सत्यमेव जयते

Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(River Valley and Hydroelectric Projects)
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Minutes of 7TH MEETING OF EXPERT APPRAISAL COMMITTEE meeting
River Valley and Hydroelectric Projects held from 09/02/2024 to 09/02/2024

Date: 19/02/2024

MoM ID: EC/MOM/EAC/605713/2/2024

Agenda ID: EC/AGENDA/EAC/605713/2/2024

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

09/02/2024	10:00 AM	05:30 PM

1. Opening remarks

N/A

2. Confirmation of the minutes of previous meeting

N/A

3. Details of proposals considered by the committee

Day 1 -09/02/2024

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Pumped Storage Project(9X150MW) at Upper Sileru village , Godem Kotha Veedhi (M) by **Andhra Pradesh Power Generation Corporation Limited** located at **ALLURI SITHARAMA RAJU,ANDHRA PRADESH**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/AP/RIV/456248/2023	J-12011/18/2019-IA.I (R)	11/01/2024	River Valley/Irrigation projects (1(c))

3.1.2. Project Salient Features

i. The proposal is for Environmental Clearance to the project for Upper Sileru Pumped Storage Project (9 x 150 MW) located at Upper Sileru, Gudem Kotha Veedhi (Mandal), Alluri Sitarama Raju (District), Andhra Pradesh by M/s Andhra Pradesh Power Generation Corporation Limited.

ii. M/s Andhra Pradesh Power Generation Corporation (APGENCO) proposes to develop 1350 MW Upper Sileru Pumped Storage Project (USPSP) located in Vishakhapatnam district of Andhra Pradesh. USPSP proposes to utilize the water in existing Guntawada (upper reservoir) for power generation and reutilise this water stored in Donkarayi reservoir (lower reservoir) during pumping mode.

iii. The project is listed at S.N. 1(c) of the schedule to the Environment Impact Assessment (EIA) Notification, 2006 under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC) in the Ministry.

iv. The project proposal was considered by the Expert Appraisal Committee (Hydro River Valley Sector) in its meeting held during 23.04.2019 and recommended for grant of Terms of References (ToRs) for the Project. The ToR has been issued by Ministry vide letter No. J-12011/08/2019-IA I(R) dated 03.06.2019

v. The geographical co-ordinate of the project are Guntawada Reservoir (Upper) – Latitude 18°03'33" N, Longitude 82°02'15"E and Donkarayi (Lower) – Latitude 17°56'02" N Longitude 81°47'46"E

vi. **Land requirement:**

- Forest land – 215.44 ha; Non-Forest Land – 117.98 ha

vii. **Project Cost:** The estimated project cost is Rs. 11,881.50 Cr including existing investment of Rs 2402.53 crores. Total capital cost earmarked towards environmental pollution control measures is Rs 127.72 Cr and the Recurring cost (operation and maintenance) will be about Rs 142.13 Lakh per annum.

viii. **Project Benefit:** Total Employment will be 100 persons as direct & persons indirect after expansion. Industry proposes to allocate Rs 1485.00 lakh @ of 0.125 % towards CER (as per Ministry's OM dated 2018).

ix. **Environmental Sensitive area:** There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River/ water body Sileru is flowing at a distance of 0 km in South West direction.

3.1.3. Deliberations by the committee in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

The EAC during deliberations observed that the proposal is for grant of Environment Clearance to Pump Storage Project. During the appraisal process the consultant (M/s WAPCOS) had weak internet service and was not properly audible and slides were not visible. In addition the .kml file and the slides were not moving even after intervention by the f Ministry's NIC networking team. Therefore, the EAC expressed disappointment with the project proponent and consultant as the project proponents and consultants failed to present their proposals effectively.

It not only reflects poorly on their preparedness but also disrupts the evaluation process, potentially delaying project approvals and exacerbating environmental risks. The project proponents and consultants faced difficulties in presenting a crucial document, such as the approved letter obtained from the Odisha government related interstate issues. This document holds significance in demonstrating compliance with interstate regulations and ensuring transparency in environmental assessments.

The EAC desired that PP must come prepared for presentation by themselves and ensure proper internet facility and the connectivity in case of online appraisal of projects. The NABET accredited consultant (M/s WAPCOS) was also alerted to not repeat such situations in future.

The proposal is therefore ***deferred to the next meeting*** on the above lines.

3.1.5. Recommendation of EAC

Deferred for ADS

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Rouni Pumped Storage Hydro-electric Project (2100 MW) by **CHHATTISGARH STATE POWER GENERATION COMPANY LIMITED** located at **JASHPUR,CHHATTISGARH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/CG/RIV/460323/2024	J-12011/10/2024-IA-I(R)	31/01/2024	River Valley/Irrigation projects (1(c))

3.2.2. Project Salient Features

7.3.1 The proposal is for grant of terms of reference (ToR) to the project for setting up of Rouni Open Loop Pumped Storage Project of capacity 2100 MW in an area of 370 ha at Village Bhadikona, Chhichhli and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

7.3.2 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 proposal is grant of ToR to the project for setting up of Rouni Open Loop Pumped Storage Project of capacity 2100 MW in an area of 370 ha at Village Bhadikona, Chhichhli and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

ii. The project is listed at S.N. 1(c) of the schedule to the Environment Impact Assessment (EIA) Notification, 2006 under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC) in the Ministry

iii. The Geographical Co-ordinates of the project are N - 23°3'16.01", E - 83°37'3.92" and N - 23°1'1.78" & E- 83°38'11.86"

iv. The Rouni Pumped Storage Project envisages construction of Upper dam, intake, Head race tunnel, pressure tunnel, penstock, powerhouse, transformer hall, tail race tunnel, outlet and Lower dam.

v. **Land requirement:**

Forest Land	75 Hectares
Submergence area/Reservoir area	216.54 Hectares
Land required for project components	370 Hectares

vi. **Water requirement:** Approx. 550 KLD During construction stage; Approx. 120 KLD During Operational stage

vii. **Project Cost:** The cost of Project is Rs. 7643.87 Crores at PFR Stage

viii. **Environmental Sensitive area:** There are **No** National Parks, Wildlife Sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc within 10 km distance from the project site.

ix. **MoU / any other clearance/ permission signed with State government:**

x. **Resettlement and rehabilitation:** In Rauni site approx. 46 houses are affected in the project area as per the preliminary study and the details are as U/R - 23 Houses; L/R - 20 Houses & WCS - 03 Houses

xi. **Alternative Studies:** Four (04) nos. Alternatives have been identified and studied

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

xiii. The silent features of the project are as under:

· Project details:

Name of the Proposal	Rouni Pumped Storage Hydro-electric Project (2100 MW)
Location (Including coordinates)	Near Bhadikona, Rouni, Chhichhli and Rajpur i village of Bagicha Tehsil, Jashpur district of Chhattisgarh, India The upper reservoir falls in 23°3'16.01"N and 83°37'3.92" E and Lower Reservoir falls in 2 3°1'1.78"N and 83°38'11.86"E respectively.
Inter- state issue involved	No
Seismic zone	Zone -II

· Category details:

Category of the project	A
Provisions	-
Capacity / Cultural command area (C CA)	2100 MW

Attracts the General Conditions (Yes/ No)	No
Additional information (if any)	-

- Electricity generation capacity:

Powerhouse Installed Capacity	6 units of 350 MW each
Generation of Electricity Annually	4366.5 GWh
No. of Units	6
Additional information (if any)	-

- ToR Details:

Cost of project	Rs. 7643.87 Crores
Total area of Project	370 Hectares
Height of Dam from River Bed (EL)	Upper Dam – 22m Lower Dam – 60m
Length of Tunnel/Channel	3269 m

Details of Submergence area	216.54 hectares

3.2.3. Deliberations by the committee in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

The EAC during deliberations noted the following:

- The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the me
- The project/activity is covered under Category A of item 1 (c) 'River Valley & Hydroelectric projects' of th
- The EAC noted that the upper reservoir will be constructed away from any river/stream/nallah whereas low
- During the meeting the EAC sought clarification from the project proponent regarding alternative water sou
- Project proponent has also not yet finalized the muck disposal site. The committee suggested to select the s
- The EAC further observed that the project involves 75 Ha of forest land and as per the .Kml file and photog
- The committee suggested to carry out alternate site analysis on the basis of lowest sensitive in terms of Bio

The EAC after detailed deliberation on the information submitted and as presented observed that proposed source of water is non-perennial and the availability of water for other users of this stream is required to be known. Also, during lean season the makeup water or water loss during operation of project is to be assessed. PP may explore the alternate source of water and explore other sites particularly for lower reservoir for sustenance of the project. Further it was observed as per the .Kml file and photographs that the location of the project covers very high density of forest. It was opined that MoU or any kind of agreement with State Government is required to substantiate the site allocation to instant Project Proponent. Accordingly, EAC desired that PP shall submit the further details on below mentioned observation:

3.2.5. Recommendation of EAC

Deferred for ADS

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

Dangari Pumped Storage Hydro-electric Project (1400 MW) by **CHHATTISGARH STATE POWER GENERATION COMPANY LIMITED** located at **JASHPUR,CHHATTISGARH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/CG/RIV/459313/2024	J-12011/09/2024-IA-I(R)	31/01/2024	River Valley/Irrigation projects (1(c))

3.3.2. Project Salient Features

7.4.1 The proposal is for grant of terms of reference (ToR) to the project for Dangari Open Loop Pumped Storage Project of capacity 1400 MW in an area of 499 ha at Village Dangari, Madia and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

Government land/Forest Land	80 Hectares
Submergence area/Reservoir area	234 Hectares
Land required for project components	499 Hectares

3.3.3. Deliberations by the committee in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Dangari Open Loop Pumped Storage Project of capacity 1400 MW in an area of 499 ha at Village Dangari, Madia and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

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

The EAC noted that the upper reservoir will be constructed away from any river/stream/nallah whereas lower reservoir is proposed on Geor nadi, a Tributary of Mahan-river, therefore the project is titled as open loop pumped Storage.

During the meeting, the EAC requested the project proponent to brief the project component wise on .kml file. It was observed that the project proponent was unable to explain about the project details and could not speak due to inadequate information on various related project components, such as, on the sensitivity of the environment, alternative sites and the details of settlements in the proposed region. Accordingly, the EAC was not satisfied with the project authorities and raised serious concerns about their complete dependability on consultant for all the crucial information. It was advised that the project proponent and consultants must discuss together on the details of project as it seems that many of the proponents feel the consultants are only responsible for EC related process.

EAC desired that project proponents shall come prepared with all facts and technical details of the project and presents its case instead of totally dependent on EIA consultants. The consultant was also unable to present the proposal before the EAC due to lack of sufficient knowledge of important details since no site visit is being done before presentation of ToR, which could eventually jeopardise the project's feasibility and sustainability.

The proposal is therefore ***returned in present form.***

3.3.5. Recommendation of EAC

Returned in present form

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Attunli Hydroelectric Project (680 MW) by **SJVN Limited** located at **DIBANG VALLEY,ARUNACHAL PRADESH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/AR/RIV/455548/2023	J-12011/61/2006-IA.I (R)	11/01/2024	River Valley/Irrigation projects (1(c))

3.4.2. Project Salient Features

7.5.1 The proposal is for grant of Terms of Reference (ToR) to the project for Attunli Hydroelectric Project of capacity 680 MW on Tangon river as a run-of-the-river in an area of 261.53 Ha at Village Athunli, Edilin and Gunil, Sub- District Etalin, District Upper Dibang Valley, Arunachal Pradesh by M/s SJVN Limited.

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

	1.0 Location		
		State	Arunachal Pradesh
		District	Dibang Valley
		River	Tangon
		Coordinates	
			28^0 40' 01 "N, 96^0 07' 01 "E
			28^0 39' 48"N, 96^0 01' 55"E
	2.0 Hydrology		
		Catchment Area at diversion site	2358 km^2
		Design Flood (PMF)	9,927 m^3/s
		GLOF	2,227 m^3/s

		Diversion Flood	2,678 m^3/s (25 years non-monsoon flood)
		Annual Sediment Load	0.1 Ha.m/sq.km/year
		Location of Catchment	Tangon river a tributary of Dibang river in Dibang Basin of Arunachal Pradesh
		Latitude	28^0 28.12' N to 29^0 7.73' N
		Longitude	96^0 5.93' E to 96^0 40.07' E
		Average Annual Rainfall	Varies from 2000 mm to 4000 mm
		Average Annual Yield and 90% Dependable Yield	6028.29 MCM (2557 mm) 4811 MCM 2040.3 mm
		Maximum Temperature	45^0C
		Minimum Temperature	2^0C
	3.0 Reservoir		
		FRL	El. 1360 m
		MDDL	El. 1349 m
		Gross Storage at FRL	7.02 MCM
		Gross Storage at MDDL	4.26 MCM
		Live Storage	2.76 MCM
		Reservoir Area (at FRL)	31.25 Ha
	4.0 Diversion Tunnels		
		Number	2 nos. on Right bank
		Diameter	11.5 m Circular shape
		Inlet Invert / Outlet Invert	El. 1297.0 m / El. 1289.0m
		Length	359.0 m & 487.0 m
		Number and size of Gates in each tunnel	2 Nos, 4.75 m (W) x 11.5 m (H)
		Hoist Arrangement and Capacity	Rope Drum Hoist, 65.0 MT

	5.0 Gravity Dam		
		River bed level	El. 1289.0 m
		Top elevation	El. 1362.0 m
		Height above deepest foundation	85.0 m
		Length at top	204.0 m
		No. of blocks	13; 3-NOF (left), 5-Spillways, 1-Auxillary Spillway, 4-NOF (right)
	6.0 Main Spillway		
		Numbers	5
		Crest elevation	El. 1310.0 m
		Gate Type and Size	Radial Gates; 8.0 m (W) x 12.8 m (H)
		Hoist Type and Capacity	Twin Hydraulic Cylinders 2 x 170.0 MT
		Stop Log Gates	I No., 6 units, unit size 8.0 m (W) x 2.727 m (H)
		Hoist Type and Capacity	Gantry Crane, 45 MT
	Auxiliary Spillways		
		Numbers	1
		Crest elevation	El. 1356.0 m
		Size	5.0 m x 4.0 m
		Number and size of Gates	2 Nos, 5.0 m (W) x 4.2 m (H)
		Hoist Type and Capacity	Gantry Crane operating Stoplogs unit s
	7.0 Intake		
		Numbers	3
		Invert elevation	El. 1336.0m
		No. of Trash rack bays	15 bays of 3.2 m each

		Gate opening size	5.2 m (W) x 5.8 m (H)
		Number of Gates	3 — Service Gates I — Emer enc Gate Bulk Head
		Hoist Arrangement and Capacity	Rope Drum Hoist-60 MT for Service Gates Gan Crane-35 MT for Bulkhead gates
		Length of Inlet Tunnel	271 m, 302 m, 333 m
		Nos., Diameter of Inlet Tunnel	3 nos., 5.8m MHS
	8.0 Desilting Chamber		
		Number and Type	3, Underground Duffore type
		Size	17.0 m (W) x 24 m (H)
		Length	350m
		Particle size removal	0.2 mm
		Design discharge per basin	102.23 m /s
		Gate Invert level (Flushing Duct)	El. 1312.65 m
		Hoist arrangement and capacity	Rope Drum Hoist, 30 MT
		Design discharge per flushing duct	18.58 m^3 /s
		Flushing duct (up to SFT Gate chamber)	
			3 Nos - 2.0 m (W) x 2.4 m (H)
		Flushing duct (SFT Gate chamber to Main SFT	
			3 Nos - 2.0 m (W) x 3.5 m (H)
		Flushing Duct Gate, Number & Size	3 Nos, 2.0m (W) X 2.4m (H) (1 Gates in each duct)
		Gate Hoist arrangement and capacity	Individual Hydraulic Hoist, 200 MT
		Silt Flushing Tunnel (SFT) size	4.0 m (W) x 5.5 m (H)
	Link Tunnel-I		

		Numbers	3
		Diameter & Shape	5.4m, Modified horse shoe
		Length	128.0 m, 84.0 m and 115.0 m
	Link Tunnel-2		
		Numbers	1
		Diameter & Shape	7.6 m, Modified horse shoe
		Length	83.0 m
	9.0 Headrace Tunnel		
		Numbers	1
		Diarneter& Shape	9.4 m, Circular
		Length	7955 m
		Design discharge	278.8 m^3/s
		Flow velocity	4.02 m/s
		Number of intermediate adits	3
		Length of Adits (Al, A2, A3)	358 m, 297 m, 179 m
		Adit plug gate	2.2 m (W) x 2.2 m (H) in Adit A2
	10.0 Surge Shaft		
		Numbers & Type	l, Restricted Orifice & Open to sky
		Diameter	21.0 m
		Orifice Diameter	4.25 m
		Height	93.0 m
		HRT invert at Surge shaft	El. 1306.0 m
		Top of Surge shaft	El. 1399.0 m
		Maximum surge level	El. 1397.5 m
		Minimum surge level	El. 1319.9 m

11.0 Pressure Shaft		
	Numbers & Type	2, Underground
	Diameter	5.2 m
	Length (each shaft)	318.0m
Unit Pressure Tunnel		
	Numbers & Type	4, Underground
	Diameter	3.7m
	Length (each shaft)	30.0 m
12.0 Butterfly Valve (BFV) Chamber		
	Dimension	58.0 m (L) x 10.0 m (W) x 21.0 m (H)
	No. ofBF Valves	2 Nos
	BFV diameter	5.2 m
	BFV Centerline elevation	El. 1308.6 m
	Floor Invert elevation	El. 1304.0 m
13.0 Collection Gallery		
	Dimensions	90 m (L) x 13.5 m (W) x 47 m (H)
	TWL•, Normal	El. 1073.7m
	TWL•, Minimum	El. 1067.8m
	TWL; Maximum	El. 1089.7m
	Draft Tube Gate Number and Size	4 Nos, 5.6 m (W) x 6.2 m (H)
14.0 Tailrace Tunnel		
	Numbers & Shape	l, D-Shape
	Width	10.0 m
	Height	Varies from 9.5 m to 17.5 m
15.0 TRT Outfall		

	Invert at Outfall gate	El. 1067.0 m
	Transition - length	3.0 m
	Minimum TWL	El. 1067.8 m
	Normal TWL	El. 1070.6 m
	Maximum TWL	El. 1083.0m
	Gate Operating Platform	El. 1084.0 m
	TRT Outfall Gates	2 Nos, 5.0 m (W) x 9.5m (H)
	Hoist Arrangement and Capacity	Rope Drum Hoist, 55.0 MT
16.0 Powerhouse		
	Type	Underground
	Scheme of Hydro Electric RoR/Storage Project	RoR
	Installed Capacity	680 MW
	No of Units	4 of each 170 MW
	Power House Cavern Size	135.0 m (L) x 23.5 m (W) x 52.0 m (H)
	Status of Overload Capacity of Unit	10% of continuous rated capacity
	Status of Butterfly Valve Chamber(yes/No)	Yes
	Status of de-silting Chamber(yes/No)	Yes
	Rated Head including Maximum Net Head & Minimum Net Head	Maximum Net Head = 292.1m Minimum Net Head = 259.80 m Net Rated Head ¯- 267.13 m
	Type of Turbine	Francis
	Turbine efficiency	94.5%
	Synchronous Speed	250 rpm

	Power Factor	0.85
	Generator Efficiency	98.5%
	Transport Limitation	70 MT, 6.0 m x 4.5 m x 4.5 m
17.0 Power Evacuation		
	Type of Switchyard (GIS / AIS, rating) No. of Bays Switching Scheme at different v oltage level	Indoor and GIS, 400 kV, 1600A, 3Ph ase, 40 kA for 1 Sec, No. of Bays — 10 (at different voltage levels) 415V/13.8kV/400kV
	Bus-Bar Arrangement	Gas Insulated Double Bus Bar Arran gement
	Transmission Voltage	400kV
18.0 Energy Benefits		
	Annual Energy generation in 9 0% Dependable Year	2814.16 MU
	Design Energy in 90% Dependa ble Year with 95% Plant availabi lity	2796.00 MU
	Corresponding Annual Load Fac tor	46.94%
	Corresponding Daily Peaking D uration (Minimum)	3 Hours
	Environmental Flow	Lean Season (Dec to Mar)-17.60 m3/ s Monsoon Season (Jun to Sep)-23.60 m3/s Intermediate Period (Remaining)-19. 80 m3/s

3.4.3. Deliberations by the committee in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

The EAC during deliberations noted the following:

- The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Attunli Hydroelectric Project (680 MW) on Tangon river as a run-of-the-river in an area of 261.53 Ha Village Athunli, Edilin and Gunil, Sub- District Etalin, District Upper Dibang Valley, Arunachal Pradesh by M/s SJVN Limited.
- The project/activity is covered under Category A of item 1 (c) 'River Valley & Hydroelectric projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.
- The EAC observed that earlier ToR was granted on 11.1.2007 in favour of M/s National Thermal Power Corporation (NTPC). Subsequently, Attunli Hydro Electric Power Company Limited (AHEPCL) was granted TOR for the installed capacity of 500 MW on 30.11.2009. In addition, on June 5, 2014, TOR for the updated installed capacity of 680 MW was granted; Upon expiry of the TOR, a fresh TOR was issued on 23.05.2019 to M/s Attunli Hydro Electric Power Company Limited (AHEPCL). Currently, as per provisions of EIA Notification 2006 and as amended the Validity of ToR is valid till 22.05.2025.
- The EAC noted that the Government of Arunachal Pradesh has given Attunli HEP to SJVN Limited on August 12, 2023. The DPR of Attunli HEP stands cleared from CEA vide letter no.2/ARP/27/CEA/10-PAC/1775-1819 dated 02.07.2018. Further, CEA vide letter dated 09.11.2023, transferred the TEC in the name of SJVN and extended its validity upto 31.12.2025.
- M/s SJVN vide its email dated 14.02.2024 has submitted the communication from M/s AHEPCL vide letter No. AHEPCL/Attunil HEP/SJVNL/2023-24/01 dated 13.02.2024. It has been mentioned that M/s Attunli Hydro Electric Power Company Ltd does not have any objection in withdrawal of Terms of Reference granted by Ministry vide letter no. K-12011/61/2006-IA-I(R) dated 23.05.2019 for EC and in issuance of fresh ToR in favor of SJVN Ltd by the MoEF&CC
- It was further noted that application for diversion of 261.53 ha of forest land was submitted to State Forest Department on 26.10.2015 for the first time by the previous project proponent and is presently pending at DFO concerned (Anini SF Division, Anini) since 05.08.2019.
- The EAC noted that all major components lies in forest land i.e. 241.53 ha and 20 Ha in non-forest area. The Reservoir tail end is the nearest project component to the boundary of Dibang WLS which is 3.7km away and Dihang-Dibang Biosphere Reserve is 3.9 km away. All project components including the submergence area are outside the notified ESZ.

  The EAC after detailed deliberation on the information submitted and as presented during the meeting **recommended** for grant of Standard ToR for conducting EIA study and Public consultation to the project for Attunli Hydroelectric Project of capacity 680 MW on Tangon river as a run-of-the-river in an area of 261.53 Ha Village Athunli, Edilin and Gunil, Sub- District Etalin, District Upper Dibang Valley, Arunachal Pradesh by M/s SJVN Limited, under the provisions of EIA Notification, 2006, as amended along with the additional/specific ToR.

3.4.5. Recommendation of EAC

Recommended

3.4.6. Details of Terms of Reference

3.4.6.1. Specific

(A) Environmental Management and Biodiversity Conservation	
1.	Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.

2.	Fisheries Management Plan shall be prepared along with other Environmental Safety Measures for Dibang river and other small stream/Nallah and same shall be incorporated in the EIA/EMP report.
3.	Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted interms of construction and operation phase.
4.	Calculation and values of GHG (CO2, CH4 etc) emissions during construction and during operation till the life of the project shall be estimated and submitted.
5.	The EIA study should be undertaken in accordance with recommendations of the Dibang River basin study and the project parameters/salient features of the project such as Dam height, FRL, Submergence area, total land requirement, e flow etc. as recommended in the Dibang River basin study should remain unchanged.
6.	Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located around 3.7km from outside the Eco- sensitive Zone (ESZ) of Dibang Wildlife Sanctuary and also project site not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.
7.	The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.
8.	Details of Flora and Fauna reported in submergence area, Nos. of tree along with their density and nomenclature required to be cut for reservoir creation and other project component.
(B) Socio-economic Study	
1.	Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
2.	Budget earmarked for R&R, CSR shall not include in the cost of EMP and compliance of issues raised during Public Hearing
3.	
4.	
(C) Muck Management	
1.	Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.
2.	Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc.
3.	Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc) and disposal site/ transportation to be provided.

4.	Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area.
(D) Disaster Management	
1.	Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.
2.	Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC /CEA shall be submitted.
(E) Miscellaneous	
1.	As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in case, within 6 months of issuance of ToRs. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable."
2.	Both capital and recurring expenditure under EMP shall be submitted.
3.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.
4.	Drone video of project site shall be recorded and to be submit.

3.4.6.2. Standard

1(c)	**River Valley/Irrigation projects**
Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as follows:	
1.	Cropping pattern and Horticultural Practices in the study area.
1.	Fauna study and inventorisation should be carried out for all groups of animals in the study area. Their present status alongwith Schedule of the species.
1.	Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed.
1.	Information (authenticated) on Avi-fauna and wildlife in the study area.
1.	Status of avifauna their resident/ migratory/ passage migrants etc.
1.	Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.

1.	The socio-economic survey/ profile within 10 km of the study area for demographic profile; Economic Structure; Developmental Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc.
1.	Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
1.	Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent.
1.	Collection of baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surroundings population.
1.	Sampling for aquatic ecology and fisheries and fisheries must be conducted during three seasons Pre-monsoon (summer), monsoon and winter. Sizes (length & weight) of important fish species need to be collected and breeding and feeding grounds should also be identified along the project site or in vicinity.
1.	Conservation status of aquatic fauna.
1.	Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow.
1.	Fish and fisheries, their migration and breeding grounds.
1.	Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc.
1.	Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project.
1.	List of all the Project Affected Families with their name, age, educational qualification, family size, sex, religion, caste, sources of income, land & house holdings, other properties, occupation, source of income, house/land to be acquired for the project and house/land left with the family, any other property, possession of cattle, type of house etc.
1.	For categorization of sub-catchment into various erosion classes and for the consequent CAT plan, the entire catchment (Indian Portion) is to be considered and not only the directly the draining catchment.
1.	Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
1.	Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
1.	Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.
1.	Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity.
1.	Existence of barriers and corridors, if any, for wild animals.
1.	RET species-voucher specimens should be collected along-with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972.
1.	Documentation of butterflies, if any, found in the area.

1.	null
1.	Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
1.	Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams.
1.	Landslide zone or area prone to landslide existing in the study area should be examined.
1.	Presence of important economic mineral deposit, if any.
1.	Justification for location & execution of the project in relation to structural components (dam /barrage height).
1.	Impact of project on geological environment.
1.	Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station.
1.	Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO2) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations.
1.	Existing Noise Levels and traffic density in the study area at 5-6 Locations.
1.	Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area.
1.	(i) Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared.
1.	History of the ground water table fluctuation in the study area.
1.	Water quality for both surface water and ground water for (i) Physical parameters (pH, temperature, electrical conductivity, TSS); (ii) Chemical parameters (Alkalinity, Hardness, BOD, COD, NO2, PO4, CI, SO4, Na, K, Ca, Mg, Silica, Oil & Grease, phenolic compounds, residual sodium carbonate); (iii) Bacteriological parameter (MPN, Total coliform) and (iv) Heavy Metals (Pb, As, Hg, Cd, Cr-6, total Cr, Cu, Zn, Fe) (6 locations).
1.	Delineation of sub and micro-watersheds, their locations and extent based on the All India Soil and Land Use Survey of India (AISLUS), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through silt yield index (SYI) method of AISLUS
1.	Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring.
1.	Run off, discharge, water availability for the project, sedimentation rate, etc.
1.	Basin characteristics
1.	Catastrophic events like cloud bursts and flash floods, if any, should be documented.
1.	For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The

	study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1.
1.	Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation.
1.	Flow series, 10 daily with 90%, 75% and 50% dependable years discharges.
1.	Information on the 10-daily flow basis for the 90 per cent dependable year the flow intercepted at the dam, the flow diverted to the power house and the spill comprising the environmental flow and additional flow towards downstream of the dam for the project may be given.
1.	The minimum environmental flow shall be 20% of the flow of four consecutive lean months of 90% dependable year, 30% of the average monsoon flow. The flow for remaining months shall be in between 20-30%, depending on the site specific requirements. A site specific study shall be carried out by an expert organization.
1.	Sedimentation data available with CWC may be used to find out the loss in storage over the years.
1.	Hydrological studies/data as approved by CWC shall be utilized in the preparation of EIA/EMP report. Actual hydrological annual yield may also be given in the report. Sedimentation data available with CWC may be used to find out the loss in storage over the years.
1.	A minimum of 1 km distance from the tip of the reservoir to the tail race tunnel should be maintained between upstream and downstream projects.
1.	Besides primary studies, review of secondary data/literature published for project area on flora & fauna including RET species shall be reported in EIA/EMP report.
1.	Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan.
1.	Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups).
1.	General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A species wise list may be provided.
1.	Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index (IVI) , Shannon Weiner index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems.
1.	Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
1.	Economically important species like medicinal plants, timber, fuel wood etc.
1.	Details of endemic species found in the project area.
1.	Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along-with economic significance. Species diversity curve for RET species should be given.
Description of Environment and Baseline Data	
1.	(ii) Submergence Area.
1.	To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc.

	should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following:
1.	(i) Catchment area up to the dam/barrage site.
1.	(iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc.
1.	(iv) Downstream upto 10 km from the tip of the reservoir.
Details of the Methology	
1.	The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed.
Details of the Project and Site	
1.	General introduction about the proposed project.
1.	Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of Dam/Barrage into the main river.
1.	A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location.
1.	Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map.
1.	Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study
1.	Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.
1.	Land details including forests, private and other land.
1.	Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area.
1.	Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites.
1.	Soil characteristics and map of the project area.
1.	Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India.
1.	Drainage pattern and map of the river catchment up to the proposed project site.

1.	Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity.
1.	Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components.
Environmental Management Plan	
1.	Water, Air and Noise Management Plans to be implemented during construction and post-construction periods.
1.	Biodiversity and Wildlife Conservation and Management Plan for the conservation and preservation of rare, endangered or endemic floral/faunal species or some National Park/Sanctuary/ Biosphere Reserve or other protected area is going to get affected directly or indirectly by construction of the project, then suitable conservation measures should be prepared in consultation with the State Forest Department and with the physical and financial details. Suitable conservation techniques (in-situ/ ex-situ) will be proposed under the plan and the areas where such conservation is proposed will be marked on a project layout map.
1.	Compensatory Afforestation shall be prepared by the State Forest Department in lieu of the forest land proposed to be diverted for construction of the project as per the Forest (Conservation) Act, 1980. Choice of plants for afforestation should include native and RET species, if any. This will be a part of the forest clearance proposal.
1.	Fisheries Conservation and Management Plan - a specific fisheries management measures should be prepared for river and reservoir. If the construction of fish ladder/ fish-way etc. is not feasible then measures for reservoir fisheries will be proposed. The plan will detail out the number of hatcheries, nurseries, rearing ponds etc. proposed under the plan with proper drawings. If any migratory fish species is getting affected then the migratory routes, time/season of upstream and downstream migration, spawning grounds etc will be discussed in details.
1.	Green Belt Development Plan along the periphery of the reservoir, approach roads around the colonies and other project components, local plant species must be suggested with physical and financial details. A layout map showing the proposed sites for developing the green belt should be prepared.
1.	Environmental Monitoring Programme to monitor the mitigatory measures implemented at the project site is required will be prepared. Provision for Environment Management Cell should be made. The plan will spell out the aspects required to be monitored, monitoring indicators/parameters with respect to each aspect and the agency responsible for the monitoring of that particular aspect throughout the project implementation.
1.	Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of free draining/ directly draining catchment based upon Remote Sensing and Geographical Information System (GIS) methodology and Sediment Yield Index (SYI) method of AISLUS, Deptt. of Agriculture, Govt. of India coupled with ground survey. Areas or watersheds falling under 'very severe' and 'severe' erosion categories should be provided and required to be treated. Both biological as well as engineering measures should be proposed in consultation with State Forest Department for areas requiring treatment. Year-wise schedule of work and monetary allocation should be provided. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included.
1.	Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. Results of the site specific earthquake design parameters should be approved by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi.
1.	Dam Break Analysis and Disaster Management Plan The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario. To identify inundation areas, population and structures likely to be affected due to catastrophic floods in the event of dam failure. DMP will be prepared with the help of Dam Break Analysis. Maximum water level that would be attained at various points on the downstream in case of dam break will be marked on a detailed contour map of the downstream area, to show the extent of inundation. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities.

1.	Reservoir Rim Treatment Plan for stabilization of land slide / land slip zones, if any, around the reservoir periphery is to be prepared based on detailed survey of geology of the reservoir rim area. Suitable engineering and biological measures for treatment of identified slip zones to be suggested with physical and financial schedule. Layout map showing the landslide/landslip zones shall be prepared and appended in the chapter.
1.	Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately. Deatailed muck transportation plan delinating the path ways, number of trucks, quantity of muck to be transportated along with monitoring mechanism using latest technology, shall be prepared.
1.	Restoration Plan for Quarry Sites and landscaping of colony areas, working areas, roads etc. Details of the coarse/fine aggregate/clay etc. required for construction of the project and the rock/clay quarries/river shoal sites identified for the project should be discussed along-with the Engineering and Biological measures proposed for their restoration with physical and financial details. Layout map showing quarry sites vis-à-vis other project components, should be prepared.
1.	Resettlement and Rehabilitation Plan needed to be prepared on the basis of findings of the socio- economic survey coupled with the outcome of public consultation held. The R&R package shall be prepared after consultation with the representatives of the project affected families and the State Government. Detailed budgetary estimates are to be provided. Resettlements site should be identified. The plan will also incorporate community development strategies.
1.	Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace.
1.	Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Pancahayats. Appropriate schemes shall be prepared under EMP for the Local Area Development Plan with sufficient financial provisions.
1.	Labour Management Plan for their Health and Safety.
1.	Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc.
1.	Energy Conservation Measures for the work force during construction with physical and financial details. Alternatives will be proposed for the labour force so that the exploitation of the natural resource (wood) for the domestic and commercial use is curbed.
1.	Environmental safeguards during construction activities including Road Construction.
1.	A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans.
Impact Prediction and Mitigation Measures	
1.	Changes in land quality including effects of waste disposal
1.	River bank and their stability
1.	Impact due to submergence.
1.	Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
1.	Pressure on existing natural resources

1.	Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors
1.	Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
1.	Impact on fish migration and habitat degradation due to decreased flow of water
1.	Impact on breeding and nesting grounds of animals and fish.
1.	Impact on local community including demographic profile.
1.	Impact on socio-economic status
1.	Impact on economic status.
1.	Impact on human health due to water / vector borne disease
1.	Impact on increase traffic
1.	Impact on Holy Places and Tourism
1.	Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.
1.	Positive and negative impacts likely to be accrued due to the project are listed.
1.	Water pollution from labour colonies/ camps and washing equipment.
1.	Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting for commissioning of HRT, TRT and some other structures.
1.	Changes in land use / land cover and drainage pattern
1.	Immigration of labour population
1.	Quarrying operation and muck disposal
1.	The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described.
1.	Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.
1.	Effect on soil, material, vegetation and human health.
1.	Impact of emissions from DG set used for power during the construction, if any, on air environment.
1.	Pollution due to fuel combustion in equipments and vehicles
1.	Fugitive emissions from various sources
1.	Changes in surface and ground water quality
1.	Steps to develop pisci-culture and recreational facilities

1.	Changes in hydraulic regime and downstream flow.
1.	Water pollution due to disposal of sewage
Methodology for Collection of Biodiversity Data	
1.	The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN).
1.	The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).
1.	The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number.
1.	The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.
Scope of EIA Study	
1.	The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the

	impact shall be suggested in the EIA/EMP study.

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 N Lakshman	Member (EAC)	lna**@rocketmail.com	Not EAC member.
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	Shri Sharvan Kumar	Member (EAC)	krs******@nic.in	
9	Shri Alok Paul Kalsi	Member (EAC)	emo***@nic.in	
10	Dr A K Sahoo	Member (EAC)	ami***@gmail.com	
11	Mr Munna Kumar Shah	Scientist E	mun*******@gov.in	

MINUTES OF THE 7TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 9TH FEBRUARY, 2024 FROM 10:30 AM – 05:30 PM ON ONLINE MODE.

The 7th meeting of the re-constituted EAC for River Valley & Hydro-electric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 9th February, 2024 through online mode, under the Chairmanship of Prof. G. J. Chakrapani. The Members present in the meeting are listed in Annexure.

Agenda No. 7.1

Confirmation of Minutes of 6th EAC meeting held on 23.01.2024.

Agenda No.7.2

Upper Sileru Open Loop Pumped Storage Project of capacity 1350 MW at Village Valasagedda, Busikonda, Sub District Gudem Kotha Veedhi, District Alluri Sitharama Raju, Andhra Pradesh by M/s Andhra Pradesh Power Generation Corporation Limited – Environmental Clearance (EC) - reg.

[Proposal No. IA/AP/RIV/456248/2023; F. No. J-12011/18/2019-IA.I(R)]

7.2.1 The proposal is for grant of Environmental Clearance to the project for Upper Sileru Open Loop Pumped Storage Project of capacity 1350 MW in an area of 332.44 Ha at Village Valasagedda, Busikonda, Sub District Gudem Kotha Veedhi, District Alluri Sitharama Raju, Andhra Pradesh by M/s Andhra Pradesh Power Generation Corporation Limited.

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

i. The proposal is for Environmental Clearance to the project for Upper Sileru Pumped Storage Project (9 x 150 MW) located at Upper Sileru, Gudem Kotha Veedhi (Mandal), Alluri Sitarama Raju (District), Andhra Pradesh by M/s Andhra Pradesh Power Generation Corporation Limited.

ii. M/s Andhra Pradesh Power Generation Corporation (APGENCO) proposes to develop 1350 MW Upper Sileru Pumped Storage Project (USPSP) located in Vishakhapatnam district of Andhra Pradesh. USPSP proposes to utilize the water in existing Guntawada (upper reservoir) for power generation and reutilise this water stored in Donkarayi reservoir (lower reservoir) during pumping mode.

iii. The project is listed at S.N. 1(c) of the schedule to the Environment Impact Assessment (EIA) Notification, 2006 under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC) in the Ministry.

iv. The project proposal was considered by the Expert Appraisal Committee (Hydro River Valley Sector) in its meeting held during 23.04.2019 and recommended for grant of Terms of References (ToRs) for the Project. The ToR has been issued by Ministry vide letter No. J-12011/08/2019-IA I(R) dated 03.06.2019

v. The geographical co-ordinate of the project are Guntawada Reservoir (Upper) – Latitude 18°03'33" N, Longitude 82°02'15"E and Donkarayi (Lower) – Latitude 17°56'02" N Longitude 81°47'46"E

vi. **Land requirement:**

- Forest land – 215.44 ha; Non-Forest Land – 117.98 ha

vii. **Project Cost:** The estimated project cost is Rs. 11,881.50 Cr including existing investment of Rs 2402.53 crores. Total capital cost earmarked towards environmental pollution control measures is Rs 127.72 Cr and the Recurring cost (operation and maintenance) will be about Rs 142.13 Lakh per annum.

viii. **Project Benefit:** Total Employment will be 100 persons as direct & persons indirect after expansion. Industry proposes to allocate Rs 1485.00 lakh @ of 0.125 % towards CER (as per Ministry's OM dated 2018).

ix. **Environmental Sensitive area:** There are no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site. River/ water body Sileru is flowing at a distance of 0 km in South West direction.

7.2.3 The EAC during deliberations observed that the proposal is for grant of Environment Clearance to Pump Storage Project. During the appraisal process the consultant (M/s WAPCOS) had weak internet service and was not properly audible and slides were not visible. In addition the .kml file and the slides were not moving even after intervention by the f Ministry's NIC networking team. Therefore, the EAC expressed disappointment with the project proponent and consultant as the project proponents and consultants failed to present their proposals effectively.

It not only reflects poorly on their preparedness but also disrupts the evaluation process, potentially delaying project approvals and exacerbating environmental risks. The project proponents and consultants faced difficulties in presenting a crucial document, such as the approved letter obtained from the Odisha government related interstate issues. This document holds significance in demonstrating compliance with interstate regulations and ensuring transparency in environmental assessments.

The EAC desired that PP must come prepared for presentation by themselves and ensure proper internet facility and the connectivity in case of online appraisal of projects. The NABET accredited consultant (M/s WAPCOS) was also alerted to not repeat such situations in future.

The proposal is therefore ***deferred to the next meeting*** on the above lines.

<u>Agenda No. 7.3</u>

Rouni Open Loop Pumped Storage Project of capacity 2100 MW at Village Bhadikona, Chhichhli and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited - Terms of References (ToR) - reg.

[Proposal No. IA/CG/RIV/460323/2024; F. No. J-12011/10/2024-IA.I(R)]

7.3.1 The proposal is for grant of terms of reference (ToR) to the project for setting up of Rouni Open Loop Pumped Storage Project of capacity 2100 MW in an area of 370 ha at Village Bhadikona, Chhichhli and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

7.3.2 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 proposal is grant of ToR to the project for setting up of Rouni Open Loop Pumped Storage Project of capacity 2100 MW in an area of 370 ha at Village Bhadikona, Chhichhli and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

ii. The project is listed at S.N. 1(c) of the schedule to the Environment Impact Assessment (EIA) Notification, 2006 under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC) in the Ministry

iii. The Geographical Co-ordinates of the project are N - 23°3'16.01", E - 83°37'3.92" and N - 23°1'1.78" & E- 83°38'11.86"

iv. The Rouni Pumped Storage Project envisages construction of Upper dam, intake, Head race tunnel, pressure tunnel, penstock, powerhouse, transformer hall, tail race tunnel, outlet and Lower dam.

v. **Land requirement:**

Forest Land	75 Hectares
Submergence area/Reservoir area	216.54 Hectares
Land required for project components	370 Hectares

vi. **Water requirement:** Approx. 550 KLD During construction stage; Approx. 120 KLD During Operational stage

vii. **Project Cost:** The cost of Project is Rs. 7643.87 Crores at PFR Stage

viii. **Environmental Sensitive area:** There are **No** National Parks, Wildlife Sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc within 10 km distance from the project site.

ix. **MoU / any other clearance/ permission signed with State government:**

x. **Resettlement and rehabilitation:** In Rauni site approx. 46 houses are affected in the project area as per the preliminary study and the details are as U/R - 23 Houses; L/R - 20 Houses & WCS - 03 Houses

xi. **Alternative Studies:** Four (04) nos. Alternatives have been identified and studied

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

xiii. The silent features of the project are as under:

- Project details:

Name of the Proposal	Rouni Pumped Storage Hydro-electric Project (2100 MW)
Location (Including coordinates)	Near Bhadikona, Rouni, Chhichhli and Rajpuri village of Bagicha Tehsil, Jashpur district of Chhattisgarh, India The upper reservoir falls in 23°3'16.01"N and 83°37'3.92" E and Lower Reservoir falls in 23°1'1.78"N and 83°38'11.86"E respectively.
Inter- state issue involved	No
Seismic zone	Zone -II

- Category details:

Category of the project	A
Provisions	-
Capacity / Cultural command area (CCA)	2100 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

- Electricity generation capacity:

Powerhouse Installed Capacity	6 units of 350 MW each
Generation of Electricity Annually	4366.5 GWh
No. of Units	6
Additional information (if any)	-

- ToR Details:

Cost of project	Rs. 7643.87 Crores
Total area of Project	370 Hectares
Height of Dam from River Bed (EL)	Upper Dam – 22m Lower Dam – 60m
Length of Tunnel/Channel	3269 m

Details of Submergence area	216.54 hectares

7.3.3 The EAC during deliberations noted the following:

- The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Rouni Open Loop Pumped Storage Project of capacity 2100 MW in an area of 370 ha at Village Bhadikona, Chhichhli and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.
- The project/activity is covered under Category A of item 1 (c) 'River Valley & Hydroelectric projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.
- The EAC noted that the upper reservoir will be constructed away from any river/stream/nallah whereas lower reservoir is proposed on Dorki nala, a tributary of Mahanadi river, therefore the project is titled as open loop pumped Storage. The Dorki Nallah is a seasonal nalla and the project proponent has informed that the water will be drawn during rainy season only.
- During the meeting the EAC sought clarification from the project proponent regarding alternative water sources as the present source is not perennial and potential impacts on downstream users. The EAC also suggested to submit seasonal hydrograph of said Dorki Nallah.
- Project proponent has also not yet finalized the muck disposal site. The committee suggested to select the site in non-forest area. The project proponent has not submitted the proper breakup of land.
- The EAC further observed that the project involves 75 Ha of forest land and as per the .Kml file and photographs, the location of the project covers very high dense forest. Further, it was noted that MoU with State Government has not been submitted by project proponent or signed till date.
- The committee suggested to carry out alternate site analysis on the basis of lowest sensitive in terms of Biodiversity.

7.3.4 The EAC after detailed deliberation on the information submitted and as presented observed that proposed source of water is non-perennial and the availability of water for other users of this stream is required to be known. Also, during lean season the makeup water or water loss during operation of project is to be assessed. PP may explore the alternate source of water and explore other sites particularly for lower reservoir for sustenance of the project. Further it was observed as per the .Kml file and photographs that the location of the project covers very high density of forest. It was opined that MoU or any kind of agreement with State Government is required to substantiate the site allocation to instant Project Proponent. Accordingly, EAC desired that PP shall submit the further details on below mentioned observation:

i. The project proponent shall explore any alternate source of water nearer to the site as Dorki Nallah is not a perineal river or alternative site specifically for lower reservoir. Also submit the seasonal hydrograph of Dorki Nallah to assess the make-up water during lean season.

ii. PP shall resubmit the proposal with revised layout after minimizing the forest land for the proposed project
iii. Finalize the site of Muck disposal outside the forest area and explore the possibility for management of muck in any closed nearby coal mine (if any).
iv. PP shall submit MoU signed with State department for setting up the proposed project and availability of water for the project.
v. Secondary data of presence/occurrence of wildlife in the in consultation in forest department and local people shall be provided.

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

Agenda No.7.4

Dangari Open Loop Pumped Storage Project of capacity 1400 MW at Village Dangari, Madia and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited– Terms of References (TOR) – reg.

[Proposal No. IA/CG/RIV/459313/2024; F. No. J-12011/09/2024-IA.I (R)]

7.4.1 The proposal is for grant of terms of reference (ToR) to the project for Dangari Open Loop Pumped Storage Project of capacity 1400 MW in an area of 499 ha at Village Dangari, Madia and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

7.4.2 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 project for Dangari Open Loop Pumped Storage Project of capacity 1400 MW in an area of 499 ha at Village Dangari, Madia and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited
ii. The Dangari Pumped Storage Project envisages construction of Upper dam, intake, Head race tunnel, pressure tunnel, penstock, powerhouse, transformer hall, tail race tunnel, outlet and Lower dam.
iii. **Land requirement:**

Government land/Forest Land	80 Hectares
Submergence area/Reservoir area	234 Hectares
Land required for project components	499 Hectares

iv. Water requirement: Approx. 550 KLD During construction stage; Approx. 120 KLD During Operational stage

v. The cost of Project is Rs. 5110.07 Crores at PFR Stage.

vi. Project Benefit: Will be study during DPR.

vii. Resettlement and rehabilitation: In Dangari site approx. 80 houses are affected in the project area as per the preliminary study and the details are as U/R - 8-10 Houses ; L/R - 50 - 60 Houses & WCS - 7-8 Houses

viii. Scheduled –I species: No details available

ix. Alternative Studies: Three (03) nos. Alternatives have been identified and studied

7.4.3 The EAC during deliberations noted the following:

The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Dangari Open Loop Pumped Storage Project of capacity 1400 MW in an area of 499 ha at Village Dangari, Madia and Rajpuri R F, Sub-district Bagicha, District Jashpur, Chhattisgarh by M/s Chhattisgarh State Power Generation Company Limited.

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

The EAC noted that the upper reservoir will be constructed away from any river/stream/nallah whereas lower reservoir is proposed on Geor nadi, a Tributary of Mahan-river, therefore the project is titled as open loop pumped Storage.

During the meeting, the EAC requested the project proponent to brief the project component wise on .kml file. It was observed that the project proponent was unable to explain about the project details and could not speak due to inadequate information on various related project components, such as, on the sensitivity of the environment, alternative sites and the details of settlements in the proposed region. Accordingly, the EAC was not satisfied with the project authorities and raised serious concerns about their complete dependability on consultant for all the crucial information. It was advised that the project proponent and consultants must discuss together on the details of project as it seems that many of the proponents feel the consultants are only responsible for EC related process.

EAC desired that project proponents shall come prepared with all facts and technical details of the project and presents its case instead of totally dependent on EIA consultants. The consultant was also unable to present the proposal before the EAC due to lack of sufficient knowledge of important details since no site visit is being done before presentation of ToR, which could eventually jeopardise the project's feasibility and sustainability.

The proposal is therefore ***returned in present form.***

Agenda No.7.5

Attunli Hydroelectric Project of capacity 680 MW on Tangon river as a run-of-the-river at Village Athunli, Edilin and Gunil, Sub- District Etalin, District Upper Dibang Valley, Arunachal Pradesh by M/s SJVN Limited - Terms of References (ToR) - reg.

[Proposal No. IA/AR/RIV/455548/2023; F. No. J-12011/61/2006-IA.I (R)]

7.5.1 The proposal is for grant of Terms of Reference (ToR) to the project for Attunli Hydroelectric Project of capacity 680 MW on Tangon river as a run-of-the-river in an area of 261.53 Ha at Village Athunli, Edilin and Gunil, Sub- District Etalin, District Upper Dibang Valley, Arunachal Pradesh by M/s SJVN Limited.

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

i. The proposal is for ToR to the project for Attunli Hydroelectric Project (680 MW) located at Village Athunli, Edilin and Gunil, Circle Etalin, District Dibang Valley, Arunachal Pradesh by M/s. SJVN Limited

ii. The project is listed at S.N. 1(c) of the Schedule to the Environment Impact Assessment (EIA) Notification under category 'A' and are appraised at Central Level by Expert Appraisal Committee (EAC).

iii. The geographical co-ordinate of the project are, latitude 28^{o}40'01"N and longitude 96^{o}07'01"E (dam site) and latitude 28^{o}39'48"N and longitude 96^{o}01'55"E (power house site).

iv. The Attunli Hydroelectric Project envisages construction of diversion tunnels, coffer dams, gravity dam, spillway, intake structure, desilting chamber, headrace tunnel, surge shaft, pressure shaft, power house, tailrace tunnel, adits, approach roads etc.

v. Land requirement: The estimated land required is 261.53 ha {including underground area (notional area) of 14.19 ha}. Of the total land required, 241.53 including 14.19 ha of notional area is forest land and the rest 20 ha is non forest land.

vi. Water requirement: 7.02 MCM (gross storage at FRL)

vii. Project Cost: The estimated project cost is Rs. 5896.01 Crore.

viii. Environmental Sensitive area: There is Dibang Wildlife Sanctuary, within 10 km distance from the project site. River Tangon is flowing in western direction. However, all project components, including submergence area are outside the notified ESZ.

ix. MoU / any other clearance/ permission signed with State government: Memorandum of Agreement between Govt. of Arunachal Pradesh and SJVN Ltd. for execution of Attunli HEP (680 MW) on 12/08/2023.

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

xi. Salient Features

1.0 Location		
	State	Arunachal Pradesh
	District	Dibang Valley
	River	Tangon
	Coordinates	
	• Dam Site	28 ^{0} 40' 01 "N, 96^{0} 07' 01 "E
	• Powerhouse	28^{0} 39' 48"N, 96^{0} 01' 55"E
2.0 Hydrology		
	Catchment Area at diversion site	2358 km^{2}
	Design Flood (PMF)	9,927 m^{3}/s
	GLOF	2,227 m^{3}/s
	Diversion Flood	2,678 m^{3}/s (25 years non-monsoon flood)
	Annual Sediment Load	0.1 Ha.m/sq.km/year
	Location of Catchment	Tangon river a tributary of Dibang river in Dibang Basin of Arunachal Pradesh
	Latitude	28^{0} 28.12' N to 29^{0} 7.73' N
	Longitude	96^{0} 5.93' E to 96^{0} 40.07' E
	Average Annual Rainfall	Varies from 2000 mm to 4000 mm
	Average Annual Yield and 90% Dependable Yield	6028.29 MCM (2557 mm) 4811 MCM 2040.3 mm
	Maximum Temperature	45^{0}C
	Minimum Temperature	2^{0}C
3.0 Reservoir		
	FRL	El. 1360 m
	MDDL	El. 1349 m
	Gross Storage at FRL	7.02 MCM
	Gross Storage at MDDL	4.26 MCM
	Live Storage	2.76 MCM
	Reservoir Area (at FRL)	31.25 Ha
4.0 Diversion Tunnels		
	Number	2 nos. on Right bank
	Diameter	11.5 m Circular shape
	Inlet Invert / Outlet Invert	El. 1297.0 m / El. 1289.0m
	Length	359.0 m & 487.0 m
	Number and size of Gates in each tunnel	2 Nos, 4.75 m (W) x 11.5 m (H)

	Hoist Arrangement and Capacity	Rope Drum Hoist, 65.0 MT
5.0 Gravity Dam		
	River bed level	El. 1289.0 m
	Top elevation	El. 1362.0 m
	Height above deepest foundation	85.0 m
	Length at top	204.0 m
	No. of blocks	13; 3-NOF (left), 5-Spillways, 1-Auxillary Spillway, 4-NOF (right)
6.0 Main Spillway		
	Numbers	5
	Crest elevation	El. 1310.0 m
	Gate Type and Size	Radial Gates; 8.0 m (W) x 12.8 m (H)
	Hoist Type and Capacity	Twin Hydraulic Cylinders 2 x 170.0 MT
	Stop Log Gates	I No., 6 units, unit size 8.0 m (W) x 2.727 m (H)
	Hoist Type and Capacity	Gantry Crane, 45 MT
Auxiliary Spillways		
	Numbers	1
	Crest elevation	El. 1356.0 m
	Size	5.0 m x 4.0 m
	Number and size of Gates	2 Nos, 5.0 m (W) x 4.2 m (H)
	Hoist Type and Capacity	Gantry Crane operating Stoplogs units
7.0 Intake		
	Numbers	3
	Invert elevation	El. 1336.0m
	No. of Trash rack bays	15 bays of 3.2 m each
	Gate opening size	5.2 m (W) x 5.8 m (H)
	Number of Gates	3 — Service Gates I — Emer enc Gate Bulk Head
	Hoist Arrangement and Capacity	Rope Drum Hoist-60 MT for Service Gates Gan Crane-35 MT for Bulkhead gates
	Length of Inlet Tunnel	271 m, 302 m, 333 m
	Nos., Diameter of Inlet Tunnel	3 nos., 5.8m MHS
8.0 Desilting Chamber		
	Number and Type	3, Underground Duffore type
	Size	17.0 m (W) x 24 m (H)
	Length	350m
	Particle size removal	0.2 mm
	Design discharge per basin	102.23 m /s

	Gate Invert level (Flushing Duct)	El. 1312.65 m
	Hoist arrangement and capacity	Rope Drum Hoist, 30 MT
	Design discharge per flushing duct	18.58 m^3/s
	Flushing duct (up to SFT Gate chamber)	
	• Number and size	3 Nos - 2.0 m (W) x 2.4 m (H)
	Flushing duct (SFT Gate chamber to Main SFT	
	• Number and size	3 Nos - 2.0 m (W) x 3.5 m (H)
	Flushing Duct Gate, Number & Size	3 Nos, 2.0m (W) X 2.4m (H) (1 Gates in each duct)
	Gate Hoist arrangement and capacity	Individual Hydraulic Hoist, 200 MT
	Silt Flushing Tunnel (SFT) size	4.0 m (W) x 5.5 m (H)
Link Tunnel-I		
	Numbers	3
	Diameter & Shape	5.4m, Modified horse shoe
	Length	128.0 m, 84.0 m and 115.0 m
Link Tunnel-2		
	Numbers	1
	Diameter & Shape	7.6 m, Modified horse shoe
	Length	83.0 m
9.0 Headrace Tunnel		
	Numbers	1
	Diarneter& Shape	9.4 m, Circular
	Length	7955 m
	Design discharge	278.8 m^3/s
	Flow velocity	4.02 m/s
	Number of intermediate adits	3
	Length of Adits (Al, A2, A3)	358 m, 297 m, 179 m
	Adit plug gate	2.2 m (W) x 2.2 m (H) in Adit A2
10.0 Surge Shaft		
	Numbers & Type	l, Restricted Orifice & Open to sky
	Diameter	21.0 m
	Orifice Diameter	4.25 m
	Height	93.0 m
	HRT invert at Surge shaft	El. 1306.0 m

	Top of Surge shaft	El. 1399.0 m
	Maximum surge level	El. 1397.5 m
	Minimum surge level	El. 1319.9 m
11.0 Pressure Shaft		
	Numbers & Type	2, Underground
	Diameter	5.2 m
	Length (each shaft)	318.0m
Unit Pressure Tunnel		
	Numbers & Type	4, Underground
	Diameter	3.7m
	Length (each shaft)	30.0 m
12.0 Butterfly Valve (BFV) Chamber		
	Dimension	58.0 m (L) x 10.0 m (W) x 21.0 m (H)
	No. ofBF Valves	2 Nos
	BFV diameter	5.2 m
	BFV Centerline elevation	El. 1308.6 m
	Floor Invert elevation	El. 1304.0 m
13.0 Collection Gallery		
	Dimensions	90 m (L) x 13.5 m (W) x 47 m (H)
	TWL•, Normal	El. 1073.7m
	TWL•, Minimum	El. 1067.8m
	TWL; Maximum	El. 1089.7m
	Draft Tube Gate Number and Size	4 Nos, 5.6 m (W) x 6.2 m (H)
14.0 Tailrace Tunnel		
	Numbers & Shape	l, D-Shape
	Width	10.0 m
	Height	Varies from 9.5 m to 17.5 m
15.0 TRT Outfall		
	Invert at Outfall gate	El. 1067.0 m
	Transition - length	3.0 m
	Minimum TWL	El. 1067.8 m
	Normal TWL	El. 1070.6 m
	Maximum TWL	El. 1083.0m
	Gate Operating Platform	El. 1084.0 m
	TRT Outfall Gates	2 Nos, 5.0 m (W) x 9.5m (H)
	Hoist Arrangement and Capacity	Rope Drum Hoist, 55.0 MT
16.0 Powerhouse		
	Type	Underground
	Scheme of Hydro Electric RoR/Storage	RoR

	Project	
	Installed Capacity	680 MW
	No of Units	4 of each 170 MW
	Power House Cavern Size	135.0 m (L) x 23.5 m (W) x 52.0 m (H)
	Status of Overload Capacity of Unit	10% of continuous rated capacity
	Status of Butterfly Valve Chamber(yes/No)	Yes
	Status of de-silting Chamber(yes/No)	Yes
	Rated Head including Maximum Net Head & Minimum Net Head	Maximum Net Head = 292.1m Minimum Net Head = 259.80 m Net Rated Head ¯- 267.13 m
	Type of Turbine	Francis
	Turbine efficiency	94.5%
	Synchronous Speed	250 rpm
	Power Factor	0.85
	Generator Efficiency	98.5%
	Transport Limitation	70 MT, 6.0 m x 4.5 m x 4.5 m
17.0 Power Evacuation		
	Type of Switchyard (GIS / AIS, rating) No. of Bays Switching Scheme at different voltage level	Indoor and GIS, 400 kV, 1600A, 3Phase, 40 kA for 1 Sec, No. of Bays — 10 (at different voltage levels) 415V/13.8kV/400kV
	Bus-Bar Arrangement	Gas Insulated Double Bus Bar Arrangement
	Transmission Voltage	400kV
18.0 Energy Benefits		
	Annual Energy generation in 90% Dependable Year	2814.16 MU
	Design Energy in 90% Dependable Year with 95% Plant availability	2796.00 MU
	Corresponding Annual Load Factor	46.94%
	Corresponding Daily Peaking Duration (Minimum)	3 Hours
	Environmental Flow	Lean Season (Dec to Mar)-17.60 m3/s Monsoon Season (Jun to Sep)-23.60 m3/s Intermediate Period (Remaining)-19.80 m3/s

7.5.3 The EAC during deliberations noted the following:

- The EAC deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of Terms of Reference (ToR) for conducting EIA study of the project for setting up of Attunli Hydroelectric Project (680 MW) on Tangon river as a run-of-the-river in an area of 261.53 Ha Village Athunli, Edilin and Gunil, Sub-District Etalin, District Upper Dibang Valley, Arunachal Pradesh by M/s SJVN Limited.
- The project/activity is covered under Category A of item 1 (c) 'River Valley & Hydroelectric projects' of the Schedule to the Environmental Impact Assessment Notification, 2006 and requires appraisal at Central level by the sectoral EAC in the Ministry.
- The EAC observed that earlier ToR was granted on 11.1.2007 in favour of M/s National Thermal Power Corporation (NTPC). Subsequently, Attunli Hydro Electric Power Company Limited (AHEPCL) was granted TOR for the installed capacity of 500 MW on 30.11.2009. In addition, on June 5, 2014, TOR for the updated installed capacity of 680 MW was granted; Upon expiry of the TOR, a fresh TOR was issued on 23.05.2019 to M/s Attunli Hydro Electric Power Company Limited (AHEPCL). Currently, as per provisions of EIA Notification 2006 and as amended the Validity of ToR is valid till 22.05.2025.
- The EAC noted that the Government of Arunachal Pradesh has given Attunli HEP to SJVN Limited on August 12, 2023. The DPR of Attunli HEP stands cleared from CEA vide letter no.2/ARP/27/CEA/10- PAC/1775-1819 dated 02.07.2018. Further, CEA vide letter dated 09.11.2023, transferred the TEC in the name of SJVN and extended its validity upto 31.12.2025.
- M/s SJVN vide its email dated 14.02.2024 has submitted the communication from M/s AHEPCL vide letter No. AHEPCL/Attunil HEP/SJVNL/2023-24/01 dated 13.02.2024. It has been mentioned that M/s Attunli Hydro Electric Power Company Ltd does not have any objection in withdrawal of Terms of Reference granted by Ministry vide letter no. K-12011/61/2006-IA-I(R) dated 23.05.2019 for EC and in issuance of fresh ToR in favor of SJVN Ltd by the MoEF&CC
- It was further noted that application for diversion of 261.53 ha of forest land was submitted to State Forest Department on 26.10.2015 for the first time by the previous project proponent and is presently pending at DFO concerned (Anini SF Division, Anini) since 05.08.2019.
- The EAC noted that all major components lies in forest land i.e. 241.53 ha and 20 Ha in non-forest area. The Reservoir tail end is the nearest project component to the boundary of Dibang WLS which is 3.7km away and Dihang-Dibang Biosphere Reserve is 3.9 km away. All project components including the submergence area are outside the notified ESZ.

7.5.4 The EAC after detailed deliberation on the information submitted and as presented during the meeting **recommended** for grant of Standard ToR for conducting EIA study and Public consultation to the project for Attunli Hydroelectric Project of capacity 680 MW on Tangon river as a run-of-the-river in an area of 261.53 Ha Village Athunli, Edilin and Gunil, Sub- District Etalin, District Upper Dibang Valley, Arunachal Pradesh by M/s SJVN Limited, under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR.

(A) Environmental Management and Biodiversity Conservation

i Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is located around 3.7km from outside the Eco- sensitive Zone (ESZ) of Dibang Wildlife Sanctuary and also project site not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.

ii Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows.

iii Calculation and values of GHG (CO2, CH4 etc) emissions during construction and during operation till the life of the project shall be estimated and submitted.

iv The EIA study should be undertaken in accordance with recommendations of the Dibang River basin study and the project parameters/salient features of the project such as Dam height, FRL, Submergence area, total land requirement, e flow etc. as recommended in the Dibang River basin study should remain unchanged.

v The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI.

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

vii Fisheries Management Plan shall be prepared along with other Environmental Safety Measures for Dibang river and other small stream/Nallah and same shall be incorporated in the EIA/EMP report.

viii Quantitative values of Impact modelling of environmental parameters shall be submitted for during construction and operation. Also, mitigation measures shall be submitted interms of construction and operation phase.

(B) Socio-economic Study

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

ii All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter.

iii Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

iv Budget earmarked for R&R, CSR shall not include in the cost of EMP and compliance of issues raised during Public Hearing

(C) Muck Management

i Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc) and disposal site/ transportation to be provided.

ii Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project

construction site/ indicating the distances from HFL, river, project construction site along with types of road etc.

iii Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area.

iv Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc.

(D) Disaster Management

i Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report.

ii Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC /CEA shall be submitted.

(E) Miscellaneous

i Both capital and recurring expenditure under EMP shall be submitted.

ii The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.

iii Drone video of project site shall be recorded and to be submit.

iv As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in case, within 6 months of issuance of ToRs. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable."

Any other item

Agenda No. 7.6

Cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Tirap Basin. Inclusion of Chinglum Hydroelectric Project in Subansiri Basin - Recommendation of the Study - reg.

7.6.1 Background :

MoEF&CC had received a request from Govt. of Arunachal Pradesh vide letter no. CE(M)/HPD/W-614/2020-21/688 dated 11th October, 2021 for conducting a Cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Tirap River and Dikrong River and inclusion of Chinglum Hydroelectric Project and other projects in Cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Subansiri Basin in Arunachal Pradesh.

Summary of CIA&CCS study:

i. A number of CIA & CCS have been conducted since 2006. The CIA & CCS studies of river basins in the States have so far been carried out mainly by Central Water Commission (CWC).

ii. The CIA & CCS of Teesta basin was conducted by Centre for Interdisciplinary Studies of Mountain and Hill Environment (CISMHE), University of Delhi, funded by NHPC. CIA & CCS studies were taken up by developers in Arunachal Pradesh, Bichom, Lohit. Thereafter CWC and Govt. of Himachal Pradesh (H.P.) took up CIA & CCS studies (Siang & Subansiri by CWC and Chenab and Sutlej in HP by H.P. Govt.).

iii. As per OM dated 28.05.2013 regarding streamlining the process of EC&FC cases by EAC/FAC for Hydro power and River Valley projects- the relevant para 3 (iv) states under: "The carrying capacity study of a river basin is important to plan optimal number of power projects in a basin. All State Governments will be required to get such studies done for river basins in their State. The process may be initiated in the next three months and completed 'within a period of two years, after which the carrying capacity study report would be made a pre-requisite for considering EC/FC cases of projects of any basin. All State Governments will send the details of river basins where such studies are to be done and confirm initiation 'of studies to MoEF within 3 months of issuance of this OM. The institutes for such studies may be settled by the State Government in consultation with the EAC"

iv. Later on, for a meaningful outcome of these studies, it was proposed that it would be appropriate, if MoEF&CC take over these studies. A Meeting was held on 20.01.2015 in MOEF&CC and decided to take over all CIA&CCS studies from the State Govt. and CWC on as is where is basis since conducting of such studies is the domain of the Ministry of Environment & Forests.

v. MoEF&CC decided to conduct the CIA&CCS of river Basins under the supervision and ownership for appraisal of Hydro-electric Projects (HEPs) by EAC for grant for Environmental Clearance as mandated under the EIA notification, 2006. It was also decided that MoEF&CC & Ministry of Power, Govt. of India will jointly decide on which Central Public Sector Units (CPSU) shall fund which river basin study. Mode of payment to consultants/ Institute will also be decided by MoEF&CC and MoP.

vi. To facilitate the Cumulative Impact Assessment & Carrying Capacity (CIA&CC) studies, a committee was constituted vide OM dated 27.05.2015 under the chairmanship of the Joint Secretary (IA-I Division), MoEF&CC.

vii. EAC is to discuss and finalise TOR for the river basin study and shall suggest any additional study as required. The draft report on Cumulative Impact Assessment & Carrying Capacity (CIA&CC) studies are again considered by the EAC and after detailed deliberations it is recommended for acceptance by the regulatory authority i.e. MoEF&CC.

viii. Till date following CIA&CCS study of River basin study have been completed in Arunachal Pradesh: 1. Bichom 2. Lohit 3. Subansiri 4. Siang 5. Kameng 6. Dibang 7. Tawang ix. Initially, 28 HEPs projects having capacity of less than 25 MW as well as more than more than 25 MW proposed in Subansiri River basin in 2014 (Subansiri, Kurung, Kamla, Kale, Kamla, Siu, Payam rivers and Dikrong) covered as a part of the CIA&CC study

- Further, 27 HEPs were identified for inclusion in the additional CIA&CC study in Subansiri River Basin by Department of Hydropower Development, Government of Arunachal Pradesh. This includes one commissioned project namely Ranganadi HEP on Ranganadi adjoining Dikrong with IC of 405 MW (3x1 35) in 2002. These additional projects were considered by MOEFCC for additional study for cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Subansiri basin.
- Additional study for CIA & CC of Subansiri river basin was conducted and approved by the MoEF&CC vide letter dated 13th April, 2018
- Further, Govt of Arunachal Pradesh requested vide letter dated 4th September, 2019 to conduct CIA & CC study of Tirap Basin and Dikrong river basin on similar line as of other basins which have already been covered.
- In this regard an D.O. letter No. MP (LS)/ARUN (E)/ (TG)/01/2021 dated 8th March, 2021 from Shri Tapir Gaho, Hon'ble M.P. regarding to conduct Cumulative Impact and Carrying Capacity Study of Tirap Basin and Dikrong Basin.
- Govt. of Arunachal Pradesh further informed that during the additional study of Subansiri river basin (Subhansiri, Dikrong and Paniyor rivers) One (1) project namely Chinglum HEP (6 MW) was not included in Dikrong River Basin which may be included.
- Accordingly, vide letter dated 11th October, 2021 Govt. of Arunachal Pradesh has requested for conducting additional study of Dikorong Sub-basin of Subansiri river basin having following projects: i. Chinglum HEP (6 MW) ii. Pare- I SHP (2x6 MW) iii. Pare-II SHP (2x6 MW) ii. Pre-III SHP (2x3 MW) iii. Pare-IV SHP (2x1.5 MW) iv. Pare-V SHP (2x1.5 MW) v. Su SHP (2x1.5 MW)

Earlier EAC deliberations on the subject:

- The matter was appraised in 18th EAC meeting held on 28.10.2021 and it was desired to submit the following information to ascertain the need of any further study in Dikrong and Tirap River Basin:
  i. The longitudinal distances of proposed HEPs in Dikrong and Tirap River shall be submitted.
  ii. Status report of all Hydro-electric Project (commissioned/proposed/ under construction) developed on Tirap, Dikrong and Subansari River of Arunachal Pradesh.
  iii. Water availability status in Tirap River and Dikrong river throughout the year (season wise) shall be submitted.
  iv. Location map of proposed HEPs on River & River basin networking indicating major tributary of Subansiri, Siang and Brahmaputra rivers.

v. Drainage/Flow direction indication map of Catchment area of Dikrong and Tirap River including their confluence with Brahmaputra River shall be submitted

In compliance to EAC observation, Govt. of Arunachal Pradesh submitted the requisite information to MOEF&CC for further deliberation on the matter.

- It was again appraised by EAC in its 31st meeting held on 29.07.2022 and after detailed deliberations on the information submitted by the Govt. of Arunachal Pradesh opined that following are the deficiencies which required for further clarification:

  i. Location map of proposed HEPs on River & River basin networking indicating major tributary of Subansiri, Siang and Brahmaputra river need to relook and the same may be aligned with the google map for clarity. Also, clarify, whether the meeting point of Dikrong river is with Subansiri or Brahamputra River.
  ii. The Longitudinal distance of proposed seven (7) HEP/SHP in Dikrong and Subansiri River Basin need to be submitted.
  iii. The updated hydrological data (approved/verified by CWC) of whole stretch of Dikrong and Tirap River including all project may be submitted.
  iv. In the Map of Catchment area of Dikrong and Tirap River not showing flow direction properly. Clear drainage pattern map of Tirap and Dikrong River basin need to be resubmitted.

In compliance to the observation of above meeting, the representative of Govt. of Arunachal Pradesh had submitted clarifications to MOEF&CC vide letter dated 22.06.2023. Further, proposal was put up in 1st EAC meeting dated 18-19 .10.2023, but the officials from Government of Arunachal Pradesh could not attend the meeting due to some reason and hence EAC decided to defer the proposal.

Present deliberations and observations:

Recently, the Govt. of Arunachal Pradesh submitted a reply of observations by EAC in its earlier meeting as mentioned above. EAC had a detailed deliberation on the subject matter and observed the request to MOEF&CC for conducting Cumulative Impact Assessment and Carrying Capacity Study (CIA & CCS) of Tirap Basin and inclusion of Chinglum Hydroelectric Project & Others in Subansiri Basin.

The Govt. of Arunachal Pradesh had submitted that the Dikrong river is joining with Subansiri River and the confluence point of Dikrong with Subansiri river vide its letter dated 22.06.2023 which is visible from google map/.kml file. Therefore it is clear that the Dikrong River is a tributary of Subansiri river basin in which additional Study was already completed and accepted in the year 2018, Also, it was noted from the Subansiri Additional CIA &CCS study that nine (9) hydro-electric projects envisaged on Dikrong river which have been approved by the Ministry vide letter dated 13th April, 2018.

In view of above facts, EAC observed that there is no need for further additional studies of Dikrong river presently. The EAC also opined that Cumulative Impact Assessment (CIA) & Carrying Capacity Study(CCS) conducted for any River basin shall have its relevance for a definite time period. After a long time duration, there may be certain variations in river basin ecology and river morphology i.e. slope of river, drainage pattern of river, catchment area, depth of river, water availability, e-flow, cross section of the river etc. which play a direct role in deciding carrying capacity of the river basin. Therefore, the study may be re-conducted after few years for overall Subansiri River and its tributaries.

Further with regard to CIA&CCS study on Tirap River Basin, it was observed that only two projects were envisaged as of now and of lower capacities. Also, it was observed that till date Assessment of Hydro potential studies have not been conducted in Tirap River Basin. Therefore, EAC desired that Govt. of Arunachal Pradesh may request of Ministry of Power to conduct Hydro-potential studies and finalize the numbers and locations of proposed HEPs on Tirap River basin prior so that the complete Cumulative Impacts and carrying capacity of Tirap River basin for HEP can be studied. In the meantime, for any small power projects not requiring EC from the Ministry, for forest clearance and for any other environmental related aspects, the PP may approach MoEF&CC for issuance of an appropriate letter regarding CIA & CCS for project clearance related aspects and/or execution.

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

***

Annexure

Attendance

S. No.	Name	Role	Attendance
1.	Prof. G. J. Chakrapani	**Chairman**	P
2.	Dr. Udaykumar R. Y.	Member	P
3.	Dr. Mukesh Sharma	Member	A
4.	Dr. J V Tyagi	Member	P
5.	Shri Kartik Sapre	Member	P
6.	Shri Ajay Kumar Lal	Member	P
7.	Shri Sharvan Kumar	Representative of CEA	P
8.	Shri Alok Paul Kalsi	Representative of CWC	P
9.	Dr. J A Johnson	Representative of WII	A
10.	Dr. A.K. Sahoo	Representative of CIFRI	P
11.	Shri Munna Kumar Shah	Member Secretary	P
12.	Dr Saurabh Upadhyay	Scientist C, MoEF&CC	P

***

Approval of the Chairman

From : Munna Kumar Shah <munna.shah@gov.in> Mon, Feb 19, 2024 06:39 PM

Subject : Fwd: Re: Draft MoM of 7th EAC meeting held on 9th February, 2024

To : Saurabh Upadhyay <saurabh.upadhyay85@gov.in>, Sourabh Kumar <sourabh.9@govcontractor.in>

Pls upload on parivesh portal
----- Forwarded Message -----
From: chakrapani govind <chakrapani.govind@gmail.com>
To: Munna Kumar Shah <munna.shah@gov.in>
Cc: govind chakrapani <govind.chakrapani@es.iitr.ac.in>
Sent: Mon, 19 Feb 2024 18:39:42 +0530 (IST)
Subject: Re: Draft MoM of 7th EAC meeting held on 9th February, 2024

Approved.

On Mon, 19 Feb, 2024, 18:18 Munna Kumar Shah, <munna.shah@gov.in> wrote:

>
> Dear sir
>
> Please find the revised MoM of 7th EAC meeting held on 9th February, 2024.
> It is to inform that no further comments has been received from any other
> members. Accordingly, it is requested to kindly approve the said MoM for
> further uploading on PARIVESH Portal.
>
> For consideration please
>
> Thank you
>
> Regards
>
> Munna Kumar Shah
> Scientist E
>