter 5, Table 5.15 of the report. ▪ RET species, species from CITES list based on primary and secondary data provided in Vol II, Annexure- 5.1a Table 17.

4	Criteria for estimation of riparian distance to be maintained between projects in cascade shall be relooked by considering all relevant parameters in addition to water quality.	▪ Riparian distance to be maintained between projects in cascade given in Chapter 5, Section 5.5.7 of the report.
5	The recommendations should be specific in nature and linked with presented data and the impacts assessed.	• Specific recommendations supported with scientific data and impacts assessed given in Chapter-8, Section 8.1 of the report.
6	Recommendations regarding hydroelectric projects proposed to be considered/ dropped should be firmly supported with scientific data like extent of threat to habitat, migration routes, breeding sites, and other parameters etc. as per the provisions of prevailing regulations in the country. The HEPs proposed to be considered/ dropped based on their proximity to Protected Areas and ESZ should also be relooked as per above criteria.	
7	Proper linking be made between data, observations vis-a-vis recommendations. The Environmental Action Plan should be specific and aimed at mitigation of the adverse impacts due to hydroelectric projects.	• Environmental Action Plan aimed at mitigation of the adverse impacts due to hydroelectric projects is given in Chapter 9 of the report.

xii. The basin study has made following specific recommedations:

SPECIFIC RECOMMENDATIONS

[A] Aquatic Ecosystem

Two major types of migratory species, *viz*. Snow Trout (*Schizothorax* spp.) and Mahseer (*Tor* spp.), are found in the Yamuna basin. The Snow Trout, a short-distance migrant, is the dominant species in the middle zones of the Yamuna and Tons. The Mahseer is migratory in nature. It migrates up to Barkot and mostly resides in the side streams, breeding in tributaries such as Kamla Gad, Barnigad, Bhadri Gad and Aglar Gad. Juveniles and larvae of fishes at different life stages were observed in these tributaries. The fish probably migrates downwards, up to the Vyasi, when the temperature drops at the onset of winter (October). Following are the recommendations for sustenance of aquatic life:

- *In situ* conservation programmes must be initiated for native fish species in places such as Bhadri gad, Gadu Gad, Kedar Ganga, Aglar Gad and Rupin to maintain the germplasm and fish diversity.

- The habitat ecology of the streams should be studied for at least 5 years initially after each proposed project is commissioned and begins operation to assess any significant changes in the river morphology, hydrobiology and ichthyofauna.

- Hatcheries be established or existing ones upgraded/ strengthened within the study area in consultation with the State Fisheries Department and national institutes (scientific and technical input) for production of seeds of important cold-water fishes.

- Wild fish stock must be collected from the Yamuna basin and brood stock shall be maintained at hatchery site.

- Annual ranching of Snow Trout/Mahseer fingerlings in streams (100 fingerlings/km of average size 1–3 cm) must be made to replenish the fish stocks.

- Fish ladders/fish passes are a suitable means of effecting upstream and downstream connectivity to facilitate the migration of fish; however, they must be installed in a site- and species–specific manner. A separate study may be conducted for installing these devices. An expert group comprising fisheries experts and engineers/hydrologists should make recommendations according to the design, type and size of each HEP.

- The mitigation measures suggested by each HEP in its EMP should be effectively implemented and followed strictly. Reservoirs planned must be stocked annually with indigenous fishes to develop fisheries.

- Aquaculture of Indian and exotic carps and trout must be developed according to the altitudinal gradient and temperature.

- An integrated fish conservation and rehabilitation programme be formulated that involves all the project developers, so that implementation is effective and adverse impacts are mitigated.

- Building hydroelectric projects in a cascading manner where long stretches of regular flows is affected should be avoided to protect natural aquatic ecosystem process.

[B] Environmental Flow Rate (EFR)

EFR for Lean, Non Lean Non Monsoon and Monsoon seasons based on river x sections, water depth and velocity requirements of aquatic life including flag ship species like Mahseer and Snow Trout for different HEPs in Yamuna & Tons River Basin in Uttarakhand is given as below:

S. No.	River/ Tributaries	HEP (Capacity)	EFR Range		
			Lean	Non-Lean	Monsoon
1	Yamuna	Janki Chatti (0.20MW)	0.17	0.23 – 0.55	0.31 – 0.67
2		Hanuman Chatti-Saina Chatti (40MW)	1.40	2.01 – 4.88	2.71 – 5.87
3		Saina Chatti-Kuthnaur (24MW)	1.46	2.39 – 5.80	3.22 – 6.98
4		Gangnani (8MW)	1.54	3.35 – 9.05	4.73 – 11.20
5		Sauli-Barnigad (23.25MW)	3.32	3.32 – 8.26	4.30 – 23.99

S. No.	River/ Tributaries	HEP (Capacity)	EFR Range		
			Lean	Non-Lean	Monsoon
6		Barnigad (22.8MW)	3.45	3.45 – 8.92	4.45 – 26.63
7		Barnigad-Naingaon (10MW)	3.61	3.61 – 9.76	4.64 – 30.04
8		Lakhwar (300MW)	3.64	3.64 – 11.91	5.31 – 38.48
9		Vyasi (120MW)	6.11	6.11 – 12.11	6.11 – 38.85
10		Dakpathar Barrage	11.40[3]	11.40 – 34.98[3]	17.04 – 129.88[1]
11		Dhakrani (33.75MW)	Canal based project in cascade		
12		Dhalipur (51 MW)	Canal based project in cascade		
13		Kulhal (30 MW)	Canal based project in cascade		
15	Tons	Taluka Sankri (140MW)	0.66	0.86 – 2.84	1.30 – 5.85
16		Sidri Deori (60MW)	1.00	1.36 – 4.50	2.06 – 9.27
17		Naitwar Mori (60MW)	2.88	3.76 – 12.47	3.70 – 25.66
18		Mori Hanol (63MW)	2.90	3.90 – 12.93	5.91 – 21.61
19		Hanol Tiuni (60MW)	2.93	4.57 – 15.15	6.93 – 31.18
20		Tiuni Plasu (72MW)	4.10	5.65 – 20.52	10.33 – 59.57
21		Kishau Dam (660MW)	5.14	8.51 – 25.14	16.42 – 71.32
22		Chibro (240MW)	5.20	8.76 – 24.68	15.40 – 70.18
23		Khodri (120MW)	Cascade of Chibro		
24	Yamuna tributaries	Asnor Gad (0.50MW)	0.02	0.03 – 0.05	0.03 – 0.19
25		Hanuman Ganga (4.95MW)	0.33	0.45 – 0.85	0.51 – 3.13
26		Pali Gad (0.30MW)	0.10	0.2 – 0.3	0.23 – 0.59
27		Badiyar (4.90MW)	1.03	1.03 – 1.03	1.03 – 1.81
28		Garsad Khad (4.50MW)	0.07	0.29 – 0.44	0.35 – 0.87
29		Riknal Khad (4MW)	0.08	0.08 – 0.43	0.11 – 1.76
30		Bhadri Gad (24MW)	0.26	0.35 – 0.66	0.40 – 2.46
31		Tewa (3.50MW)	0.16	0.16 - 0.16	0.16 – 0.41
32		Bangseel (3.50MW)	0.40	0.40	0.40
33		Thatyur (4MW)	0.25	0.25 – 0.28	0.25 – 1.04
34		Langrasu (3MW)	1.43	1.43 – 1.80	1.43 – 6.68
35		Rayat (6MW)	0.40	0.40 – 0.48	0.40 – 0.59
36		Ringa1i (1MW)	0.12	0.12	0.12 – 0.22
37		Amlawa (8MW)	0.04	0.23 – 0.57	0.44 – 1.89

[1] Sum of release from Vyasi and Chibro. However, this requires a careful consideration as the discharge in both streams may be different at times.

S. No.	River/ Tributaries	HEP (Capacity)	EFR Range		
			Lean	Non-Lean	Monsoon
38	Tons tributaries	Kashla (14MW)	0.20	0.34 – 1.13	0.52 – 2.23
39		Obra (12MW)	0.12	0.21 – 0.69	0.32 – 1.42
40		Jakhol Sankri (44MW)	0.33	1.67 – 2.21	1.01 – 4.54
41		laster Gad (0.20MW)	0.36	0.62 – 2.04	0.93 – 4.20
42		Rupin-II (10MW)	0.99	0.99 – 4.24	1.94 – 8.73
43		Rupin-III (3MW)	1.00	1.30	1.96 – 8.85
44		Rupin-IV (10 MW)	1.72	1.72 – 4.32	1.98 – 8.90
45		Rupin-V (24MW)	1.78	1.79 – 4.36	2.00 – 8.98
46		Arakot Tiuni (81MW)	1.09	1.91 – 5.84	4.29 – 9.23
47		Galogi (3MW)	0.03	0.04 – 0.11	0.04 – 0.10
48		Purkul (1MW)	0.14	0.14 – 0.27	0.14 – 0.25

[C] Riparian Distance to Be Maintained Between Two Cascade Projects

Based on dissolved oxygen (DO) and BOD as criteria for the distance to be maintained between two consecutive projects modification in the head where ever possible with revised installed capacity is proposed as under:

Maintaining the distance between two consecutive HEPs

S. N.	HEP	Name of River/ Tributary	Installed capacity (MW)	HEAD (m)	TWL (m)	FRL (m)	Required Elevation Difference From U/S TWL and FRL (m)	Modified Head (m)	Revised installed capacity (MW)	Remarks
1	Mori Hanol	Tons	64	108	1057	1165	5	103	60	Reduction is possible as Under development site
2	Hanol Tiuni	Tons	60	103	927	924	5	98	54	Reduction is possible as Under development site
3	Tuini plasu	Tons	72	67	857	860	5	65	64	Reduction is possible as Under development site
4	Kishu dam	Tons	600	186	644	644	5	181	584	Possibility of reduction is low as project is Under construction stage.
5	Chibro	Tons	240	123	521	521	5	118	230	Reduction is not possible being a commissioned project

6	Rupin -IV	Rupin	10	41	1478	1476	10	31	8	Reduction is possible as Under development site
Total			**1046**						**1000**	

[D] Hydroelectric Projects Recommended to be Restricted

The entire landscape of protected area of GPVNP and GPVWLS drained by the Rupin and Supin rivers is an important wildlife habitat of conservational importance. It is rich in diverse flora (species specific to 14/C1 a West Himalayan Sub-alpine Birch/Fir Forest cover with an area of 3.11 km^2; 13/1S1 Hippophae/Myricaria Scrub Forest type with an area of 0.04 km^2; and 15/C1 Birch/Rhododendron Scrub Forest with an area of 0.61 km^2) and fauna including conservation concern/ endemic and sensitive faunal species such as Snow Leopard, Himalayan Bear, Serow etc.

Hence in the best interest of conservation of wildlife and its habitats in the Govind Pashu Vihar WLS, the following nine projects may be restricted. If absolutely required, may be pursued with extreme caution using only emerging lowest impact RoR project technologies such as 'Trench technique' without obstructing the natural course of river and following a comprehensive EIA study for all such projects.

SN	HEPs	Remarks
1	Jakhol Sankri (35 MW)	Under Development HEPs within 5km radius of Eco Sensitive Zone of Govind Pashu Vihar WLS, which is habitat for IWPA Sch. I faunal species such as Snow Leopard, Himalayan Bear, Serow etc.
2	Kashla (14 MW)	
3	Obra (12 MW)	
4	Rupin –II (10 MW)	
5	Rupin –III (3 MW)	
6	Rupin –IV (10 MW)	
7	Rupin –V (24 MW)	
8	Sidri Deori (60 MW)	
9	Taluka Sankri (140 MW)	

In the Yamuna river basin fish occurrence is occasional to frequent including Mahseer and Snow Trout which mostly breeds in the side streams mainly near the confluence of different tributaries. Among such khads/ tributaries such as Bhadri gad, Gadu gad, Kedar ganga, Aglar gad have considerable presence of fish fauna of different life stages which provides opportunity for the germplasm conservation in the unregulated areas of the stream/khads. *In situ* conservation programmes must be initiated for native fish species in places such as Bhadri gad, Gadu Gad, Kedar Ganga, Aglar Gad and Rupin to maintain the germplasm and fish diversity.

Accordingly, the revised report including complying to the observations of 22nd EAC was submitted to the ministry on dated 02.05.2025.

The EAC during deliberations noted the following:

The EAC, during its meeting held on 18th –19th July 2024, deliberated extensively on the revised and corrected final draft report of the Cumulative Impact Assessment and Carrying Capacity Study (CIA&CCS) of Hydroelectric Projects on the Yamuna River, Tons, and its tributaries in Uttarakhand. The study, undertaken by ICFRE, Dehradun in collaboration with institutions such as DHRE-IITR, ICAR-DCFR Bhimtal, and WII-SACON Coimbatore, is the outcome of a detailed scientific, ecological, and hydrological investigation spanning multiple years and supported by ground-level data, stakeholder consultations, and expert analysis.

The Committee noted that the original draft report was first submitted in 2015 and presented to SEIAA and SEAC on 28.07.2016. Later, the EAC, in its 22nd meeting held on 27.02.2019, raised key scientific and methodological concerns—particularly the absence of river cross-section data for assessing environmental flows, inadequate consideration of the depth requirements for umbrella fish species like trout and mahseer across seasons, and the need for differentiated Environmental Flow Requirements (EFR) across river stretches. Additional gaps were identified regarding the treatment of biological diversity, plankton and periphyton classification, seasonal flow regimes, and inconsistencies in the linkage between data and recommendations.

In the present meeting, the EAC carefully examined the updated CIA&CCS report presented by ICFRE. The Committee appreciated the integration of river cross-section data, improved modeling of EFRs, site-specific biodiversity information, and refined recommendations based on proximity to Protected Areas, ecological sensitivity, and downstream water use. The EAC observed that the revised report contains comprehensive and valuable information on the current status of ecosystem services in the basin and the likely impacts on sustainability in the event of further HEP development.

The EAC was of the opinion that the CIA&CCS offers a robust strategic framework for evaluating the collective environmental implications of multiple hydroelectric projects on a single river system. This will significantly support more informed environmental impact assessments (EIA) for individual projects and guide the preparation of realistic and effective Environmental Management Plans (EMP).

In conclusion, the EAC recommended that the revised Cumulative Impact Assessment and Carrying Capacity Study of Hydroelectric Projects on River Yamuna, Tons, and its tributaries in the Uttarakhand region, as compiled and presented by ICFRE, may be accepted by the Ministry for further consideration and integration into planning and regulatory decision-making.

The meeting ended with vote of thanks to the Chair.

ANNEXURE I

ATTENDANCE

S. No.	Name of Member	Role
1.	Prof. G. J. Chakrapani	Chairman
2.	Dr. Uday Kumar R Y	Member
3.	DR. J. V. Tyagi	Member
4.	Shri Kartik Sapre	Member
5.	Shri Ajay Kumar Lal	Member
6.	Shri Rakesh Goyal	Member Representative of Central Electricity Authority (CEA)
7.	Shri Balram Kumar	Member Representative of Central Water Commission (CWC)
8.	Shri Yogendra Pal Singh	Member Secretary

APPROVAL OF THE CHAIRMAN

Approved.
Chakrapani

On Mon, 30 Jun, 2025, 4:28 pm Yogendra Pal Singh, <yogendra78@nic.in> wrote:

> Dear Sir,
>
> Please see the modified draft MOM of the 33_EAC (RVHEP) meeting held on 17.06.2025 for approval please. As suggested recommendations of the CIA&CCS study of Yamuna river basin (Uttarakhand stretch) have been icorporated in the draft MOM (HIGHLIGHED IN YELLOW).
>
> With Regards,
>
> **Yogendra Pal Singh**
> **Scientist 'F'**
> **Government of India**
> **M/o Environment, Forest and Climate Change**
> **Room No. 236, 2nd Floor, Vayu Wing**
> **Indira Paryavaran Bhawan**
> **Jor Bagh, New Delhi-110003**
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