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 55th MEETING OF EXPERT APPRAISAL COMMITTEE meeting River Valley and Hydroelectric Projects held from 25/05/2026 to 25/05/2026 **Date:** 05/06/2026

MoM ID: EC/MOM/EAC/295210/5/2026

Agenda ID: EC/AGENDA/EAC/295210/5/2026

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

25/05/2026	10:30 AM	05:30 PM

1. Opening remarks

The 55th meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 25th May, 2026 through Virtual Mode, under the Chairmanship of Prof. G. J. Chakrapani.

2. Confirmation of the minutes of previous meeting

The Minutes of the 54th meeting held on 08th May, 2026 were confirmed.

3. Details of proposals considered by the committee

Day 1 -25/05/2026

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

NAYING HYDRO ELECTRIC PROJECT (1000 MW) - NEAR VILLAGE- YAPIK, DISTRICTS- SHI YOMI & SIAN

G, STATE- ARUNACHAL PRADESH by NORTH EASTERN ELECTRIC POWER CORPORATION LTD located at SHI YOMI,ARUNACHAL PRADESH			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity Sub-Activity (Schedule Item)**
IA/AR/RIV/573573/2026	J-12011/37/2007-IA-I (R)	17/04/2026	River Valley/Irrigation projects RVHEPs without Pump Storage Projects (1(c))

3.1.2. Project Salient Features

55.1.1 The proposal is for grant of Environmental Clearance (EC) to the project for Naying Hydro Electric Project (1000 MW) in an area of 470.8 Ha located at Sub District Tato, Payum Circle, District Shi Yomi and Siang, Arunachal Pradesh by M/s North Eastern Electric Power Corporation Ltd.

55.1.2: 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. Naying HEP (1000 MW) is a run-of-the-river scheme proposed on the Siyom River, a tributary of the Siang, in the Shi Yomi and Siang districts of Arunachal Pradesh, near Yapik village.

ii. **Background:** Initially allotted to private developers by the Government of Arunachal Pradesh (GoAP) over 15 years ago, the project witnessed limited progress. Consequently, the State Government terminated the earlier MoAs in April 2021, and the project was formally handed over to NEEPCO in January 2023 under the basin-wise reallocation framework of the Ministry of Power. A fresh MoA for development of the project was signed between NEEPCO and GoAP on 12 August 2023. Prior to its transfer, the project had undergone detailed investigations including preparation of the DPR, EIA/EMP studies, and a public hearing held on 11 May 2012. The DPR was concurred by the Central Electricity Authority (CEA) on 11 September 2013, with the concurrence subsequently transferred to NEEPCO in October 2023 and made valid up to 30 September 2027. The project was also appraised in the 66th EAC meeting held in May 2013, following which the Ministry directed strict compliance with environmental flow requirements and project configuration recommendations emerging from the Siang Basin Study. Revised Power Potential Studies incorporating these recommendations were later approved by CEA on 29 March 2022.

iii. The project was discussed by the EAC in the meeting of 27th June 2024 where scoping clearance was recommended. Scoping clearance letter was issued by MoEF&CC vide TOR Identification No. TO24A0501AR5925513N and File No. J-12011/37/2007-IA-I (R) dated 07/08/2024.

iv. The geographical co-ordinates of the project are:

Dam Site: Latitude 28°31'10"N, Longitude 94°30'25"E

Powerhouse: Latitude 28°31'53.60"N, Longitude 94°33'54.30"E

- A Concrete Gravity Dam with centrally located low level Spillway.
- An Intake located slightly upstream of the Dam on the right bank of the river
- A 10.6 m diameter, 7.08 km long Head Race Tunnel
- A 28 m diameter, 89.1 m high restricted orifice, open to sky type surge shaft
- Four steel lined pressure shafts of 4.5 m diameter, each
- An underground Powerhouse Complex comprising of three Caverns and several Adits. The Caverns serve as the Powerhouse, the Transformer Hall and the downstream Collection Gallery. Four vertical axis Francis Turbine-driven Generator units of 250 MW capacity each, proposed for installation in the Powerhouse Cavern.

- A Tail Race Tunnel, 465.0 m long, 11.0 m wide and depth varying from 11.15 m at outlet to 17.15 m at Collection Gallery
- Open Pot Head Yard, 190 m (L) x 61 m (W)

vii. **Demographic details in 10 km radius of project area:** The Project area spans 37 villages in Arunachal Pradesh's Siang and Shi Yomi districts, with a population of 7,579 predominantly Scheduled Tribes (95.46%). The region has a sex ratio of 1,051 and a low literacy rate of 49.85%, with a significant gender gap. Around 42.56% of the population are workers, mainly engaged in cultivation and other subsistence activities like animal husbandry and forest produce collection. Infrastructure is limited: education and healthcare facilities are sparse, with only one high school and a few PHCs. While road connectivity exists, internal roads and public transport are poor. Electricity and tap water reach only a few villages, and access to markets, telecom, and banking remains inadequate, reflecting overall underdevelopment.

viii. **Water requirement:** This is run of the river hydropower project designed for 424.5 cumec (design discharge).

ix. **Project Cost:** The estimated project cost is **Rs 11835.86 Crore**. Total capital cost earmarked towards Environment Management Plan is **Rs. 3585.79 lakh** and the Recurring cost (operation and maintenance) will be about **Rs. 1029.32 lakh** per annum (Rs. 6175.92 lakh for 6 years).

x. **Project Benefit:** Approx. 1275 persons will be engaged during the peak construction phase. The project proposes to allocate Rs. 2000.00 Lakh towards CER (as per Ministry's OM dated 30th Sep 2020).

xi. **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. The project is proposed across the Siyom River.

xii. **MoU / any other clearance/ permission signed with State government:** Memorandum of Agreement (MOA) signed with the Government of Arunachal Pradesh on 12/08/2023 for the development of project.

xiii. **Resettlement and rehabilitation:** Total 12 villages shall be affected due to acquisition of land for various components of proposed project. Of which, 2 are in Payum Circle of Siang district, 10 are in Tato Circle of Shi Yomi district. Total 408 families have been identified as Project Affected Families (PAFs). The PAFs likely to lose both housing and land are estimated as 72 PAFs. The remaining 336 PAFs will not lose homesteads but only land. Therefore, 72 PAFs have been considered for resettlement and compensation thereof. A budgetary provision of Rs. 72.00 crore has been kept towards implementation of R&R plan.

xiv. **Scheduled – I species:** As per Wildlife Protection Amendment Act, 2022, Northern Red Muntjac, Sambar, Alpine Musk Deer, Golden Jackal, Dhole, Bengal Fox, Jungle Cat, Clouded Leopard, Leopard, Mainland Leopard Cat, Javan Mongoose, Eurasian Otter, Asiatic Black Bear, Small Indian Civet, Assamese Macaque, Capped Langur, Bengal Slow Loris, Oriental Pied Hornbill, Kalij pheasant, White napped Tit, Beautiful Nuthatch, Common Hill Myna, Fowlea piscator are listed as Schedule I species.

xv. **Alternative Studies:**

The project reach, approximately 16 km long, extends from the tailrace of Tato-II HEP to the reservoir of the Middle Siang HEP. Within this corridor, several alternatives were explored, considering:

- Left vs. right bank development
- Multiple dam axis locations
- Intake and powerhouse site variations

Detailed assessments factored in topography, hydraulic design, geological mapping, and techno-economic analysis. Right bank development was selected due to its better accessibility (presence of a major road), similar geological conditions on both banks, and lower infrastructure requirements. This choice minimizes the need for bridges and additional approach roads, thereby reducing costs and environmental impact.

Ultimately, five alternative schemes were evaluated within the allotted reach, all with a Full

Reservoir Level (FRL) of 805 m, Tailwater Level (TWL) of 520 m, and dam top at 808 m. Each option considered underground powerhouse locations in a common zone and right-bank alignment of the water conductor system.

ALTERNATIVE SCHEMES - DESCRIPTION

Alternative-1: Located approximately 3 km downstream of Yapik village, this site lies in a moderately wide, straight river gorge with favorable topographic and geological conditions. The left bank rises steeply with gneiss exposures above the overburden, while the right bank has moderate slopes with solid rock formations exposed near the riverbed. This site is considered suitable for a concrete gravity dam, although special attention is needed for optimizing the intake location. A headrace tunnel of about 7.08 km, including a 32.5 m feeder conduit, would be required.

Alternative-2: Situated 1.7 km upstream of the PFR site, this location features a slightly curved river section with large fluvial terraces and multiple tributaries (Shikam and Shikam Nala) joining the Siyom River nearby. Thick overburden and significant terrace development on both banks present challenges for dam construction, especially in locating the intake and avoiding interference with the nalas. Due to these geological and layout constraints, this site was deemed unsuitable for dam construction.

Alternative-3: This site lies 2.83 km upstream of the PFR location and features a sinuous river course with a large fluvial terrace on the left bank and exposed bedrock on the right abutment near the riverbed. It offers favorable geological conditions for siting a 78 m high concrete dam and allows relatively easier placement of the power intake compared to other options. Adequate live storage between FRL and MDDL is available, and while the headrace tunnel would be longer (about 9.7 km), this site was considered technically and economically viable for further investigation.

Alternative-4: Located about 4.05 km upstream of the PFR site, this site has steep abutments, significant overburden, and wide terraces, particularly on the right bank. The presence of Shiyi Nala close to downstream complicates the alignment of the headrace tunnel and desilting arrangements. With limited elevation headroom and a small reservoir, this site faces serious engineering constraints. The necessary appurtenances and storage requirements could not be met satisfactorily, leading to its rejection from further consideration.

Alternative-5: Positioned about 700 m upstream of the PFR site, this location is characterized by steep left bank slopes with some rock exposure, while the right bank is entirely covered in slope-wash deposits with no visible rock outcrops. The presence of terraces and sharp meanders indicates deep overburden, particularly on the right bank, raising concerns about foundation suitability and construction feasibility. As a result, this site was not considered further.

Conclusion based on above: Only **Alternative-1 and Alternative-3** were found technically feasible and suitable for siting concrete gravity dams, and thus were selected for detailed studies and further exploration.

FURTHER GEOLOGICAL AND GEOTECHNICAL EVALUATION

Alternative-3

At Alternative-3, the dam was initially proposed as a 78 m high concrete gravity structure, based on an assumed overburden depth of 25 m and riverbed level at El 755 m. The left bank is defined by thick fluvial terraces, while the right bank shows encouraging signs of gneissic bedrock exposures near the river edge and uphill slopes. Subsurface investigations, including seismic profiling, 11 drill holes, and 2 exploratory drifts, revealed that sound bedrock is only available below El 680 m, significantly deeper than anticipated. This implies a dam height exceeding 135 m, much more than the initially considered height, and undermines the site's feasibility. Additionally, the need for a desanding arrangement and the extended length of the headrace tunnel due to this upstream location further diminish its attractiveness. Consequently, this site was dropped from further consideration.

Alternative-1

Detailed geological and geotechnical investigations at Alternative-1, including seismic surveys, surface mapping, and subsurface exploration (11 drill holes and 4 exploratory drifts), revealed favorable conditions for dam construction. Among the various dam axis options evaluated (1, 1A, 1B, and 1C), Axis 1B was found most suitable due to gently sloping abutments and presence of quartzite bedrock under a manageable overburden layer (7–30 m). Drill holes on both abutments confirmed shallow bedrock at depths of 4.5–24 m, with the riverbed at around El 700 m. The site offers sufficient valley width for flood discharge and energy dissipation, with a clear approach to the spillway.

Based on investigations, the site was deemed suitable for constructing a 138 m high concrete gravity dam, **making it the preferred option** for project development.

Further a comparative study of various dam axis at the dam site of preferred alternative 1 was undertaken as described in **Table** below.

Comparative Study of Various Dam Axis Locations at Dam Site Alternative-1

S. No.	Dam Axis Location	Dam Length (at top)	Right Bank Characteristics	Left Bank Characteristics	Intake Features
1	**Alternative-1** (200 m upstream of PFR axis)	~306 m	Avg. slope 30°; slope-wash up to El 765m; quartzite exposed above	Moderate–steep slope; slope-wash up to El 775m; quartzite exposed above	Intake intersected by nala; crest at El 778.5m from El 700m; **75 m** inlet tunnel within large concrete mass
2	**Alternative-1A** (40 m downstream of Alt-1)	~295 m	Avg. slope 35°; quartzite with gneiss intercalations exposed from El 710–760m	Gentle up to El 750m, steep above with quartzite exposure	Foundation raised from El 725m to crest El 778.5 m; **50 m** inlet tunnel within large concrete mass
3	**Alternative-1B** (80 m downstream of Alt-1)	~280.5 m	Gentle up to El 725m, then moderate–steep; quartzite exposed El 720–765m	Gentle–moderate up to El 750m; steep above with quartzite	Foundation raised from El 724m to crest El 778m; **32.5 m** inlet tunnel; **less concrete filling**
4	**Alternative-1C** (125 m downstream of Alt-1)	~270 m	Gentle–moderate slope; quartzitic gneiss exposed at riverbed and El 750–780m	Gentle up to El 750m (slope-wash); steep above with gneiss exposure	Foundation raised from El 720m to crest El 778.5 m; **30 m** inlet tunnel within concrete

Preferred Option: Alternative-1B due to shortest inlet tunnel and minimal concrete filling with good geological conditions on both abutments.

FINAL SELECTION OF THE DAM AXIS

In order to make a final selection of the dam axis, a detailed comparison of Alternative-1 and Alternative-3 was undertaken. The evaluation covers major technical, hydraulic, and cost-related parameters, including dam design, sediment management, tunnel lengths, and overall project

economics. The table below summarizes these key aspects.

Comparative Analysis Dam Site Alternative For Final Selection

Parameter	Alternative-1	Alternative-3
Dam Type & Height	Concrete gravity dam, 138 m from foundation to El 808 m	Concrete gravity dam, 135 m from foundation to El 808 m
Riverbed Elevation	El 700 m	El 755 m
Reservoir Length at FRL	~8.1 km	~4.9 km
Sediment Management	Natural delta formation; no desilting chamber needed	Requires desilting system with 4 chambers, flushing and link tunnels
Headrace Tunnel	7.08 km, 10.6 m dia	8.45 km, 10.6 m dia
Intake–Spillway Crest Cushion	~41 m (adequate for sediment settling)	~15 m (inadequate – requires desilting)
No. of Adits	4 for HRT access	4 for HRT + 3 for desilting
Surge Shaft	28 m dia, 89.1 m high	29 m dia, 91 m high
Powerhouse & Other Structures	Identical in both alternatives	Identical in both alternatives
Total Civil Cost	Rs 3101.37 Cr	Rs 3355.57 Cr
Total Project Cost (Incl. E&M)	Rs 4112.13 Cr	Rs 4366.33 Cr
Cost per MW	Rs 4.11 Cr/MW	Rs 4.37 Cr/MW
Installed Capacity	1000 MW	1000 MW
90% Dependable Year Energy	4603 MU	4582 MU
Final Conclusion	**Preferred**: Economical, simpler layout, natural sediment control	Not preferred: Higher cost, complex sediment handling, longer HRT

Alternative-1 is the preferred dam axis due to lower overall cost, shorter headrace tunnel, absence of complex de-silting infrastructure, and better geological suitability.

Period	**From September 2024 to April 2025**
AAQ parameters at 06 locatio	**Core Zone**

Parameter	Unit	Min	Max	Standards
$PM_{2.5}$	mg/m^3	11.50	17.30	60
PM_{10}	mg/m	36.00	46.90	100

ns (Min. & Max.)

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SO_2	mg/m^3	5.60	7.20	80
NO_2	mg/m^3	7.20	10.00	80

Buffer Zone

Parameter	Unit	Min	Max	Standards
$PM_{2.5}$	mg/m^3	11.00	20.10	60
PM_{10}	mg/m^3	34.50	47.20	100
SO_2	mg/m^3	4.20	8.50	80
NO_2	mg/m^3	6.30	11.40	80

Incremental GLC Level

Core Zone

Criteria Pollutant	Unit	Baseline Concentration [A]	Predicted incremental value considering worst case stability class [B]	Total GLC [A]+[B]	
PM_{10}	mg/m^3	44.5	11.13	55.625	
$PM_{2.5}$	mg/m^3	16.7	4.18	20.875	
SO_2	mg/m^3	6.8	8.16	14.96	
NO_2	mg/m^3	8.3	9.96	18.26	

Buffer Zone

Criteria Pollutant	Unit	Baseline Concentration [A]	Predicted incremental value considering worst case stability class [B]	Total GLC [A]+[B]	
PM_{10}	mg/m^3	47.2	0	47.2	
$PM_{2.5}$	mg/m^3	20.1	0	20.1	
SO_2	mg/m^3	8.5	0	8.5	
NO_2	mg/m^3	11.4	0	11.4	

River water samples (8 samples)

Core Zone

S. No.	Parameters	Min	Max	Standards
1	pH	7.12	7.9	8.5
2	Total Dissolved Solids, mg/L	104	227	0
3	Dissolved Oxygen (mg/l)	9.0	10.4	6
4	Chloride (as Cl), mg/L	9.1	11.2	0
5	Total Hardness (as CaCO3), mg/L	58.7	70.1	0
6	Biological Oxygen Demand (mg/l)	0	0	2
7	Chemical Oxygen Demand (mg/l)	0	0	0
8	Total Coliform (MPN/100 ml)	0	0	50

Buffer Zone

S. No.	Parameters	Min	Max	Standards
1	pH	6.94	7.9	8.5
2	Total Dissolved Solids, mg/L	95	292	0
3	Dissolved Oxygen (mg/l)	8.8	11.6	6
4	Chloride (as Cl), mg/L	9.4	15.2	0
5	Total Hardness (as CaCO3), mg/L	59.4	73.5	0
6	Biological Oxygen Demand (mg/l)	0	0	2
7	Chemical Oxygen Demand (mg/l)	0	0	0
8	Total Coliform (MPN/100 ml)	0	0	50

Pond water samples quality at --locations

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Ground Water samples at 5 locations

Core Zone

S. No.	Parameters	Min	Max	Desired Limits	Permissible Limits
1	pH	7.14	7.42	6.5	8.5
2	Total Dissolved Solids, mg/L	386	471	500	2000
3	Chloride (as Cl), mg/L	35.7	37.8	250	1000
4	Total Hardness (as CaCO3), mg/L	143.3	164.6	200	600
5	Fluoride (as F), mg/L	0.09	0.14	1	1.5

Buffer Zone

S. No.	Parameters	Min	Max	Desired Limits	Perm

					is si bl e Li mi ts
1	pH	7.13	7.81	6.5	8.5
2	Total Dissolved Solids, mg/L	389	483	500	2000
3	Chloride (as Cl), mg/L	34.1	39.6	250	10000
4	Total Hardness (as CaCO3), mg/L	141.0	176.9	200	600
5	Fluoride (as F), mg/L	0.11	0.12	1	1.5

Noise l evels L eq (Day & Nigh t) at 8 locatio ns

Zone	Category	Leq Day dB(A)		Leq Night dB(A)		Prescribed Limits	
		From	To	From	To	Day	Night
Core	Residential	52.2	60.0	36.7	41.8	55	45
Buffer	Residential	52.8	60.5	33.6	42.9	55	45

Soil Qu ality at 10 Loca tions

Core Zone

S. No.	Parameters	Min	Max	Prescribed Limits
1	Calcium (mg/kg)	215	320	500
2	Magnesium (mg/kg)	94	113	500
3	Nitrogen (kg/ha)	314	441	500
4	Phosphorus (kg/ha)	14.3	15.8	50
5	Potassium (kg/ha)	70.5	99.2	500
6	Carbon (%)	0.96	1.3	1
7	Sodium Absorption Ratio	2.07	2.88	10
8	Salinity (ppt)	0	0	0.01

Buffer Zone

S. No.	Parameters	Min	Max	Prescribed Limits
1	Calcium (mg/kg)	112	327	500
2	Magnesium (mg/kg)	85	119	500
3	Nitrogen (kg/ha)	360	450	500
4	Phosphorus (kg/ha)	12.8	16.8	50
5	Potassium (kg/ha)	85.4	96.2	500
6	Carbon (%)	0.98	1.5	1

	7	Sodium Absorption Ratio	1.97	4.02	10
	8	Salinity (ppt)	0	0	0.01

Flora & Fauna	Schedule-I species observed in the study area: As per Wildlife Protection Amendment Act, 2022, Northern Red Muntjac, Sambar, Alpine Musk Deer, Golden Jackal, Dhole, Bengal Fox, Jungle Cat, Clouded Leopard, Leopard, Mainland Leopard Cat, Javan Mongoose, Eurasian Otter, Asiatic Black Bear, Small Indian Civet, Assamese Macaque, Capped Langur, Bengal Slow Loris, Oriental Pied Hornbill, Kalij pheasant, White napped Tit, Beautiful Nuthatch, Common Hill Myna, Fowlea piscator are listed as Schedule I species.

· Sanitation and Solid Waste Management Plan– The implementation of the Sanitation and Solid Waste Management Plan, including provision of infrastructure, training, and strict adherence to waste segregation, transportation, and disposal protocols, will be carried out at regular intervals throughout the construction period. The solid waste will be transported for disposal at the designated landfill sites. The landfill shall have impervious clay at the bottom-most layers. The second layer shall be impervious liner (Geomembrane), the third layer will be of sand, after that well-compacted solid waste is to be put over the sand, then again, a layer of clay, finally a layer of soil. Vegetation shall be grown on the topmost layers. It will give a good aesthetic view of the landfill.

· For Disposal of hazardous waste vendors authorized by State Pollution Control Committee shall be engaged.

· 7 muck disposal yards has been identified with a total area of 37.50 ha and capacity has been worked as 5,954,000 cum which is more than the total quantity of muck to be disposed i.e. 4,232,300 cum. All the sites 30 m away from HFL.

District	Date / Time	Venue	Chairperson
Siang	20.11.2025 / 10.00 AM	Community hall, Kaying	Shri Tayi Taggu, APCS, Deputy Commissioner, Boleng
Shi Yomi	17.12.2025 / 10.00 AM	Yapik Village, Tato Circle	Shri Tungge Loya, APCS, Deputy Commissioner, Tato

The main issues raised and replies by the user agency during the public hearing are;

Suggestions/ Comments Given by Stakeholders in Siang District

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
1	Changes in project design and Detailed Project Report (DPR) by NEEPCO without consultation with land owners. Land earlier assured for acquisition now excluded.	The Techno-economic Clearance (TEC) of hydropower projects is granted by CEA. After taking over the project from the Government of Arunachal Pradesh, NEEPCO in consultation with CEA has finalized the DPR and got necessary clearance including extension of the validity of TEC. Originally, the land requirement for the proposed project was 644 ha covering surface area 609 ha and underground area 35 ha. The proposal was discussed during FAC Meeting held on 17.03.2015 and following observations w

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
		ere made: The committee is of the opinion that construction of building for maintenance of the HE Project will have to be on need basis and preference should be given for double or triple storied to minimize the use of forest land. Similarly, land for construction of roads should be kept at bare minimum. To explore the possibilities of extracting rock materials from the submergence area instead of opening new areas for the Quarry to avoid use of forest land. In compliance of the above observations of FAC and examining the functional requirement, NEEPCO has reassessed land requirement and submitted application for acquisition of Surface Land of 453.55 Ha by reducing forest land against buildings, roads and quarry etc. Accordingly, Forest Clearance application also submitted for 470.80 Ha and already PSC has approved the same. At this moment, no additional requirement of land is envisaged.
2	Demand for a fresh SIA by a new/ independent agency due to deficiencies and inaccuracies in the Social Impact Assessment (SIA), including omission of affected families, villages and reduced land figures.	The SIA was conducted by District Administration through a recognized institute as per prevailing guidelines. Public consultation for SIA has been carried out as per statutory process by District Administration, regarding this notice were issued by the District Administration. However, the concerns regarding errors and omissions will be communicated to the competent authority. Any corrections or additional assessments, if required by the Government, will be complied with as per statutory provisions.
3	Lack of information and notice for public hearing	Public consultation for Environmental public hearing has been carried out as per statutory process by Arunachal Pradesh State Pollution Control Board and District Administration. Regarding this notice were issued by Arunachal Pradesh State Pollution Control Board.
4	Unequal or inadequate compensation, particularly for left bank land owners, and downstream communitie	The Land Compensation shall be finalized by the District Administration as per Provisions of “The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act” (RFCTLARR) 2013 and Manual for Land Acquis

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
	s dependent on river and forest for livelihood.	ition in Arunachal Pradesh 2022 notified on 06.09.2022. Compensation will be provided for the acquired land and process will be fare and transparent.
5	Threats to biodiversity, including natural bird and animal sanctuaries near the proposed powerhouse.	No project component falls in any notified protected area. EIA/EMP study report has taken into consideration all the issues including biodiversity impacts related to environment and NEEPCO will properly address them. Mitigation plan will be implemented as per EMP and Wildlife/Biodiversity Management Plan. Nearest Protected Area to the Project Components is Yorde Rabe Supse Wildlife Sanctuary (WLS) which is at a distance of around 10.10 km from and Mouling WLS which is at a distance of around 11.74 km from the project component. For Conservation and Management of flora and fauna detailed Biodiversity Conservation and Management Plan has been prepared and submitted to State Forest Department for approval. The plan includes the habitat conservation measures, Conservation of Avifaunal habitat, Establishment of Butterfly Park, Veterinary care, Fire protection measures, Maintenance of Natural Water Springs, etc.
6	Potential environmental impacts from slope instability and road cutting; need for damage control and mitigation measures. Need for agreement on damage control measures.	A comprehensive Catchment Area Treatment (CAT) Plan has been proposed for soil and water conservation within the project catchment. Additionally, measures under the Reservoir Rim Treatment Plan and Landscaping and Restoration Plan have been designed to mitigate potential impacts of slope instability arising from construction activities. These measures will be implemented in consultation with affected landowners to ensure proper damage control and restoration of affected areas.
7	Lack of effective communication, and grievance redressal despite multiple representations and hearings.	Multiple meetings were held with the Project-Affected Families (PAFs) and representatives of NEEPCO to discuss and address the issues raised. We regret that, despite multiple representations and hearings, there is a feeling that concerns have not been addressed effectively. We would like to assure that all grievances are taken seriously, and NEEPCO remains committed to

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
		strengthening communication and grievance redressal mechanisms.
8	Need for transparent and inclusive implementation of CSR funds, focusing on health, education, sports, culture, and local development.	The Project Proponent is committed to the transparent and inclusive implementation of CSR initiatives. CSR funds will be utilized in consultation with the project-affected communities, focusing on priority areas such as health, education, sports, cultural activities, and local area development. Mechanisms will be established to ensure accountability, community participation, and effective monitoring of CSR activities to maximize benefits for the affected villages.
9	Demand for job reservation for project-affected persons, preference to local contractors, and establishment of a local NEEPCO branch office to address public concerns.	Job reservation shall be in line with relevant clauses mentioned in the MOA (Memorandum of Agreement) drawn between State Government and NEEPCO for the project.

Suggestions/ Comments Given by Stakeholders in Shi Yomi District

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
1	Reduction of quantity of land from 644 ha (Proposed by earlier Developer M/s DSC Ltd.) to 470.80 ha now (Surface Area: 453.55 + Underground Area: 17.25 ha)	Originally, the land requirement for the proposed project was 644 ha covering surface area 609 ha and underground area 35 ha. The proposal was discussed during FAC Meeting held on 17.03.2015 and following observations were made: I. The committee is of the opinion that construction of building for maintenance of the HE Project will have to be on need basis and preference should be given for double or triple storied to minimize the use of forest land. II. Similarly, land for construction of roads should be kept at bare minimum. III. To explore the possibilities of extracting rock materials from the submergence area instead of opening new areas for the Quarry to avoid use of forest land. In compliance of the above observations of FAC and examining the functional requirement, NEEPC

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
		O has reassessed land requirement and submitted application for acquisition of Surface Land of 453.55 Ha by reducing forest land against buildings, roads and quarry etc. Accordingly, Forest Clearance application also submitted for 470.80 Ha and already PSC has approved the same. At this moment, no additional requirement of land is envisaged.
2	Fair and Transparent Compensation including Land Compensation Rate	The Land Compensation shall be finalized by the District Administration as per RFCTLARR Act 2013 and Manual for Land Acquisition in Arunachal Pradesh 2022 notified on 06.09.2022. Process will be fare and transparent.
3	Regarding submission of False Documents.	It was clarified that whatever documents submitted by NEEPCO are genuine, valid and based on facts and studies.
4	Catchment Area Treatment Plan	A provision for Catchment Area Treatment (CAT) Plan has been kept under the Environmental Management Plan (EMP) which is under the examination of the State Forest Department. Necessary preventive and protective measures, including treatment of vulnerable catchment areas, slope stabilization, and afforestation, to minimize soil erosion and landslides has been duly considered in the approved CAT plan. The implementation of CAT plan shall be carried out by State Forest Department. These measures are aimed at reducing sedimentation and siltation in the reservoir, thereby protecting the overall health and efficiency of the dam.
5	Loss of Traditional Fishing Rights after the construction of dam.	It was clarified that the traditional fishing rights shall be vested with the PAFs (Project-Affected Families) only. Any loss of tribal rights and traditional rights and privileges shall be taken care of as per the State Policy.
6	Demarcation of Reservoir Submergence Area	The physical demarcation of the submergence area are being carried out by NEEPCO in close co-ordination with the District Administration & Land Owners marking the FRL/MWL at 805m by maintaining transparency and with proper understanding among the affected villages and stakeholders.
7	Arrangement of the	It was clarified that the entire arrangement for sm

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
	Environmental Public Hearing with logistics	ooth conduction of Environmental Public Hearing was done in consultation with the District Administration, APSPCB, NHEPALOWC and local people.
8	Re-settlement of affected villages.	Complete R&R package for Project Affected Families have been prepared keeping in view the provisions of RFCT_LARR Act, 2013, State R&R Policy, 2008 and as per the guidelines provided in manual for Land Acquisition in Arunachal Pradesh.
9	Concern about cultural impact due to influx of labours from outside.	Concern is acknowledged and necessary action shall be taken in consultation with District Administration, Local Populace including strict enforcement of ILP (Inner Line Permit) etc.
10	Concern about future landslides in Yapik and Irgo villages due to creation of reservoir.	Reservoir Rim Treatment Plan for stabilization of landslide zone is a part of Environment Management Plan and shall be implemented during the execution of the project. However, in EMP, the treatment measures involve RCC and gabion retaining walls, wire mesh, and slope re-grading to stabilize vulnerable slopes and prevent erosion. Biological measures such as grass, shrub, and tree plantation will improve slope strength and reduce runoff. At tributary mouths, RCC/ gabion walls and check dams are proposed to control flow velocity, trap sediments, and ensure reservoir rim stability.
11	Implementation of Minutes between NEEPCO, NHEPALOWC and District Administration.	The provision of minutes shall be respectfully implemented.
12	Inclusion of Yapik name in Naying HEP.	Suggestions are noted by the Project Proponent and District Administration for review at an appropriate time.
13	Plan for Disaster & Risk Management including Dam-break scenario, earthquake vulnerability and downstream flooding.	This plan will be implemented by NEEPCO in coordination with the District Administration to ensure effective emergency preparedness, response, and mitigation. Although, the Dam break modelling and Disaster Management Plan is part of EMP of the proposed project. It is clearly stated that Disaster Management Plan has been formulated focusing on prevention, emergency preparedness, early warning, evacuation, rescue, communication, and saf

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
		ety. The plan includes Emergency Action Plans, alert and notification systems, defined roles of authorities, public awareness, training, mock drills, and evacuation arrangements, and will be updated during project execution in coordination with State Disaster Management authorities. For the dam break study of the Naying Project, a 97.5 km stretch of the Siyom River up to its confluence with the Siang River was modeled using multiple cross-sections. In the model, the spillway is represented by its gate number and size at chainage 500 m. As the spillway is designed to safely pass the Probable Maximum Flood (PMF) of 8270 cumec with one gate inoperative, dam break modeling assumes only three of the four gates fully open during PMF. For dam break analysis, the critical condition assumed is reservoir at FRL with PMF impingement. As the maximum reservoir level is reached about 20 hours after PMF peak, breach initiation was assumed at FRL to obtain the maximum flood peak. Based on sensitivity analysis, the worst-case scenario producing 24,121 cumec was adopted for emergency preparedness and disaster management. As per earthquake scenario, the project area lies in Seismic Zone V as per IS 1893 (Part I):2016, indicating a high seismic risk zone. The study of Design Earthquake Parameters are determined by NEEPCO in coordination with National Committee of Seismic Design Parameters (NCSDP) and Central Water Commission (CWC)

· **Project details:**

Name of the Proposal	Naying Hydro Electric Project (1000 MW)
Proposal No.	IA/AR/RIV/573573/2026
Location (Including Coordinates)	The Naying HEP is proposed as a run-of-the-river scheme in Arunachal Pradesh's Shi Yomi and Siang districts near Yapik village. Dam Site: Latitude 28°31'10"N, Longitude 94°30'25"E Powerhouse: Latitude 28°31'53.60"N, Longitude 94°33'54.30"E
Company's Name	M/s North Eastern Electric Power Corporation Ltd. (NEEPCO)

CIN no. of Company/user agency	U40101ML1976GOI001658
Accredited Consultant and certific ate no.	Name: R S Envirolink Technologies Pvt. Ltd. Certificate No.: NABET/EIA/25-28/RA 0415
Project location (Coordinates /River/ Reservoir)	Naying HEP is proposed in Shi Yomi and Siang district s of Arunachal Pradesh near Village Yapik. The proje ct is a run of the river scheme to harness the hydrop ower potential of river Siyom (a tributary of river Sia ng). The proposed dam site is located at 28°31'10"N & 94°30'25"E which is 40 km upstream of Middle Si yom HEP dam site and 4 km downstream of village Y apik. The project is located 100 km upstream of Aalo (Along) Town (nearest major town and the District H Q of West Siang District).
Inter- state issue involved	No
Proposed on River/ Reservoir	Siyom River (a tributary of river Siang)
Type of Hydro-electric project	Naying Project is a hydro power generation project wit h 1000 MW capacity.
Seismic zone	The project area falls in the Zone V as per IS-1893 (Pa rt 1) 2016, Seismic Zoning Map of India

· **Category details:**

Category of the project	A
Capacity / Cultural command area (CCA)	1000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

· **ToR/EC Details:**

ToR Proposal No.	IA/AR/RIV/470969/2024
EAC meeting date	27.06.2024 (Scoping Clearance)
ToR Letter No.	TOR Identification No.: TO24A0501AR5925513N
ToR grant Date	07.08.2024
Cost of project	Rs. 11835.86 Crore
Total area of Project	470.80 Ha
Height of Dam from River Bed (EL)	108 m (above river bed level)

Details of submergence area	160 ha (at FRL at 805.0 m)
District to provide irrigation facility (if applicable)	NA
Details of tunnels on upper level & lower level and length of canal (if applicable)	· A 10.6 m diameter, 7.08 km long Head Race Tunnel · A Tail Race Tunnel, 465.0 m long, 11.0 m wide and depth varying from 11.15 m at outlet to 17.15 m at Collection Gallery
No. of affected Village	12, of which, 2 are in Payum Circle of Siang district, 10 are in Tato Circle of Shi Yomi district
No. of Affected Families	408, of which, 44 belongs to Siang district and 364 belongs to Shi Yomi district
Project Benefits	**Social Benefits** Construction and operation of the Naying HEP will stimulate considerable direct and indirect employment. It is estimated that about 1275 individuals will be engaged during the peak construction phase, encompassing skilled, semi-skilled, and unskilled categories. Long-term employment will arise from operational roles, maintenance services, and security staffing. The multiplier effect will also boost ancillary sectors such as transport, hospitality, local procurement, and construction materials supply. **Financial Benefits** The foremost benefit of the Naying HEP is the generation of 1000 MW of clean, renewable energy. With a projected annual generation of 3809 million units (MU) in a 90% dependable year, the project will provide crucial peak-hour support to the regional and national grid.
R&R details	Total 12 villages shall be affected due to acquisition of land for various components of proposed project. Of which, 2 are in Payum Circle of Siang district, 10 are in Tato Circle of Shi Yomi district Total 408 families have been identified as Project Affected Families (PAFs). The PAFs likely to lose both housing and land are estimated as 72 PAFs. The remaining 336 PAFs will not lose homesteads but only land. Therefore, 72 PAFs have been considered for resettlement and compensation thereof. A budgetary provision of Rs. 72.00 crore has been kept towards implementation of R&R plan.
Catchment area/ Command area	Catchment Area: 2760 sq km
Types of Waste and quantity of gen	· Muck during construction – 42.32 lakh cum (to be dis

eration during construction/ Operation	posed) · Municipal Solid Waste during construction - Degradable (500 Kg/day for 3000 persons), Non-degradable (300 Kg/day for 3000 persons)
Material used for blasting and its composition as per DGMS standards.	Permanent explosive magazines of adequate capacity would be constructed to store the explosives and detonators required for the construction of the project components. It has been assessed that two magazines of 20 MT capacity, each would be sufficient to meet the requirement of the project. The explosive magazine complex has been planned centrally near Adit-3 to keep the distance traveled by the explosive van to the minimum. As laid down in the Explosive Rules of 2008, a safe distance of 300 m is required to be maintained from public roads, etc.
E-Flows for the Project	For the Naying HEP, the environmental flow regime has been aligned with the recommendations made in the Cumulative Environmental Impact Assessment Report for the Siang River Basin in Arunachal Pradesh, approved by MoEF&CC. As per the report, environmental flows are prescribed as 20% of the average flow during the monsoon months (June to September), 20% during the lean season (November to February), and 20% of the average for the remaining months (October, March to May), all based on the 90% dependable year discharge. Accordingly, the corresponding environmental flow releases for the Naying HEP were worked and adopted as 86.45 cumec during the monsoon season, 14.25 cumec in the lean season, and 41.61 cumec for the non-lean, non-monsoon period. These flow releases have been incorporated into the project design to ensure ecological sustainability and maintain downstream riverine health.
Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes then a) E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin. b) If not the E-Flows maintain criteria for sustaining river ecosystem.	Yes Cumulative Impact Assessment & Carrying Capacity Study of Siang River Basin for hydropower development was approved by Ministry of Environment, Forest & Climate Change on 14th Oct 2016. Environmental flow releases for the Naying HEP were worked and adopted as 86.45 cumec during the monsoon season, 14.25 cumec in the lean season, and 41.61 cumec for the non-lean, non-monsoon period. These flow releases have been incorporated into the project design to ensure ecological sustainability and maintain downstream riverine health.
Details on provision of fish pass	As the height of dam is 108.0 m high above the river bed, construction of any fish passage or fish ladders is n

	ot feasible.
Project benefit including employment details (no of employee)	About 1275 workers (labour and staff) would be engaged during the peak construction period, out of which 150 persons will be engaged permanently and about 1125 will be temporary labour for the construction work. After completion of the project only a staff of about 100 persons (technical and non-technical) shall be required for the operation of the project.
Area of Compensatory Afforestation (CA) with tentative no of plantation.	942.0 ha; tentative no. of plantation - 195326
Previous EC details	-
EC Compliance Report by R.O, MOEF&CC	-
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	500

· **Electricity generation capacity:**

Powerhouse Installed Capacity	1000 MW
Generation of Electricity Annually	3809 MU
No. of Units	4 (4 X 250 MW)

· **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt land)	7 nos. (forest land)
Cross section of proposed muck area, Height of muck with slope.	Attached as Appendix I
Distance of muck disposal area (location), from muck generation sources (project area)/River, HFL of proposed muck disposal area.	30 m from HFL.
Total Muck Disposal Area	37.50 ha
Estimate Muck to be generated	4154255 Cum
Transportation	The generated muck will be carried in dumper trucks covered with heavy-duty tarpaulin properly tied to the vehicle in line with international b

	est practices. All precautionary measures will b e followed during the dumping of muck. Based upon the varying cycle time of 25T Rear Dump ers at different excavation sites and their distan ce from the disposal site appropriate pollution management will be devised. The Standard pra ctices of pollution abatement and control will b e enforced through the contractor.
Monitoring mechanism for Muck Dis posal Transportation	The provisions of Monitoring have been kept und er proposed Environmental Monitoring Plan.

· **Land Area Breakup:**

Private land	0.00 ha
Government land	0.00 ha
Forest Land	470.80 ha
Total Land	470.80 ha
Submergence area/Reservoir area	160 ha (at FRL at 805.0 m)
Additional information (if any)	-

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

Forest Land/ Protected Area/ En vironmental Sensitivity Zone	**Yes/ No**	**Details of Certificate/ letter/ Remarks**
Reserve Forest/ Protected Forest L and	No	No project component falls in any notifie d protected area. Nearest Protected Area to the Project Components is Yorde Rabe Supse Wildlife Sanctuary (WLS) which is at a distance of around 10.10 km from an d Mouling WLS which is at a distance of a round 11.74 km from the project compon ent.
National Park	No	
Wildlife Sanctuary	No	
Archaeological sites monuments/ h istorical temples etc.	No	
Additional information (if any)	-	

Availability of Schedule-I species in study area: As per Wildlife Protection Amendment Act, 2022, Northern Red Muntjac, Sambar, Alpine Musk Deer, Golden Jackal, Dhole, Bengal Fox, Jungle Cat, Clouded Leopard, Leopard, Mainland Leopard Cat, Javan Mongoose, Eurasian Otter, Asiatic Black Bear, Small Indian Civet, Assamese Macaque, Capped Langur, Bengal Slow Loris, Oriental Pied Hornbill, Kalij pheasant, White napped Tit, Beautiful Nuthatch, Common Hill Myna, Fowlea piscator are listed as Schedule I species.

· **Public Hearing (PH) Details**

Advertisement for PH with date	Publications of notice for public hearing were given in state and national newspapers namely “Echo of Aruna chal” and “The Times of India" dated 17.10.2025 and “ The Dawnlit Post” and “The Times of India" dated 29.1 1.2025. In addition, Corrigendum for change in no. of days was also given in state newspapers namely “The Arunachal Times”, “Arunachal Front”, “The Dawnlit Pos t” and “The Arunachal Pioneer” dated 06.12.2025.
Date of PH	20/11/2025 at Community Hall, Kaying, district Siang 17/12/2025 at Yapik Village, Tato Circle, district Shi Y omi
Venue	· Community Hall, Kaying, district Siang · Yapik Village, Tato Circle, district Shi Yomi
Chaired by	· Shri Tayi Taggu, APCS, Deputy Commissioner, Bolen g, district Siang · Shri Tungge Loya, APCS, Deputy Commissioner, Tat o, district Shi Yomi
Main issues raised during PH	· Regarding submission of False Documents. · Lack of effective communication, and grievance redr essal despite multiple representations and hearing s. · Demand for job reservation for project-affected pers ons, preference to local contractors, and establish ment of a local NEEPCO branch office to address public concerns. · Unequal or inadequate compensation, particularly fo r left bank land owners, and downstream commun ities dependent on river and forest for livelihood. · Lack of information and notice for public hearing · Threats to biodiversity, including natural bird and ani mal sanctuaries near the proposed powerhouse. · Fair and Transparent Compensation including Land C ompensation Rate · Re-settlement of affected villages. · Plan for Disaster & Risk Management including Da m-break scenario, earthquake vulnerability and do wnstream flooding. · Loss of Traditional Fishing Rights after the construct ion of dam. · Inclusion of Yapik name in Naying HEP. · Reduction of quantity of land from 644 ha (Propose d by earlier Developer M/s DSC Ltd.) to 470.80 ha now (Surface Area: 453.55 + Underground Area: 17.25 ha) · Concern about future landslides in Yapik and Irgo vill ages due to creation of reservoir. · Catchment Area Treatment Plan · Concern about cultural impact due to influx of labou

	rs from outside. Complete issues raised during PH and clarification give n by Project Proponent are attached as Appendix II
No. of people attended	· 87 in Siang District · 96 in Shi Yomi District

· **Brief of base line Environment:**

Particulars	**Details**		
Period of baseline data collection/Sampling pe riod.	**Monsoon**	**Winter**	**Pre-Monsoon**
Soil	September, 2024	December, 2024	April, 2025
Air Environment	September, 2024	December, 2024-Ja nuary, 2025	April, 2025
Noise & Traffic	September, 2024	December, 2024	April, 2025
Vegetation	September, 2024	December, 2024	April, 2025
Faunal	September, 2024	December, 2024	April, 2025
Water and Aquatic Ecol ogy	September, 2024	December, 2024	April, 2025
Socio-economic survey of study area villages	December, 2024		
Brief description on hyd rology and water assess ment as per the approve d Pre-DPR:	The Siyom River originates in mountainous terrain near Tunokar Ogo in Arunachal Pradesh, Northeastern India. The basin is boun ded on the north by Eastern Himalaya, on the east and west by Abore Hills. All these mountains form an almost continuous ran ge with elevations range between 4500 and 5000 m. The water shed of the Siyom River at the Naying Dam site is composed of two separate watersheds i.e., of the Siyom River and the Shi Ch u River. The watersheds of Shi-Chu and Siyom rivers at the Nayi ng Dam site are 1222 km2 and 1538 km2 respectively with a to tal of 2760 km2. The total length of the Siyom River from the origin up to the pr oposed dam site is about 77.5 km and the total length of Siyom from its origin up to the confluence with Siang River is about 18 4.54 km. The installed capacity at Naying HEP is proposed to be 1000 M W and the corresponding design discharge is 424.5 cumec durin g monsoon and 419.0 cumec during non-monsoon. Also, it was found that the annual and lean flow load factor corresponding t o 1000 MW installed capacity is 43.71% and 13.67% respectivel y.		

	On the basis of approved 10-daily flow series, years 1978-79 a nd 1986-87 come out as 90% and 50% dependable years, respe ctively. Design Flood: Probable maximum flood has been worked out us ing CWC sub-zone 2a Report, Clark model & Snyder method as 8266 cumec, 7096 cumec and 6951 cumec respectively. The m ost critical value of 8266 cumec say, 8270 cumec has been ado pted for the PMF. Sedimentation: Naying HEP, located in the steep Himalayan terr ain, is subject to significant sediment transport due to high river gradients. Although the reservoir volume is limited owing to the narrow gorge-like topography, sediment management remains c ritical given the catchment dynamics. Based on sediment yield e stimates from the downstream Project, a sedimentation rate of 0.141 ha.m/km²/year has been adopted for Naying HEP, translat ing to an annual sediment inflow of approximately 3.89 MCM. U sing Brune's curve, the reservoir's trap efficiency is estimated at 37%, resulting in an annual sediment deposition of around 1.85 MCM. Classified as a Type I operation (sediment always submer ged) and Type II shape (m = 2.82), the reservoir is expected to accumulate sediment up to the spillway crest level (El. 740 m) within ten years. To mitigate this, the design includes low-level sluices for periodic flushing and a 41 m vertical offset between the sluice crest and intake invert to ensure silt-free water abstra ction during non-monsoon operations. Glacial lake outburst flood (GLOF): Glacial lake outburst flood (GLOF) study for the project has been undertaken by Central Wa ter Commission and same has been worked out as 785 cumec a t Naying dam site. Environmental Releases (e-flow): Duly considering the approved basin study, e-flow for different seasons have been calculated b y considering 20% of average 10 daily flow value corresponding to 90% dependable year for each individual season. These e-flo w values are 14.25 cumec, 41.61 cumec and 86,45 cumec for le an season, pre-monsoon and post-monsoon season respectivel y. These are against DPR provision of 14.25 cumec (20% of aver age lean period flow (Dec-March) in 90% dependable year).
Additional detail (If any)	-

· **Court case details: Nil**

· **Status of other statutory clearances:**

Particulars	**Letter no. and date**
Status of Stage- I FC	Online Proposal No. FP/AR/HYD/IRRIG/492810/202 4 submitted to MoEF&CC with recommendation of State Govt. Pending at Nodal Officer due to EDS by MoEFCC.
Approval of Central Water Commis sion	CWC Hydrology Clearance vide letters dated 05.04. 2010 & 14.05.2010; further observations vide letter dated 14.11.2025

	GLOF Clearance vide letters dated 23.05.2025 by F E&SA Directorate, CWC
Approval of Central Electricity Auth ority	· CEA concurrence dated 11.09.2013 · Techno-Economic Concurrence accorded by CEA vi de OM dated 11.09.2013; revalidated up to 30.0 9.2027 vide CEA letter dated 19.11.2025
Additional detail (If any)	
Is FRA (2006) done for FC-I	The process for FRA compliance shall be undertaken

· **Details of the EMP**

Cost for Implementing Environmental Management Plan

S. No.	EMP Com ponent	Capita l Cost (Rs. in lakh)	Recurring Cost (Rs. in lakh)						Total Cost (Rs. in L akh)
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
1	Biodiversit y Conserv ation & W ildlife Man agement P lan	325.0 0	0.00	0.00	0.00	0.00	0.00	0.00	**325.0 0**
2	Fisheries Conservati on and Ma nagement Plan	272.0 0	0.00	0.00	0.00	0.00	0.00	0.00	**272.0 0**
3	Catchmen t Area Tre atment Pl an	1817. 79	0.00	0.00	0.00	0.00	0.00	0.00	**1817. 79**
4	Disaster Managem ent Plan	275.0 0	25.00	25.00	25.00	20.00	15.00	15.00	**400.0 0**
5	Reservoir Rim Treat ment Plan	0.00	0.00	0.00	0.00	200.0 0	150.0 0	150.0 0	**500.0 0**
6	Muck Du mping and Managem ent Plan	300.0 0	550.5 0	575.2 5	655.2 5	625.1 5	617.2 3	550.0 0	**3873. 38**

7	Landscaping and Restoration Plan and Green Belt Development	10.00	45.00	70.00	125.00	135.00	110.00	110.00	**605.00**
8	Public Health Delivery System	275.00	25.00	25.00	25.00	25.00	25.00	25.00	**425.00**
9	Labour Management Plan	21.00	10.00	15.00	15.00	15.00	15.00	10.00	**101.00**
10	Sanitation and Solid Waste Management Plan	200.00	50.00	50.00	50.00	50.00	50.00	50.00	**500.00**
11	Energy Conservation Measures	70.00	60.00	60.00	60.00	60.00	60.00	60.00	**430.00**
12	Control of Air, Noise and Water Pollution	20.00	30.00	30.00	30.00	30.00	30.00	30.00	**200.00**
13	Environmental Monitoring Programme	0.00	39.59	39.59	39.59	64.59	64.59	64.59	**312.54**
	Total	**3585.79**	**835.09**	**889.84**	**1024.84**	**1224.74**	**1136.82**	**1064.59**	**9761.71**

Cost for R&R and CER

S. No	Components	Capital Cost (Rs. in lakh)
1	Rehabilitation and Resettlement Plan**	7200.00
2	Corporate Environment Responsibility (CER)	2000.00
	Total	**9200.00**

**Cost of private land procurement will be part of DPR cost.

Cost for Compensatory Afforestation and Net Present Value

S. No.	Components*	Total Cost (Rs. in Lakh)
1	Compensatory Afforestation	4566.45
2	Net Present Value (NPV)	6763.84
3	Tree to be Felled	2225.66
	Total	**13555.95**

* As per Part-II of forest diversion proposal

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 noted the following:

· The EAC deliberated on the information submitted and presented during the meeting, observing that the proposal is for the grant of Environmental Clearance (EC) to the project for Naying Hydro Electric Project (1000 MW) in an area of 470.8 Ha located at Sub District Tato, Payum Circle, District Shi Yomi and Siang, Arunachal Pradesh by M/s North Eastern Electric Power Corporation Ltd.

· The project is listed under S.N.1(c) of the Schedule to the Environmental Impact Assessment (EIA) Notification as a Category 'A' project, which requires appraisal at the Central level by the Expert Appraisal Committee (EAC).

· The EAC, constituted under the provisions of the EIA Notification, 2006, and comprising expert members/domain experts in various fields, examined the proposal submitted by the Project Proponent, including the EIA/EMP reports prepared and submitted by the Consultant accredited by QCI/NABET on behalf of the Project Proponent.

· The EAC noted that the Project Proponent has provided an undertaking affirming that the data and information provided in the application and enclosures are accurate to the best of their knowledge, with no suppression of information in the EIA/EMP reports. The proponent also acknowledged that if any part of the data/information submitted is found to be false or misleading at any stage, the project will be rejected, and any Environmental Clearance granted will be revoked at the risk and cost of the Project Proponent.

· The committee observed that earlier MoEF&CC had granted Terms of Reference (ToR) on 13.07.2007, which was subsequently extended in March, 2012. Thereafter, the Public Hearing for the project was conducted in May, 2012, and the final EIA/EMP report was submitted to the MoEF&CC in July, 2012 for appraisal. Subsequently, the project was considered by the EAC during its 66th meeting held on 04.05.2013. During the appraisal, the Committee advised the PP to incorporate additional information, relevant test results, and supplementary details in the EIA/EMP reports. The Committee further directed that the findings and recommendations of the Siang River Basin Study, which was at an advanced stage of completion at that time, should also be incorporated in the updated EIA/EMP documentation. The EAC emphasized that inclusion of these additional studies and basin-level assessments was essential for carrying out a comprehensive and scientifically robust evaluation of the likely environmental, ecological, and cumulative impacts of the project.

· The EAC further noted that environmental flow (e-flow) releases into the river shall be maintained strictly in accordance with the recommendations and stipulations of the Cumulative Environmental Impact Assessment (CEIA) / River Basin Study of the Siang River Basin.

· Further, it was observed that subsequent to the earlier appraisal process, several modifications were carried out in the project configuration and layout. Additionally, the recommendations and findings of the CIA/CCS of the Siang River Basin were incorporated into the project planning and design. In view of these revisions and updated project parameters, the PP applied for fresh Terms of Reference (ToR) for the revised project layout. Accordingly, the MoEF&CC issued fresh ToR to the project vide letter No. J-12011/37/2007-IA-I (R) dated 07.08.2024.

· The EAC noted that the baseline data has been carried out from September 2024 to April 2025 and all the parameters are within the prescribed norms. Additionally, it was noted by the EAC that the total land requirement is about 470.80 ha ha of which entire land is forest land. It was further noted that for diversion of forest land application for forest clearance is has been submitted and is under process under proposal number: FP/AR/HYD/IRRIG/492810/2024.

· The EAC observed that there is no national park, wildlife sanctuary, Biosphere Reserve, Tiger/Elephant Reserve, Wildlife Corridor etc. within 10 km distance from the project site. Also, the EAC noted that the Biodiversity and Wildlife Conservation and Management Plan has been submitted by the PP to the Add PCCF (Cons) & Nodal Officer (FCA), Government of Arunachal Pradesh vide letter dated 11.08.2025.

· The EAC noted that the Public hearing for Siang District was conducted on 20.11.2025 at the Community Hall, Kaying under the chairmanship of Shri Tayi Taggu, APCS, Deputy Commissioner, Boleng. Similarly, the Public Hearing for Shi Yomi District was conducted on 17.12.2025 at Yapik Village under Tato Circle, under the chairmanship of Shri Tungge Loya, APCS, Deputy Commissioner, Tato. The Publications of notice for public hearing were given in state and national newspapers namely “Echo of Arunachal” and “The Times of India" dated 17.10.2025 and “The Dawnlit Post” and “The Times of India" dated 29.11.2025. In addition, Corrigendum for change in no. of days was also given in state newspapers namely “The Arunachal Times”, “Arunachal Front”, “The Dawnlit Post” and “The Arunachal Pioneer” dated 06.12.2025. The EAC discussed the concerns raised during the Public Hearing (PH) and reviewed the action plan submitted by the PP to address these issues. After detailed deliberation, the Committee found the action plan satisfactory, recognizing that the proposed mitigation measures adequately respond to stakeholder’s concerns.

· While deliberating on the hydrology and Glacial Lake Outburst Flood (GLOF) studies, the EAC sought clarifications from the PP to which PP informed that the project has been designed for an installed capacity of 1000 MW with design discharges of 424.5 cumec during monsoon and 419.0 cumec during non-monsoon periods. The annual and lean season load factors have been estimated as 43.71% and 13.67%, respectively, based on the 90% dependable year of 1978–79. The Probable Maximum Flood (PMF) for the project has been assessed as 8,270 cumec. The PP further submitted that due to the steep Himalayan terrain, sedimentation in the reservoir is significant, with an estimated deposition of 1.85 MCM/year, and accordingly low-level sluices have been incorporated for sediment flushing. Environmental flow (e-flow) releases have been proposed as per the basin study recommendations, with 14.25 cumec during lean season, 41.61 cumec during intermediate season, and 86.45 cumec during monsoon season. The PP also informed that the GLOF study for the project has been carried out by the Central Water Commission (CWC), and the GLOF at the Naying dam site has been assessed as 785 cumec.

· The EAC during the meeting, noted that CEA accorded concurrence to DPR in favour of M/s Naying DSC Power Limited on 11/09/2013. After approval of the Siang Basin study report, NEEPCO got revised power potential approval from CEA vide letter no. CEA-HY-12-32/1/2022-HPA Division dated 29.03.2022 to account for revised e-flow as recommended in basin study. Further, CEA transferred the concurred DPR of Naying HEP in favour of NEEPCO Limited vide letter no. CEA-HY-12-12/14/2023-HPA Division dated 20.10.2023 and extended the validity of concurrence up to 30/09/2025, which was further extended till

30/09/2027 vide CEA letter no. CEA-HY-12-32/1/2022-HPA Division dated 19/11/2025. However, the Committee noted that while approving the revised power potential, CEA has opined that NEEPCO may review the power potential study with the latest hydrological series to make it more realistic in the present scenario. NEEPCO submitted that they have already completed the water availability studies and submitted to CWC in May 2026, however, flood studies are underway and shall be submitted shortly.

· The EAC was also informed that the Cumulative Impact Assessment & Carrying Capacity Study(CIA&CCS) of Siang River Basin in Arunachal Pradesh have been completed and the report has been accepted by the Ministry. PP further informed that the outcome and recommendations of CIA&CCS been dully incorporated in the updated EIA/EMP.

· The EAC noted that the total estimated project cost is Rs 11835.86 Crore including IDC and escalation. The total budget of EMP is 118.52 Crore, which is 1% of the total project cost.

· During the meeting, the EAC enquired about the availability of fish species and provision of fish pass in the project. In response, the PP informed that a total of 20 fish species inhabit the Siyom River and its tributaries. Further, considering the proposed dam height of 138.0 m (above deepest foundation level), construction of a conventional fish pass/fish ladder is not technically feasible. The EAC observed that environmental flow shall be assessed based on ecological requirements of aquatic species rather than percentage-based criteria, so as to ensure adequate water availability for aquatic survival. Further, in view of the infeasibility of fish pass, the EAC advised the PP to explore the possibility of fish lifting arrangements and prepare a comprehensive Fish Management Plan accordingly.

55.1.4 The EAC after examining the information submitted and detailed deliberations sought following information for further consideration of the proposal:

2. The environmental flow shall be assessed based on ecological requirements of aquatic species rather than percentage-based criteria, so as to ensure adequate water availability for aquatic survival.
3. The PP to explore the possibility of fish lifting arrangements and prepare a comprehensive Fish Management Plan accordingly.

The EAC decided to ***defer*** the proposal 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

Proposed 2500 MW Duggeru Pumped Storage Project (8 x 312.5 MW) Near Duggeru Village, Salur Mandal Parvathipuram Manyam District, Andhra Pradesh by **chinta green energy private limited** located at **PARVATHIPURAM MANYAM,ANDHRA PRADESH**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity Sub-Activity (Schedule Item)**
IA/AP/RIV/569176/2026	J-12011/25/2026-IA.I(R)	12/05/2026	River Valley/Irrigation projects Standalone Pump Storage Projects (1(c))

3.2.2. Project Salient Features

The proposal is for grant of Terms of Reference (ToR) to the project Duggeru Close Loop Pumped Storage Project (2500 MW) in an area of 260 Ha located at Sub District Makkuva and Salur, District Parvathipuram Manyam, Andhra Pradesh by M/s Chinta Green Energy Private Limited.

55.2.2 The Project Proponent and the accredited Consultant M/s Enviro Infra Solutions Pvt Ltd, made a detailed presentation on the salient features of the project and informed that:

a. Topography of the area and other factors like location, length of water conductor System.
b. Utilization of available head at project site and to the maximum extent feasible.
c. Development of economical and optimized layout
d. Ease of Construction and access to shafts, powerhouse, and related structures.
e. Minimal area of land acquisition to accommodate various project components.

Three alternatives have been considered and best suitable site has been selected. Further details have been provided in PFR.

- Solid waste - About 584 MT/year solid municipal wastes is likely to be generated from labour colony. Municipal Solid waste would be disposed as per MSW Rules 2016

- Muck generated from dam's foundation after assuming swell factor of 25% has been estimated as 69,35,650 m3 which shall be utilized for earthen dam, producing coarse and fine aggregate for concrete production and in fillings for developing areas for construction facilities.

· Project Details:	
Name of the Proposal	Proposed 2500 MW Duggeru Pumped Storage Project (8 x 312.5 MW) Near Duggeru Village, Salur Mandal P arvathipuram Manyam District, Andhra Pradesh Proposal No: IA/AP/RIV/569176/2026 File No: J-12011/25/2026-IA.I(R)
Location (Including Coordinates)	The project is located near Duggeru Village village in Sa lur Mandal Parvathipuram Manyam District, Andhra Prad esh. Coordinates: **Upper Reservoir:** Near Dohivarha & Sirivara villages **Lower Reservoir:** Near Eguva Konjjapaka village **Upper Dam Coordinates:** 18° 45' 46.50" N 83° 08' 46.29" E **Lower Dam Coordinates:** 18° 44' 01.65" N 83° 09' 07.16" E
Inter- state issue involved	Not Applicable
Seismic zone	Zone-II
· Category Details:	
Category of the project	Category 'A'

Provisions	Pumped Storage Project
Capacity / Cultural command area (CCA)	2500 MW / 15000 MWH
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil
· Electricity Generation Capacity	
Powerhouse Installed Capacity	2500 MW / 15000 MWH
Generation of Electricity Annual ly	5201 MU annually
No. of Units	8 units of 312.5 MW
Additional information (if any)	Nil
· ToR/ EC Details:	
Cost of project	**Rs.** 13436 Crores
Total area of Project	260 ha
Height of Dam from River Bed (EL)	Upper Dam 670 m long / 100 m high and Lower Dam 8 45 m long / 69 m high.
Details of submergence area	--
Types of Waste and quantity of generation during construction / Operation	About 584 MT/year solid municipal wastes is likely to b e generated from labour colony in the construction pha se.
E-Flows for the Project	--
Is Projects earlier studied in Cu mulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in w hich project located. If yes then E-flow with TOR / Recommend ation by EAC as per CIA&CC st udy of River Basin. If not the E-Flows maintain criteria for sust aining river ecosystem.	NA

· Muck Management Details:	After considering a swell factor of 25%, the total quanti ty of muck generated from excavation is estimated at 1, 14,36,500 m^3. Out of this, about 75% of the muck will be reused for producing coarse and fine aggregates for concrete as well as for filling works in developing const ruction facility areas. The remaining 25% of the muck w ill be disposed of at designated muck disposal sites.	
No. of proposed disposal area / (type of land- Forest / Pvt land)	35 ha (Non Forest Land)	
Muck management plan	Will be provided in EIA report.	
Monitoring mechanism for Muc k Disposal Transportation	Project Proponent	
· Land Area Breakup:		
Project Appurtenance	**Area (ha)**	
Private land (Submergence)	50	
Barrage construction land	-	
Forest land	210	
Proposed Rabi & Kharif irrigatio n Area	NA	
· Presence of Environmentally Sensitive Areas in the Study Area:		
Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/ letter/ Remarks
Reserve Forest / Protected For est Land	Yes	Duggeru RF
National Park	No	
Wildlife Sanctuary	No	
· Court Cases Details:		
Court Case	Nil	
Additional information (if any)	Nil	
· Affidavit / Undertaking details:		
Affidavit/Undertaking		

Additional information (if any)	Nil
· Previous EC compliance and necessary approvals:	
Particulars	Letter No. and Date
Certified EC compliance report (if applicable)	NA
Status of Stage- I FC	Under Process
Additional detail (If any)	Nil
Is FRA (2006) done for FC-I	NA
· Miscellaneous :	
Particulars	Details
Details of consultant	Enviro Infra Solutions Pvt.Ltd. Address: - 301, 302 & 305, SRBC, Sec.-9, Vasundhara, GZB-201012 Ph.: 0120-4151183 Email: eis@enviroinfrasolution.com
Project benefit	Pumped storage offers multiple benefits to a power system. In addition to providing energy storage, pumped storage can provide power immediately and can be rapidly adjusted to respond to changes in energy demands. These benefits are part of a large group of benefits, known as ancillary services
Status of other statutory clearance	Forest Clearance is under process
R&R details	The compensation for acquisition land would be paid to the respective land owners/ land titleholders as per the provisions of "Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013".

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 Expert Appraisal Committee (EAC) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR for conducting EIA/EMP and Public hearing for Duggeru Close Loop Pumped Storage Project (2500 MW) in an area of 260 Ha located at Sub District Makkuva and Salur, District Parvathipuram Manyam, Andhra Pradesh by M/s Chinta Green Energy Private Limited.

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

· The EAC noted that although the proposed Upper Reservoir to be located away from any riverine system but lower reservoir is proposed to be located across the existing seasonal nala/stream. Since the lower reservoir will be located on non-perennial nallah/stream, the committee opined that the project shall be categorized as an open-loop project rather than a closed-loop PSP.

· The EAC noted that the total land required for the project components and related works has been estimated to be about 260 Ha; out of which 210 Ha is forest land and remaining 50 Ha is non-forest land. Diversion of forest land for non-forest purpose will be involved for construction of project components. However, it was observed that the application for Stage-I Forest Clearance (FC) has not yet been submitted, which necessitates further action from the Project Proponent. The Committee further emphasized that component-wise land details have not been furnished by the PP during the meeting. Therefore, the Committee opined that the PP shall submit detailed component-wise land requirement/break-up for further appraisal of the project.

· It was noted by the EAC that t he quantity of water required during construction is estimated as 500 KLD which shall be drawn from the river water can be pumped and stored in a tank at higher elevation. The domestic requirement shall be 300 KLD which shall be met from the ground water resource. Post construction the domestic requirement shall be 65 KLD only. The EAC observed that the source of water and associated pipeline network have not been clearly submitted by the PP. The Committee noted that it was not clear whether the water requirement would be met from a different river system or from the project catchment itself. Accordingly, the EAC opined that the PP shall clearly establish the source of water along with details of the proposed pipeline network, if envisaged.

· The EAC, while deliberating on the site selection and alternatives examined by the PP, observed that sufficient clarity has not been provided regarding the comparative assessment of alternatives. The Committee noted that the rationale for selection of the proposed alternative has not been adequately justified by the PP, and therefore a clear basis for the chosen site could not be established.

· The EAC observed that the MoU has been signed between Government of Andhra Pradesh and M/s. Chinta Green Energy Pvt. Ltd vide order dated 14.10.2025 for establishment of 2000 MW Duggeru PSP Project at Duggeru in Makkuva Mandal, Parvathipuram Manyam District, Andhra Pradesh. The EAC noted that the proposed power generation capacity in the current proposal is of 2500 MW, whereas MoU obtained is of 2000 MW, therefore it was advised to obtain amendment in MoU for the proposed current capacity of the project.

55.2.4 The EAC based on the information submitted and as presented during the meeting, deferred the proposal for want of following information:

i. PP shall obtain necessary amendment to the existing MoU with the Government of Andhra Pradesh to align with the proposed project capacity of 2500 MW, and submit a copy of the revised MoU.

ii. PP shall provide a comprehensive and comparative assessment of alternative sites examined, indicating the environmental concerns associated with all shortlisted alternatives. Further, PP

shall provide justification and rationale for selection of the proposed site based on environmental, technical, and socio-economic considerations.

iii. PP shall submit detailed component-wise land requirement along with clear break-up for all project components for further appraisal.

iv. PP shall clearly establish the source of water for both construction and operation phases, specifying whether it is from the project catchment or any other river system, along with complete details of the proposed pipeline network, storage, and conveyance system.

3.2.5. Recommendation of EAC

Deferred for ADS

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 J V Tyagi	Member (EAC)	jvt******@gmail.com	
3	Shri Kartik Sapre	Member (EAC)	kar********@gmail.com	
4	Shri Ajay Kumar Lal	Member (EAC)	akl****@gmail.com	
5	Dr A K Sahoo	Member (EAC)	ami***@gmail.com	
6	Dr Uday Kumar R Y	Member (EAC)	uda********@yahoo.com	
7	Dr J A Johnson	Member (EAC)	jaj@wii.gov.in	
8	Shri Balram Kumar	Member	emo***@nic.in	
9	Shri Rakesh Goyal	Member	goy*********@nic.in	
10	Yogendra Pal Singh	Scientist - F	yog*******@nic.in	

MINUTES OF THE 55TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 25TH MAY, 2026 THROUGH VIRTUAL MODE.

The 55th meeting of the EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 25th May, 2026 through Virtual Mode, under the Chairmanship of Prof. G. J. Chakrapani. The list of Members present in the meeting is at **Annexure**.

Confirmation of the Minutes of the 54th EAC meeting:

The Minutes of the 54th meeting held on 08th May, 2026 were confirmed.

Agenda Item No. 55.1

Naying Hydro Electric Project (1000 MW) in an area of 470.8 Ha located at Sub District Tato, Payum Circle, District Shi Yomi and Siang, Arunachal Pradesh by M/s North Eastern Electric Power Corporation Ltd – Environmental Clearance (EC) - reg.

[Proposal No. IA/AR/RIV/573573/2026; F. No. J-12011/37/2007-IA-I (R)]

55.1.1 The proposal is for grant of Environmental Clearance (EC) to the project for Naying Hydro Electric Project (1000 MW) in an area of 470.8 Ha located at Sub District Tato, Payum Circle, District Shi Yomi and Siang, Arunachal Pradesh by M/s North Eastern Electric Power Corporation Ltd.

55.1.2: 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. Naying HEP (1000 MW) is a run-of-the-river scheme proposed on the Siyom River, a tributary of the Siang, in the Shi Yomi and Siang districts of Arunachal Pradesh, near Yapik village.

ii. **Background:** Initially allotted to private developers by the Government of Arunachal Pradesh (GoAP) over 15 years ago, the project witnessed limited progress. Consequently, the State Government terminated the earlier MoAs in April 2021, and the project was formally handed over to NEEPCO in January 2023 under the basin-wise reallocation framework of the Ministry of Power. A fresh MoA for development of the project was signed between NEEPCO and GoAP on 12 August 2023. Prior to its transfer, the project had undergone detailed investigations including preparation of the DPR, EIA/EMP studies, and a public hearing held on 11 May 2012. The DPR was concurred by the Central

Electricity Authority (CEA) on 11 September 2013, with the concurrence subsequently transferred to NEEPCO in October 2023 and made valid up to 30 September 2027. The project was also appraised in the 66th EAC meeting held in May 2013, following which the Ministry directed strict compliance with environmental flow requirements and project configuration recommendations emerging from the Siang Basin Study. Revised Power Potential Studies incorporating these recommendations were later approved by CEA on 29 March 2022.

iii. The project was discussed by the EAC in the meeting of 27th June 2024 where scoping clearance was recommended. Scoping clearance letter was issued by MoEF&CC vide TOR Identification No. TO24A0501AR5925513N and File No. J-12011/37/2007-IA-I (R) dated 07/08/2024.

iv. The geographical co-ordinates of the project are:

Dam Site: Latitude 28°31'10"N, Longitude 94°30'25"E
Powerhouse: Latitude 28°31'53.60"N, Longitude 94°33'54.30"E

v. The Naying HE Project (1000 MW) envisages construction of:

- A Concrete Gravity Dam with centrally located low level Spillway.
- An Intake located slightly upstream of the Dam on the right bank of the river
- A 10.6 m diameter, 7.08 km long Head Race Tunnel
- A 28 m diameter, 89.1 m high restricted orifice, open to sky type surge shaft
- Four steel lined pressure shafts of 4.5 m diameter, each
- An underground Powerhouse Complex comprising of three Caverns and several Adits. The Caverns serve as the Powerhouse, the Transformer Hall and the downstream Collection Gallery. Four vertical axis Francis Turbine-driven Generator units of 250 MW capacity each, proposed for installation in the Powerhouse Cavern.
- A Tail Race Tunnel, 465.0 m long, 11.0 m wide and depth varying from 11.15 m at outlet to 17.15 m at Collection Gallery
- Open Pot Head Yard, 190 m (L) x 61 m (W)

vi. **Land requirement:** The total land requirement of the project is 470.80 ha. Of which, 453.55 ha is surface area and 17.25 ha is underground area. The land will be utilized for setting up of structures like construction of Dam, Powerhouse, Reservoir, office/colony area, quarry area, dumping area, roads, etc. Entire land is USF land and application for forest clearance is has been submitted and is under process under proposal number: FP/AR/HYD/IRRIG/492810/2024.

vii. **Demographic details in 10 km radius of project area:** The Project area spans 37 villages in Arunachal Pradesh's Siang and Shi Yomi districts, with a population of 7,579

predominantly Scheduled Tribes (95.46%). The region has a sex ratio of 1,051 and a low literacy rate of 49.85%, with a significant gender gap. Around 42.56% of the population are workers, mainly engaged in cultivation and other subsistence activities like animal husbandry and forest produce collection. Infrastructure is limited: education and healthcare facilities are sparse, with only one high school and a few PHCs. While road connectivity exists, internal roads and public transport are poor. Electricity and tap water reach only a few villages, and access to markets, telecom, and banking remains inadequate, reflecting overall underdevelopment.

viii. **Water requirement:** This is run of the river hydropower project designed for 424.5 cumec (design discharge).

ix. **Project Cost:** The estimated project cost is **Rs 11835.86 Crore**. Total capital cost earmarked towards Environment Management Plan is **Rs. 3585.79 lakh** and the Recurring cost (operation and maintenance) will be about **Rs. 1029.32 lakh** per annum (Rs. 6175.92 lakh for 6 years).

x. **Project Benefit:** Approx. 1275 persons will be engaged during the peak construction phase. The project proposes to allocate Rs. 2000.00 Lakh towards CER (as per Ministry's OM dated 30th Sep 2020).

xi. **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. The project is proposed across the Siyom River.

xii. **MoU / any other clearance/ permission signed with State government:** Memorandum of Agreement (MOA) signed with the Government of Arunachal Pradesh on 12/08/2023 for the development of project.

xiii. **Resettlement and rehabilitation:** Total 12 villages shall be affected due to acquisition of land for various components of proposed project. Of which, 2 are in Payum Circle of Siang district, 10 are in Tato Circle of Shi Yomi district. Total 408 families have been identified as Project Affected Families (PAFs). The PAFs likely to lose both housing and land are estimated as 72 PAFs. The remaining 336 PAFs will not lose homesteads but only land. Therefore, 72 PAFs have been considered for resettlement and compensation thereof. A budgetary provision of Rs. 72.00 crore has been kept towards implementation of R&R plan.

xiv. **Scheduled – I species:** As per Wildlife Protection Amendment Act, 2022, Northern Red Muntjac, Sambar, Alpine Musk Deer, Golden Jackal, Dhole, Bengal Fox, Jungle Cat, Clouded Leopard, Leopard, Mainland Leopard Cat, Javan Mongoose, Eurasian Otter, Asiatic Black Bear, Small Indian Civet, Assamese Macaque, Capped Langur, Bengal Slow Loris, Oriental Pied Hornbill, Kalij pheasant, White napped Tit, Beautiful Nuthatch, Common Hill Myna, Fowlea piscator are listed as Schedule I species.

xv. **Alternative Studies:**

The project reach, approximately 16 km long, extends from the tailrace of Tato-II HEP to the reservoir of the Middle Siang HEP. Within this corridor, several alternatives were explored, considering:

- Left vs. right bank development
- Multiple dam axis locations
- Intake and powerhouse site variations

Detailed assessments factored in topography, hydraulic design, geological mapping, and techno-economic analysis. Right bank development was selected due to its better accessibility (presence of a major road), similar geological conditions on both banks, and lower infrastructure requirements. This choice minimizes the need for bridges and additional approach roads, thereby reducing costs and environmental impact.

Ultimately, five alternative schemes were evaluated within the allotted reach, all with a Full Reservoir Level (FRL) of 805 m, Tailwater Level (TWL) of 520 m, and dam top at 808 m. Each option considered underground powerhouse locations in a common zone and right-bank alignment of the water conductor system.

ALTERNATIVE SCHEMES - DESCRIPTION

Alternative-1: Located approximately 3 km downstream of Yapik village, this site lies in a moderately wide, straight river gorge with favorable topographic and geological conditions. The left bank rises steeply with gneiss exposures above the overburden, while the right bank has moderate slopes with solid rock formations exposed near the riverbed. This site is considered suitable for a concrete gravity dam, although special attention is needed for optimizing the intake location. A headrace tunnel of about 7.08 km, including a 32.5 m feeder conduit, would be required.

Alternative-2: Situated 1.7 km upstream of the PFR site, this location features a slightly curved river section with large fluvial terraces and multiple tributaries (Shikam and Shikam Nala) joining the Siyom River nearby. Thick overburden and significant terrace development on both banks present challenges for dam construction, especially in locating the intake and avoiding interference with the nalas. Due to these geological and layout constraints, this site was deemed unsuitable for dam construction.

Alternative-3: This site lies 2.83 km upstream of the PFR location and features a sinuous river course with a large fluvial terrace on the left bank and exposed bedrock on the right abutment near the riverbed. It offers favorable geological conditions for siting a 78 m high concrete dam and allows relatively easier placement of the power intake compared to other options. Adequate live storage between FRL and MDDL is available, and while the headrace tunnel would be longer (about 9.7 km), this site was considered technically and economically viable for further investigation.

Alternative-4: Located about 4.05 km upstream of the PFR site, this site has steep abutments, significant overburden, and wide terraces, particularly on the right bank. The presence of Shiyi Nala close to downstream complicates the alignment of the headrace tunnel and desilting arrangements. With limited elevation headroom and a small reservoir, this site faces serious engineering constraints. The necessary appurtenances and storage requirements could not be met satisfactorily, leading to its rejection from further consideration.

Alternative-5: Positioned about 700 m upstream of the PFR site, this location is characterized by steep left bank slopes with some rock exposure, while the right bank is entirely covered in slope-wash deposits with no visible rock outcrops. The presence of terraces and sharp meanders indicates deep overburden, particularly on the right bank, raising concerns about foundation suitability and construction feasibility. As a result, this site was not considered further.

Conclusion based on above: Only **Alternative-1 and Alternative-3** were found technically feasible and suitable for siting concrete gravity dams, and thus were selected for detailed studies and further exploration.

FURTHER GEOLOGICAL AND GEOTECHNICAL EVALUATION

Alternative-3

At Alternative-3, the dam was initially proposed as a 78 m high concrete gravity structure, based on an assumed overburden depth of 25 m and riverbed level at El 755 m. The left bank is defined by thick fluvial terraces, while the right bank shows encouraging signs of gneissic bedrock exposures near the river edge and uphill slopes. Subsurface investigations, including seismic profiling, 11 drill holes, and 2 exploratory drifts, revealed that sound bedrock is only available below El 680 m, significantly deeper than anticipated. This implies a dam height exceeding 135 m, much more than the initially considered height, and undermines the site's feasibility. Additionally, the need for a desanding arrangement and the extended length of the headrace tunnel due to this upstream location further diminish its attractiveness. Consequently, this site was dropped from further consideration.

Alternative-1

Detailed geological and geotechnical investigations at Alternative-1, including seismic surveys, surface mapping, and subsurface exploration (11 drill holes and 4 exploratory drifts), revealed favorable conditions for dam construction. Among the various dam axis options evaluated (1, 1A, 1B, and 1C), Axis 1B was found most suitable due to gently sloping abutments and presence of quartzite bedrock under a manageable overburden layer (7–30 m). Drill holes on both abutments confirmed shallow bedrock at depths of 4.5–24 m, with the riverbed at around El 700 m. The site offers sufficient valley width for flood discharge and energy dissipation, with a clear approach to the spillway.

Based on investigations, the site was deemed suitable for constructing a 138 m high concrete gravity dam, **making it the preferred option** for project development.
Further a comparative study of various dam axis at the dam site of preferred alternative 1 was undertaken as described in **Table** below.

Comparative Study of Various Dam Axis Locations at Dam Site Alternative-1

S. No.	Dam Axis Location	Dam Length (at top)	Right Bank Characteristics	Left Bank Characteristics	Intake Features
1	**Alternative-1** (200 m upstream of PFR axis)	~306 m	Avg. slope 30°; slope-wash up to El 765m; quartzite exposed above	Moderate–steep slope; slope-wash up to El 775m; quartzite exposed above	Intake intersected by nala; crest at El 778.5m from El 700m; **75 m** inlet tunnel within large concrete mass
2	**Alternative-1A** (40 m downstream of Alt-1)	~295 m	Avg. slope 35°; quartzite with gneiss intercalations exposed from El 710–760m	Gentle up to El 750m, steep above with quartzite exposure	Foundation raised from El 725m to crest El 778.5m; **50 m** inlet tunnel within large concrete mass
3	**Alternative-1B** (80 m downstream of Alt-1)	~280.5 m	Gentle up to El 725m, then moderate–steep; quartzite exposed El 720–765m	Gentle–moderate up to El 750m; steep above with quartzite	Foundation raised from El 724m to crest El 778m; **32.5 m** inlet tunnel; **less concrete filling**
4	**Alternative-1C** (125 m downstream of Alt-1)	~270 m	Gentle–moderate slope; quartzitic gneiss exposed at riverbed and El 750–780m	Gentle up to El 750m (slope-wash); steep above with gneiss exposure	Foundation raised from El 720m to crest El 778.5m; **30 m** inlet tunnel within concrete

Preferred Option: Alternative-1B due to shortest inlet tunnel and minimal concrete filling with good geological conditions on both abutments.

FINAL SELECTION OF THE DAM AXIS

In order to make a final selection of the dam axis, a detailed comparison of Alternative-1 and Alternative-3 was undertaken. The evaluation covers major technical, hydraulic, and cost-related parameters, including dam design, sediment management, tunnel lengths, and overall project economics. The table below summarizes these key aspects.

Comparative Analysis Dam Site Alternative For Final Selection

Parameter	Alternative-1	Alternative-3
Dam Type & Height	Concrete gravity dam, 138 m from foundation to El 808 m	Concrete gravity dam, 135 m from foundation to El 808 m
Riverbed Elevation	El 700 m	El 755 m
Reservoir Length at FRL	~8.1 km	~4.9 km
Sediment Management	Natural delta formation; no desilting chamber needed	Requires desilting system with 4 chambers, flushing and link tunnels
Headrace Tunnel	7.08 km, 10.6 m dia	8.45 km, 10.6 m dia
Intake–Spillway Crest Cushion	~41 m (adequate for sediment settling)	~15 m (inadequate – requires desilting)
No. of Adits	4 for HRT access	4 for HRT + 3 for desilting
Surge Shaft	28 m dia, 89.1 m high	29 m dia, 91 m high
Powerhouse & Other Structures	Identical in both alternatives	Identical in both alternatives
Total Civil Cost	Rs 3101.37 Cr	Rs 3355.57 Cr
Total Project Cost (Incl. E&M)	Rs 4112.13 Cr	Rs 4366.33 Cr
Cost per MW	Rs 4.11 Cr/MW	Rs 4.37 Cr/MW
Installed Capacity	1000 MW	1000 MW
90% Dependable Year Energy	4603 MU	4582 MU
Final Conclusion	**Preferred**: Economical, simpler layout, natural sediment control	Not preferred: Higher cost, complex sediment handling, longer HRT

Alternative-1 is the preferred dam axis due to lower overall cost, shorter headrace tunnel, absence of complex de-silting infrastructure, and better geological suitability.

xvi. **Baseline Environmental Scenario:**

Period	**From September 2024 to April 2025**				
AAQ parameters at	**Core Zone**				
	Parameter	**Unit**	**Min**	**Max**	**Standards**

06 locations (Min. & Max.)

$PM_{2.5}$	$\mu g/m^3$	11.50	17.30	60
PM_{10}	$\mu g/m^3$	36.00	46.90	100
SO_2	$\mu g/m^3$	5.60	7.20	80
NO_2	$\mu g/m^3$	7.20	10.00	80

Buffer Zone

Parameter	Unit	Min	Max	Standards
$PM_{2.5}$	$\mu g/m^3$	11.00	20.10	60
PM_{10}	$\mu g/m^3$	34.50	47.20	100
SO_2	$\mu g/m^3$	4.20	8.50	80
NO_2	$\mu g/m^3$	6.30	11.40	80

Incremental GLC Level

Core Zone

Criteria Pollutant	Unit	Baseline Concentration [A]	Predicted incremental value considering worst case stability class [B]	Total GLC [A]+[B]
PM_{10}	$\mu g/m^3$	44.5	11.13	55.625
$PM_{2.5}$	$\mu g/m^3$	16.7	4.18	20.875
SO_2	$\mu g/m^3$	6.8	8.16	14.96
NO_2	$\mu g/m^3$	8.3	9.96	18.26

Buffer Zone

Criteria Pollutant	Unit	Baseline Concentration [A]	Predicted incremental value considering worst case stability class [B]	Total GLC [A]+[B]
PM_{10}	$\mu g/m^3$	47.2	0	47.2
$PM_{2.5}$	$\mu g/m^3$	20.1	0	20.1
SO_2	$\mu g/m^3$	8.5	0	8.5
NO_2	$\mu g/m^3$	11.4	0	11.4

River water samples (8 samples)

Core Zone

S. No.	Parameters	Min	Max	Standards
1	pH	7.12	7.9	8.5
2	Total Dissolved Solids, mg/L	104	227	0

3	Dissolved Oxygen (mg/l)	9.0	10.4	6
4	Chloride (as Cl), mg/L	9.1	11.2	0
5	Total Hardness (as CaCO3), mg/L	58.7	70.1	0
6	Biological Oxygen Demand (mg/l)	0	0	2
7	Chemical Oxygen Demand (mg/l)	0	0	0
8	Total Coliform (MPN/100 ml)	0	0	50

Buffer Zone

S. No.	Parameters	Min	Max	Standards
1	pH	6.94	7.9	8.5
2	Total Dissolved Solids, mg/L	95	292	0
3	Dissolved Oxygen (mg/l)	8.8	11.6	6
4	Chloride (as Cl), mg/L	9.4	15.2	0
5	Total Hardness (as CaCO3), mg/L	59.4	73.5	0
6	Biological Oxygen Demand (mg/l)	0	0	2
7	Chemical Oxygen Demand (mg/l)	0	0	0
8	Total Coliform (MPN/100 ml)	0	0	50

Pond water samples quality at -- locations

-

Ground Water samples at 5 locations

Core Zone

S. No.	Parameters	Min	Max	Desired Limits	Permissible Limits
1	pH	7.14	7.42	6.5	8.5
2	Total Dissolved Solids, mg/L	386	471	500	2000
3	Chloride (as Cl), mg/L	35.7	37.8	250	1000
4	Total Hardness (as CaCO3), mg/L	143.3	164.6	200	600
5	Fluoride (as F), mg/L	0.09	0.14	1	1.5

Buffer Zone

S. No.	Parameters	Min	Max	Desired Limits	Permissible Limits
1	pH	7.13	7.81	6.5	8.5
2	Total Dissolved Solids, mg/L	389	483	500	2000
3	Chloride (as Cl), mg/L	34.1	39.6	250	1000
4	Total Hardness (as CaCO3), mg/L	141.0	176.9	200	600

<table>
<tr><td></td><td>
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<tr><td>5</td><td>Fluoride (as F), mg/L</td><td>0.11</td><td>0.12</td><td>1</td><td>1.5</td></tr>
</table>
</td></tr>
<tr><td>Noise levels Leq (Day & Night) at 8 locations</td><td>
<table>
<tr><th rowspan="2">Zone</th><th rowspan="2">Category</th><th colspan="2">Leq Day dB(A)</th><th colspan="2">Leq Night dB(A)</th><th colspan="2">Prescribed Limits</th></tr>
<tr><th>From</th><th>To</th><th>From</th><th>To</th><th>Day</th><th>Night</th></tr>
<tr><td>Core</td><td>Residential</td><td>52.2</td><td>60.0</td><td>36.7</td><td>41.8</td><td>55</td><td>45</td></tr>
<tr><td>Buffer</td><td>Residential</td><td>52.8</td><td>60.5</td><td>33.6</td><td>42.9</td><td>55</td><td>45</td></tr>
</table>
</td></tr>
<tr><td>Soil Quality at 10 Locations</td><td>
Core Zone
<table>
<tr><th>S. No.</th><th>Parameters</th><th>Min</th><th>Max</th><th>Prescribed Limits</th></tr>
<tr><td>1</td><td>Calcium (mg/kg)</td><td>215</td><td>320</td><td>500</td></tr>
<tr><td>2</td><td>Magnesium (mg/kg)</td><td>94</td><td>113</td><td>500</td></tr>
<tr><td>3</td><td>Nitrogen (kg/ha)</td><td>314</td><td>441</td><td>500</td></tr>
<tr><td>4</td><td>Phosphorus (kg/ha)</td><td>14.3</td><td>15.8</td><td>50</td></tr>
<tr><td>5</td><td>Potassium (kg/ha)</td><td>70.5</td><td>99.2</td><td>500</td></tr>
<tr><td>6</td><td>Carbon (%)</td><td>0.96</td><td>1.3</td><td>1</td></tr>
<tr><td>7</td><td>Sodium Absorption Ratio</td><td>2.07</td><td>2.88</td><td>10</td></tr>
<tr><td>8</td><td>Salinity (ppt)</td><td>0</td><td>0</td><td>0.01</td></tr>
</table>
Buffer Zone
<table>
<tr><th>S. No.</th><th>Parameters</th><th>Min</th><th>Max</th><th>Prescribed Limits</th></tr>
<tr><td>1</td><td>Calcium (mg/kg)</td><td>112</td><td>327</td><td>500</td></tr>
<tr><td>2</td><td>Magnesium (mg/kg)</td><td>85</td><td>119</td><td>500</td></tr>
<tr><td>3</td><td>Nitrogen (kg/ha)</td><td>360</td><td>450</td><td>500</td></tr>
<tr><td>4</td><td>Phosphorus (kg/ha)</td><td>12.8</td><td>16.8</td><td>50</td></tr>
<tr><td>5</td><td>Potassium (kg/ha)</td><td>85.4</td><td>96.2</td><td>500</td></tr>
<tr><td>6</td><td>Carbon (%)</td><td>0.98</td><td>1.5</td><td>1</td></tr>
<tr><td>7</td><td>Sodium Absorption Ratio</td><td>1.97</td><td>4.02</td><td>10</td></tr>
<tr><td>8</td><td>Salinity (ppt)</td><td>0</td><td>0</td><td>0.01</td></tr>
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</td></tr>
<tr><td>Flora & Fauna</td><td>Schedule-I species observed in the study area:

As per Wildlife Protection Amendment Act, 2022, Northern Red Muntjac, Sambar, Alpine Musk Deer, Golden Jackal, Dhole, Bengal Fox, Jungle Cat, Clouded Leopard, Leopard, Mainland Leopard Cat, Javan Mongoose, Eurasian Otter, Asiatic Black Bear, Small Indian Civet, Assamese Macaque, Capped Langur, Bengal Slow Loris, Oriental Pied Hornbill, Kalij pheasant, White napped Tit, Beautiful Nuthatch, Common Hill Myna, Fowlea piscator are listed as Schedule I species.</td></tr>
</table>

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

- Sanitation and Solid Waste Management Plan– The implementation of the

Sanitation and Solid Waste Management Plan, including provision of infrastructure, training, and strict adherence to waste segregation, transportation, and disposal protocols, will be carried out at regular intervals throughout the construction period. The solid waste will be transported for disposal at the designated landfill sites. The landfill shall have impervious clay at the bottom-most layers. The second layer shall be impervious liner (Geomembrane), the third layer will be of sand, after that well-compacted solid waste is to be put over the sand, then again, a layer of clay, finally a layer of soil. Vegetation shall be grown on the topmost layers. It will give a good aesthetic view of the landfill**.**

- For Disposal of hazardous waste vendors authorized by State Pollution Control Committee shall be engaged.
- 7 muck disposal yards has been identified with a total area of 37.50 ha and capacity has been worked as 5,954,000 cum which is more than the total quantity of muck to be disposed i.e. 4,232,300 cum. All the sites 30 m away from HFL.

xviii. Public Hearings for Naying HEP were conducted by Arunachal Pradesh State Pollution Control Board. The meetings were chaired by Deputy Commissioner, Boleng in District Siang and Deputy Commissioner, Tato in Shi Yomi District at the respective public hearing venues.

District	**Date / Time**	**Venue**	**Chairperson**
Siang	20.11.2025 / 10.00 AM	Community hall, Kaying	Shri Tayi Taggu, APCS, Deputy Commissioner, Boleng
Shi Yomi	17.12.2025 / 10.00 AM	Yapik Village, Tato Circle	Shri Tungge Loya, APCS, Deputy Commissioner, Tato

The main issues raised and replies by the user agency during the public hearing are;

Suggestions/ Comments Given by Stakeholders in Siang District

S. No.	**Issues raised by PAFs/ Public**	**Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)**
1	Changes in project design and Detailed Project Report (DPR) by NEEPCO without consultation with landowners. Land earlier assured for acquisition now excluded.	The Techno-economic Clearance (TEC) of hydropower projects is granted by CEA. After taking over the project from the Government of Arunachal Pradesh, NEEPCO in consultation with CEA has finalized the DPR and got necessary clearance including extension of the validity of TEC. Originally, the land requirement for the proposed project was 644 ha covering surface area 609 ha and underground area 35 ha.

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
		The proposal was discussed during FAC Meeting held on 17.03.2015 and following observations were made: The committee is of the opinion that construction of building for maintenance of the HE Project will have to be on need basis and preference should be given for double or triple storied to minimize the use of forest land. Similarly, land for construction of roads should be kept at bare minimum. To explore the possibilities of extracting rock materials from the submergence area instead of opening new areas for the Quarry to avoid use of forest land. In compliance of the above observations of FAC and examining the functional requirement, NEEPCO has reassessed land requirement and submitted application for acquisition of Surface Land of 453.55 Ha by reducing forest land against buildings, roads and quarry etc. Accordingly, Forest Clearance application also submitted for 470.80 Ha and already PSC has approved the same. At this moment, no additional requirement of land is envisaged.
2	Demand for a fresh SIA by a new/ independent agency due to deficiencies and inaccuracies in the Social Impact Assessment (SIA), including omission of affected families, villages and reduced land figures.	The SIA was conducted by District Administration through a recognized institute as per prevailing guidelines. Public consultation for SIA has been carried out as per statutory process by District Administration, regarding this notice were issued by the District Administration. However, the concerns regarding errors and omissions will be communicated to the competent authority. Any corrections or additional assessments, if required by the Government, will be complied with as per statutory provisions.
3	Lack of information and notice for public	Public consultation for Environmental public hearing has been carried out as per statutory process

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
	hearing	by Arunachal Pradesh State Pollution Control Board and District Administration. Regarding this notice were issued by Arunachal Pradesh State Pollution Control Board.
4	Unequal or inadequate compensation, particularly for left bank land owners, and downstream communities dependent on river and forest for livelihood.	The Land Compensation shall be finalized by the District Administration as per Provisions of "The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act" (RFCTLARR) 2013 and Manual for Land Acquisition in Arunachal Pradesh 2022 notified on 06.09.2022. Compensation will be provided for the acquired land and process will be fare and transparent.
5	Threats to biodiversity, including natural bird and animal sanctuaries near the proposed powerhouse.	No project component falls in any notified protected area. EIA/EMP study report has taken into consideration all the issues including biodiversity impacts related to environment and NEEPCO will properly address them. Mitigation plan will be implemented as per EMP and Wildlife/Biodiversity Management Plan. Nearest Protected Area to the Project Components is Yorde Rabe Supse Wildlife Sanctuary (WLS) which is at a distance of around 10.10 km from and Mouling WLS which is at a distance of around 11.74 km from the project component. For Conservation and Management of flora and fauna detailed Biodiversity Conservation and Management Plan has been prepared and submitted to State Forest Department for approval. The plan includes the habitat conservation measures, Conservation of Avifaunal habitat, Establishment of Butterfly Park, Veterinary care, Fire protection measures, Maintenance of Natural Water Springs, etc.
6	Potential environmental	A comprehensive Catchment Area Treatment (CAT) Plan has been proposed for soil and water

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
	impacts from slope instability and road cutting; need for damage control and mitigation measures. Need for agreement on damage control measures.	conservation within the project catchment. Additionally, measures under the Reservoir Rim Treatment Plan and Landscaping and Restoration Plan have been designed to mitigate potential impacts of slope instability arising from construction activities. These measures will be implemented in consultation with affected landowners to ensure proper damage control and restoration of affected areas.
7	Lack of effective communication, and grievance redressal despite multiple representations and hearings.	Multiple meetings were held with the Project-Affected Families (PAFs) and representatives of NEEPCO to discuss and address the issues raised. We regret that, despite multiple representations and hearings, there is a feeling that concerns have not been addressed effectively. We would like to assure that all grievances are taken seriously, and NEEPCO remains committed to strengthening communication and grievance redressal mechanisms.
8	Need for transparent and inclusive implementation of CSR funds, focusing on health, education, sports, culture, and local development.	The Project Proponent is committed to the transparent and inclusive implementation of CSR initiatives. CSR funds will be utilized in consultation with the project-affected communities, focusing on priority areas such as health, education, sports, cultural activities, and local area development. Mechanisms will be established to ensure accountability, community participation, and effective monitoring of CSR activities to maximize benefits for the affected villages.
9	Demand for job reservation for project-affected persons, preference to local contractors, and establishment of a local NEEPCO branch office to	Job reservation shall be in line with relevant clauses mentioned in the MOA (Memorandum of Agreement) drawn between State Government and NEEPCO for the project.

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
	address public concerns.	

Suggestions/ Comments Given by Stakeholders in Shi Yomi District

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
1	Reduction of quantity of land from 644 ha (Proposed by earlier Developer M/s DSC Ltd.) to 470.80 ha now (Surface Area: 453.55 + Underground Area: 17.25 ha)	Originally, the land requirement for the proposed project was 644 ha covering surface area 609 ha and underground area 35 ha. The proposal was discussed during FAC Meeting held on 17.03.2015 and following observations were made: I. The committee is of the opinion that construction of building for maintenance of the HE Project will have to be on need basis and preference should be given for double or triple storied to minimize the use of forest land. II. Similarly, land for construction of roads should be kept at bare minimum. III. To explore the possibilities of extracting rock materials from the submergence area instead of opening new areas for the Quarry to avoid use of forest land. In compliance of the above observations of FAC and examining the functional requirement, NEEPCO has reassessed land requirement and submitted application for acquisition of Surface Land of 453.55 Ha by reducing forest land against buildings, roads and quarry etc. Accordingly, Forest Clearance application also submitted for 470.80 Ha and already PSC has approved the same. At this moment, no additional requirement of land is envisaged.
2	Fair and Transparent Compensation including Land Compensation Rate	The Land Compensation shall be finalized by the District Administration as per RFCTLARR Act 2013 and Manual for Land Acquisition in Arunachal Pradesh 2022 notified on 06.09.2022. Process will

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
		be fare and transparent.
3	Regarding submission of False Documents.	It was clarified that whatever documents submitted by NEEPCO are genuine, valid and based on facts and studies.
4	Catchment Area Treatment Plan	A provision for Catchment Area Treatment (CAT) Plan has been kept under the Environmental Management Plan (EMP) which is under the examination of the State Forest Department. Necessary preventive and protective measures, including treatment of vulnerable catchment areas, slope stabilization, and afforestation, to minimize soil erosion and landslides has been duly considered in the approved CAT plan. The implementation of CAT plan shall be carried out by State Forest Department. These measures are aimed at reducing sedimentation and siltation in the reservoir, thereby protecting the overall health and efficiency of the dam.
5	Loss of Traditional Fishing Rights after the construction of dam.	It was clarified that the traditional fishing rights shall be vested with the PAFs (Project-Affected Families) only. Any loss of tribal rights and traditional rights and privileges shall be taken care of as per the State Policy.
6	Demarcation of Reservoir Submergence Area	The physical demarcation of the submergence area are being carried out by NEEPCO in close co-ordination with the District Administration & Land Owners marking the FRL/MWL at 805m by maintaining transparency and with proper understanding among the affected villages and stakeholders.
7	Arrangement of the Environmental Public Hearing with logistics	It was clarified that the entire arrangement for smooth conduction of Environmental Public Hearing was done in consultation with the District Administration, APSPCB, NHEPALOWC and local people.
8	Re-settlement of affected villages.	Complete R&R package for Project Affected Families have been prepared keeping in view the provisions of RFCT_LARR Act, 2013, State R&R Policy, 2008 and as per the guidelines provided in manual for Land Acquisition in Arunachal Pradesh.

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
9	Concern about cultural impact due to influx of labours from outside.	Concern is acknowledged and necessary action shall be taken in consultation with District Administration, Local Populace including strict enforcement of ILP (Inner Line Permit) etc.
10	Concern about future landslides in Yapik and Irgo villages due to creation of reservoir.	Reservoir Rim Treatment Plan for stabilization of landslide zone is a part of Environment Management Plan and shall be implemented during the execution of the project. However, in EMP, the treatment measures involve RCC and gabion retaining walls, wire mesh, and slope re-grading to stabilize vulnerable slopes and prevent erosion. Biological measures such as grass, shrub, and tree plantation will improve slope strength and reduce runoff. At tributary mouths, RCC/ gabion walls and check dams are proposed to control flow velocity, trap sediments, and ensure reservoir rim stability.
11	Implementation of Minutes between NEEPCO, NHEPALOWC and District Administration.	The provision of minutes shall be respectfully implemented.
12	Inclusion of Yapik name in Naying HEP.	Suggestions are noted by the Project Proponent and District Administration for review at an appropriate time.
13	Plan for Disaster & Risk Management including Dam-break scenario, earthquake vulnerability and downstream flooding.	This plan will be implemented by NEEPCO in coordination with the District Administration to ensure effective emergency preparedness, response, and mitigation. Although, the Dam break modelling and Disaster Management Plan is part of EMP of the proposed project. It is clearly stated that Disaster Management Plan has been formulated focusing on prevention, emergency preparedness, early warning, evacuation, rescue, communication, and safety. The plan includes Emergency Action Plans, alert and notification systems, defined roles of authorities, public awareness, training, mock drills, and evacuation arrangements, and will be updated during project execution in coordination with State Disaster Management authorities.

S. No.	Issues raised by PAFs/ Public	Clarification given by Project Proponent/ Arunachal Pradesh State Pollution Control Board (APSPCB)
		For the dam break study of the Naying Project, a 97.5 km stretch of the Siyom River up to its confluence with the Siang River was modeled using multiple cross-sections. In the model, the spillway is represented by its gate number and size at chainage 500 m. As the spillway is designed to safely pass the Probable Maximum Flood (PMF) of 8270 cumec with one gate inoperative, dam break modeling assumes only three of the four gates fully open during PMF. For dam break analysis, the critical condition assumed is reservoir at FRL with PMF impingement. As the maximum reservoir level is reached about 20 hours after PMF peak, breach initiation was assumed at FRL to obtain the maximum flood peak. Based on sensitivity analysis, the worst-case scenario producing 24,121 cumec was adopted for emergency preparedness and disaster management. As per earthquake scenario, the project area lies in Seismic Zone V as per IS 1893 (Part I):2016, indicating a high seismic risk zone. The study of Design Earthquake Parameters are determined by NEEPCO in coordination with National Committee of Seismic Design Parameters (NCSDP) and Central Water Commission (CWC)

xix. Details of Certified compliance report submitted by RO, MoEF&CC. – **Not Applicable**

xx. Status of Litigation Pending against the proposal, if any. **Nil**

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

- **Project details:**

Name of the Proposal	Naying Hydro Electric Project (1000 MW)

Proposal No.	IA/AR/RIV/573573/2026
Location (Including Coordinates)	The Naying HEP is proposed as a run-of-the-river scheme in Arunachal Pradesh's Shi Yomi and Siang districts near Yapik village. Dam Site: Latitude 28°31'10"N, Longitude 94°30'25"E Powerhouse: Latitude 28°31'53.60"N, Longitude 94°33'54.30"E
Company's Name	M/s North Eastern Electric Power Corporation Ltd. (NEEPCO)
CIN no. of Company/user agency	U40101ML1976GOI001658
Accredited Consultant and certificate no.	Name: R S Envirolink Technologies Pvt. Ltd. Certificate No.: NABET/EIA/25-28/RA 0415
Project location (Coordinates /River/ Reservoir)	Naying HEP is proposed in Shi Yomi and Siang districts of Arunachal Pradesh near Village Yapik. The project is a run of the river scheme to harness the hydropower potential of river Siyom (a tributary of river Siang). The proposed dam site is located at 28°31'10"N & 94°30'25"E which is 40 km upstream of Middle Siyom HEP dam site and 4 km downstream of village Yapik. The project is located 100 km upstream of Aalo (Along) Town (nearest major town and the District HQ of West Siang District).
Inter- state issue involved	No
Proposed on River/ Reservoir	Siyom River (a tributary of river Siang)
Type of Hydro-electric project	Naying Project is a hydro power generation project with 1000 MW capacity.
Seismic zone	The project area falls in the Zone V as per IS-1893 (Part 1) 2016, Seismic Zoning Map of India

- **Category details:**

Category of the project	A
Capacity / Cultural command area (CCA)	1000 MW
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	-

- **ToR/EC Details:**

ToR Proposal No.	IA/AR/RIV/470969/2024
EAC meeting date	27.06.2024 (Scoping Clearance)

ToR Letter No.	TOR Identification No.: TO24A0501AR5925513N
ToR grant Date	07.08.2024
Cost of project	Rs. 11835.86 Crore
Total area of Project	470.80 Ha
Height of Dam from River Bed (EL)	108 m (above river bed level)
Details of submergence area	160 ha (at FRL at 805.0 m)
District to provide irrigation facility (if applicable)	NA
Details of tunnels on upper level & lower level and length of canal (if applicable)	• A 10.6 m diameter, 7.08 km long Head Race Tunnel • A Tail Race Tunnel, 465.0 m long, 11.0 m wide and depth varying from 11.15 m at outlet to 17.15 m at Collection Gallery
No. of affected Village	12, of which, 2 are in Payum Circle of Siang district, 10 are in Tato Circle of Shi Yomi district
No. of Affected Families	408, of which, 44 belongs to Siang district and 364 belongs to Shi Yomi district
Project Benefits	**Social Benefits** Construction and operation of the Naying HEP will stimulate considerable direct and indirect employment. It is estimated that about 1275 individuals will be engaged during the peak construction phase, encompassing skilled, semi-skilled, and unskilled categories. Long-term employment will arise from operational roles, maintenance services, and security staffing. The multiplier effect will also boost ancillary sectors such as transport, hospitality, local procurement, and construction materials supply. **Financial Benefits** The foremost benefit of the Naying HEP is the generation of 1000 MW of clean, renewable energy. With a projected annual generation of 3809 million units (MU) in a 90% dependable year, the project will provide crucial peak-hour support to the regional and national grid.
R&R details	Total 12 villages shall be affected due to acquisition of land for various components of proposed project. Of which, 2 are in Payum Circle of Siang district, 10 are in Tato Circle of Shi Yomi district

	Total 408 families have been identified as Project Affected Families (PAFs). The PAFs likely to lose both housing and land are estimated as 72 PAFs. The remaining 336 PAFs will not lose homesteads but only land. Therefore, 72 PAFs have been considered for resettlement and compensation thereof. A budgetary provision of Rs. 72.00 crore has been kept towards implementation of R&R plan.
Catchment area/ Command area	Catchment Area: 2760 sq km
Types of Waste and quantity of generation during construction/ Operation	• Muck during construction – 42.32 lakh cum (to be disposed) • Municipal Solid Waste during construction - Degradable (500 Kg/day for 3000 persons), Non-degradable (300 Kg/day for 3000 persons)
Material used for blasting and its composition as per DGMS standards.	Permanent explosive magazines of adequate capacity would be constructed to store the explosives and detonators required for the construction of the project components. It has been assessed that two magazines of 20 MT capacity, each would be sufficient to meet the requirement of the project. The explosive magazine complex has been planned centrally near Adit-3 to keep the distance traveled by the explosive van to the minimum. As laid down in the Explosive Rules of 2008, a safe distance of 300 m is required to be maintained from public roads, etc.
E-Flows for the Project	For the Naying HEP, the environmental flow regime has been aligned with the recommendations made in the Cumulative Environmental Impact Assessment Report for the Siang River Basin in Arunachal Pradesh, approved by MoEF&CC. As per the report, environmental flows are prescribed as 20% of the average flow during the monsoon months (June to September), 20% during the lean season (November to February), and 20% of the average for the remaining months (October, March to May), all based on the 90% dependable year discharge. Accordingly, the corresponding

	environmental flow releases for the Naying HEP were worked and adopted as 86.45 cumec during the monsoon season, 14.25 cumec in the lean season, and 41.61 cumec for the non-lean, non-monsoon period. These flow releases have been incorporated into the project design to ensure ecological sustainability and maintain downstream riverine health.
Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes then a) E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin. b) If not the E-Flows maintain criteria for sustaining river ecosystem.	Yes Cumulative Impact Assessment & Carrying Capacity Study of Siang River Basin for hydropower development was approved by Ministry of Environment, Forest & Climate Change on 14th Oct 2016. Environmental flow releases for the Naying HEP were worked and adopted as 86.45 cumec during the monsoon season, 14.25 cumec in the lean season, and 41.61 cumec for the non-lean, non-monsoon period. These flow releases have been incorporated into the project design to ensure ecological sustainability and maintain downstream riverine health.
Details on provision of fish pass	As the height of dam is 108.0 m high above the river bed, construction of any fish passage or fish ladders is not feasible.
Project benefit including employment details (no of employee)	About 1275 workers (labour and staff) would be engaged during the peak construction period, out of which 150 persons will be engaged permanently and about 1125 will be temporary labour for the construction work. After completion of the project only a staff of about 100 persons (technical and non-technical) shall be required for the operation of the project.

Area of Compensatory Afforestation (CA) with tentative no of plantation.	942.0 ha; tentative no. of plantation - 195326
Previous EC details	-
EC Compliance Report by R.O, MOEF&CC	-
No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign	500

- **Electricity generation capacity:**

Powerhouse Installed Capacity	1000 MW
Generation of Electricity Annually	3809 MU
No. of Units	4 (4 X 250 MW)

- **Muck Management Details:**

No. of proposed disposal area/ (type of land- Forest/Pvt land)	7 nos. (forest land)
Cross section of proposed muck area, Height of muck with slope.	Attached as Appendix I
Distance of muck disposal area (location), from muck generation sources (project area)/River, HFL of proposed muck disposal area.	30 m from HFL.
Total Muck Disposal Area	37.50 ha
Estimate Muck to be generated	4154255 Cum
Transportation	The generated muck will be carried in dumper trucks covered with heavy-duty tarpaulin properly tied to the vehicle in line with international best practices. All precautionary measures will be followed during the dumping of muck. Based upon the varying cycle time of 25T Rear Dumpers at different excavation sites and their distance from the disposal site appropriate pollution management will be devised. The Standard practices of pollution abatement and control will be enforced through the contractor.
Monitoring mechanism for Muck Disposal Transportation	The provisions of Monitoring have been kept under proposed Environmental Monitoring

	Plan.

- **Land Area Breakup:**

Private land	0.00 ha
Government land	0.00 ha
Forest Land	470.80 ha
Total Land	470.80 ha
Submergence area/Reservoir area	160 ha (at FRL at 805.0 m)
Additional information (if any)	-

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

Forest Land/ Protected Area/ Environmental Sensitivity Zone	**Yes/ No**	**Details of Certificate/ letter/ Remarks**
Reserve Forest/ Protected Forest Land	No	No project component falls in any notified protected area. Nearest Protected Area to the Project Components is Yorde Rabe Supse Wildlife Sanctuary (WLS) which is at a distance of around 10.10 km from and Mouling WLS which is at a distance of around 11.74 km from the project component.
National Park	No	
Wildlife Sanctuary	No	
Archaeological sites monuments/ historical temples etc.	No	
Additional information (if any)	-	

Availability of Schedule-I species in study area: As per Wildlife Protection Amendment Act, 2022, Northern Red Muntjac, Sambar, Alpine Musk Deer, Golden Jackal, Dhole, Bengal Fox, Jungle Cat, Clouded Leopard, Leopard, Mainland Leopard Cat, Javan Mongoose, Eurasian Otter, Asiatic Black Bear, Small Indian Civet, Assamese Macaque, Capped Langur, Bengal Slow Loris, Oriental Pied Hornbill, Kalij pheasant, White napped Tit, Beautiful Nuthatch, Common Hill Myna, Fowlea piscator are listed as Schedule I species.

- **Public Hearing (PH) Details**

Advertisement for PH with date	Publications of notice for public hearing were given in state and national newspapers namely “Echo of Arunachal” and “The Times of India" dated 17.10.2025 and “The Dawnlit Post” and “The Times of India" dated 29.11.2025. In addition, Corrigendum for change in no. of days was also given in state newspapers namely “The Arunachal Times”, “Arunachal Front”, “The Dawnlit Post” and “The Arunachal Pioneer” dated 06.12.2025.
Date of PH	20/11/2025 at Community Hall, Kaying, district Siang 17/12/2025 at Yapik Village, Tato Circle, district Shi Yomi
Venue	• Community Hall, Kaying, district Siang • Yapik Village, Tato Circle, district Shi Yomi
Chaired by	• Shri Tayi Taggu, APCS, Deputy Commissioner, Boleng, district Siang • Shri Tungge Loya, APCS, Deputy Commissioner, Tato, district Shi Yomi
Main issues raised during PH	• Regarding submission of False Documents. • Lack of effective communication, and grievance redressal despite multiple representations and hearings. • Demand for job reservation for project-affected persons, preference to local contractors, and establishment of a local NEEPCO branch office to address public concerns. • Unequal or inadequate compensation, particularly for left bank land owners, and downstream communities dependent on river and forest for livelihood. • Lack of information and notice for public hearing • Threats to biodiversity, including natural bird and animal sanctuaries near the proposed powerhouse. • Fair and Transparent Compensation including Land Compensation Rate • Re-settlement of affected villages. • Plan for Disaster & Risk Management including Dam-break scenario, earthquake vulnerability and downstream flooding. • Loss of Traditional Fishing Rights after the construction of dam.

	• Inclusion of Yapik name in Naying HEP. • Reduction of quantity of land from 644 ha (Proposed by earlier Developer M/s DSC Ltd.) to 470.80 ha now (Surface Area: 453.55 + Underground Area: 17.25 ha) • Concern about future landslides in Yapik and Irgo villages due to creation of reservoir. • Catchment Area Treatment Plan • Concern about cultural impact due to influx of labours from outside. Complete issues raised during PH and clarification given by Project Proponent are attached as Appendix II
No. of people attended	• 87 in Siang District • 96 in Shi Yomi District

- **Brief of base line Environment:**

Particulars	**Details**		
Period of baseline data collection/Sampling period.	**Monsoon**	**Winter**	**Pre-Monsoon**
Soil	September, 2024	December, 2024	April, 2025
Air Environment	September, 2024	December, 2024-January, 2025	April, 2025
Noise & Traffic	September, 2024	December, 2024	April, 2025
Vegetation	September, 2024	December, 2024	April, 2025
Faunal	September, 2024	December, 2024	April, 2025
Water and Aquatic Ecology	September, 2024	December, 2024	April, 2025
Socio-economic survey of study area villages	December, 2024		
Brief description on hydrology and water assessment as per the approved Pre-DPR:	The Siyom River originates in mountainous terrain near Tunokar Ogo in Arunachal Pradesh, Northeastern India. The basin is bounded on the north by Eastern Himalaya, on the east and west by Abore Hills. All these mountains form an almost continuous range with elevations range between 4500 and 5000 m. The watershed of the Siyom River at the Naying Dam site is composed of two separate watersheds i.e., of the Siyom River and the Shi Chu River. The watersheds of Shi-Chu and Siyom rivers		

	at the Naying Dam site are 1222 km2 and 1538 km2 respectively with a total of 2760 km2. The total length of the Siyom River from the origin up to the proposed dam site is about 77.5 km and the total length of Siyom from its origin up to the confluence with Siang River is about 184.54 km. The installed capacity at Naying HEP is proposed to be 1000 MW and the corresponding design discharge is 424.5 cumec during monsoon and 419.0 cumec during non-monsoon. Also, it was found that the annual and lean flow load factor corresponding to 1000 MW installed capacity is 43.71% and 13.67% respectively. On the basis of approved 10-daily flow series, years 1978-79 and 1986-87 come out as 90% and 50% dependable years, respectively. Design Flood: Probable maximum flood has been worked out using CWC sub-zone 2a Report, Clark model & Snyder method as 8266 cumec, 7096 cumec and 6951 cumec respectively. The most critical value of 8266 cumec say, 8270 cumec has been adopted for the PMF. Sedimentation: Naying HEP, located in the steep Himalayan terrain, is subject to significant sediment transport due to high river gradients. Although the reservoir volume is limited owing to the narrow gorge-like topography, sediment management remains critical given the catchment dynamics. Based on sediment yield estimates from the downstream Project, a sedimentation rate of 0.141 ha.m/km²/year has been adopted for Naying HEP, translating to an annual sediment inflow of approximately 3.89 MCM. Using Brune's curve, the reservoir's trap efficiency is estimated at 37%, resulting in an annual sediment deposition of around 1.85 MCM. Classified as a Type I operation (sediment always submerged) and Type II shape (m = 2.82), the reservoir is expected to accumulate sediment up to the spillway crest level (El. 740 m) within ten years. To mitigate this, the design includes low-level sluices for periodic

	flushing and a 41 m vertical offset between the sluice crest and intake invert to ensure silt-free water abstraction during non-monsoon operations. Glacial lake outburst flood (GLOF): Glacial lake outburst flood (GLOF) study for the project has been undertaken by Central Water Commission and same has been worked out as 785 cumec at Naying dam site. Environmental Releases (e-flow): Duly considering the approved basin study, e-flow for different seasons have been calculated by considering 20% of average 10 daily flow value corresponding to 90% dependable year for each individual season. These e-flow values are 14.25 cumec, 41.61 cumec and 86,45 cumec for lean season, pre-monsoon and post-monsoon season respectively. These are against DPR provision of 14.25 cumec (20% of average lean period flow (Dec-March) in 90% dependable year).
Additional detail (If any)	-

- **Court case details: Nil**
- **Status of other statutory clearances:**

Particulars	**Letter no. and date**
Status of Stage- I FC	Online Proposal No. FP/AR/HYD/IRRIG/492810/2024 submitted to MoEF&CC with recommendation of State Govt. Pending at Nodal Officer due to EDS by MoEFCC.
Approval of Central Water Commission	CWC Hydrology Clearance vide letters dated 05.04.2010 & 14.05.2010; further observations vide letter dated 14.11.2025 GLOF Clearance vide letters dated 23.05.2025 by FE&SA Directorate, CWC
Approval of Central Electricity Authority	• CEA concurrence dated 11.09.2013 • Techno-Economic Concurrence accorded by CEA vide OM dated 11.09.2013; revalidated up to 30.09.2027 vide CEA letter dated 19.11.2025
Additional detail (If any)	
Is FRA (2006) done for FC-I	The process for FRA compliance shall be

	undertaken

- **Details of the EMP**

Cost for Implementing Environmental Management Plan

S. No.	EMP Component	Capital Cost (Rs. in lakh)	Recurring Cost (Rs. in lakh)						Total Cost (Rs. in Lakh)
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
1	Biodiversity Conservation & Wildlife Management Plan	325.00	0.00	0.00	0.00	0.00	0.00	0.00	**325.00**
2	Fisheries Conservation and Management Plan	272.00	0.00	0.00	0.00	0.00	0.00	0.00	**272.00**
3	Catchment Area Treatment Plan	1817.79	0.00	0.00	0.00	0.00	0.00	0.00	**1817.79**
4	Disaster Management Plan	275.00	25.00	25.00	25.00	20.00	15.00	15.00	**400.00**
5	Reservoir Rim Treatment Plan	0.00	0.00	0.00	0.00	200.00	150.00	150.00	**500.00**
6	Muck Dumping and Management Plan	300.00	550.50	575.25	655.25	625.15	617.23	550.00	**3873.38**
7	Landscaping and Restoration Plan and Green Belt Development	10.00	45.00	70.00	125.00	135.00	110.00	110.00	**605.00**

8	Public Health Delivery System	275.00	25.00	25.00	25.00	25.00	25.00	25.00	**425.00**
9	Labour Management Plan	21.00	10.00	15.00	15.00	15.00	15.00	10.00	**101.00**
10	Sanitation and Solid Waste Management Plan	200.00	50.00	50.00	50.00	50.00	50.00	50.00	**500.00**
11	Energy Conservation Measures	70.00	60.00	60.00	60.00	60.00	60.00	60.00	**430.00**
12	Control of Air, Noise and Water Pollution	20.00	30.00	30.00	30.00	30.00	30.00	30.00	**200.00**
13	Environmental Monitoring Programme	0.00	39.59	39.59	39.59	64.59	64.59	64.59	**312.54**
	Total	**3585.79**	**835.09**	**889.84**	**1024.84**	**1224.74**	**1136.82**	**1064.59**	**9761.71**

Cost for R&R and CER

S. No	Components	Capital Cost (Rs. in lakh)
1	Rehabilitation and Resettlement Plan**	7200.00
2	Corporate Environment Responsibility (CER)	2000.00
	Total	**9200.00**

**Cost of private land procurement will be part of DPR cost.

Cost for Compensatory Afforestation and Net Present Value

S. No.	Components*	Total Cost (Rs. in Lakh)
1	Compensatory Afforestation	4566.45
2	Net Present Value (NPV)	6763.84
3	Tree to be Felled	2225.66
	Total	**13555.95**

* As per Part-II of forest diversion proposal

55.1.3 The EAC during deliberations noted the following:

- The EAC deliberated on the information submitted and presented during the meeting, observing that the proposal is for the grant of Environmental Clearance (EC) to the project for Naying Hydro Electric Project (1000 MW) in an area of 470.8 Ha located at Sub District Tato, Payum Circle, District Shi Yomi and Siang, Arunachal Pradesh by M/s North Eastern Electric Power Corporation Ltd.

- The project is listed under S.N.1(c) of the Schedule to the Environmental Impact Assessment (EIA) Notification as a Category 'A' project, which requires appraisal at the Central level by the Expert Appraisal Committee (EAC).

- The EAC, constituted under the provisions of the EIA Notification, 2006, and comprising expert members/domain experts in various fields, examined the proposal submitted by the Project Proponent, including the EIA/EMP reports prepared and submitted by the Consultant accredited by QCI/NABET on behalf of the Project Proponent.

- The EAC noted that the Project Proponent has provided an undertaking affirming that the data and information provided in the application and enclosures are accurate to the best of their knowledge, with no suppression of information in the EIA/EMP reports. The proponent also acknowledged that if any part of the data/information submitted is found to be false or misleading at any stage, the project will be rejected, and any Environmental Clearance granted will be revoked at the risk and cost of the Project Proponent.

- The committee observed that earlier MoEF&CC had granted Terms of Reference (ToR) on 13.07.2007, which was subsequently extended in March, 2012. Thereafter, the Public Hearing for the project was conducted in May, 2012, and the final EIA/EMP report was submitted to the MoEF&CC in July, 2012 for appraisal. Subsequently, the project was considered by the EAC during its 66th meeting held on 04.05.2013. During the appraisal, the Committee advised the PP to incorporate additional information, relevant test results, and supplementary details in the EIA/EMP reports. The Committee further directed that the findings and recommendations of the Siang River Basin Study, which was at an advanced stage of completion at that time, should also be incorporated in the updated EIA/EMP documentation. The EAC emphasized that inclusion of these additional studies and basin-level assessments was essential for carrying out a comprehensive and scientifically robust evaluation of the likely environmental, ecological, and cumulative impacts of the project.

- The EAC further noted that environmental flow (e-flow) releases into the river shall be maintained strictly in accordance with the recommendations and stipulations of the Cumulative

Environmental Impact Assessment (CEIA) / River Basin Study of the Siang River Basin.

- Further, it was observed that subsequent to the earlier appraisal process, several modifications were carried out in the project configuration and layout. Additionally, the recommendations and findings of the CIA/CCS of the Siang River Basin were incorporated into the project planning and design. In view of these revisions and updated project parameters, the PP applied for fresh Terms of Reference (ToR) for the revised project layout. Accordingly, the MoEF&CC issued fresh ToR to the project vide letter No. J-12011/37/2007-IA-I (R) dated 07.08.2024.

- The EAC noted that the baseline data has been carried out from September 2024 to April 2025 and all the parameters are within the prescribed norms. Additionally, it was noted by the EAC that the total land requirement is about 470.80 ha ha of which entire land is forest land. It was further noted that for diversion of forest land application for forest clearance is has been submitted and is under process under proposal number: FP/AR/HYD/IRRIG/492810/2024.

- The EAC observed that there is no national park, wildlife sanctuary, Biosphere Reserve, Tiger/Elephant Reserve, Wildlife Corridor etc. within 10 km distance from the project site. Also, the EAC noted that the Biodiversity and Wildlife Conservation and Management Plan has been submitted by the PP to the Add PCCF (Cons) & Nodal Officer (FCA), Government of Arunachal Pradesh vide letter dated 11.08.2025.

- The EAC noted that the Public hearing for Siang District was conducted on 20.11.2025 at the Community Hall, Kaying under the chairmanship of Shri Tayi Taggu, APCS, Deputy Commissioner, Boleng. Similarly, the Public Hearing for Shi Yomi District was conducted on 17.12.2025 at Yapik Village under Tato Circle, under the chairmanship of Shri Tungge Loya, APCS, Deputy Commissioner, Tato. The Publications of notice for public hearing were given in state and national newspapers namely “Echo of Arunachal” and “The Times of India" dated 17.10.2025 and “The Dawnlit Post” and “The Times of India" dated 29.11.2025. In addition, Corrigendum for change in no. of days was also given in state newspapers namely “The Arunachal Times”, “Arunachal Front”, “The Dawnlit Post” and “The Arunachal Pioneer” dated 06.12.2025. The EAC discussed the concerns raised during the Public Hearing (PH) and reviewed the action plan submitted by the PP to address these issues. After detailed deliberation, the Committee found the action plan satisfactory, recognizing that the proposed mitigation measures adequately respond to stakeholder’s concerns.

- While deliberating on the hydrology and Glacial Lake Outburst Flood (GLOF) studies, the EAC sought clarifications from the PP to which PP informed that the project has been designed for an installed capacity of 1000 MW with design discharges of 424.5 cumec during monsoon and 419.0 cumec during non-monsoon periods. The annual and lean season load factors have been estimated as 43.71% and 13.67%, respectively, based on the 90% dependable year of

1978–79. The Probable Maximum Flood (PMF) for the project has been assessed as 8,270 cumec. The PP further submitted that due to the steep Himalayan terrain, sedimentation in the reservoir is significant, with an estimated deposition of 1.85 MCM/year, and accordingly low-level sluices have been incorporated for sediment flushing. Environmental flow (e-flow) releases have been proposed as per the basin study recommendations, with 14.25 cumec during lean season, 41.61 cumec during intermediate season, and 86.45 cumec during monsoon season. The PP also informed that the GLOF study for the project has been carried out by the Central Water Commission (CWC), and the GLOF at the Naying dam site has been assessed as 785 cumec.

- The EAC during the meeting, noted that CEA accorded concurrence to DPR in favour of M/s Naying DSC Power Limited on 11/09/2013. After approval of the Siang Basin study report, NEEPCO got revised power potential approval from CEA vide letter no. CEA-HY-12-32/1/2022-HPA Division dated 29.03.2022 to account for revised e-flow as recommended in basin study. Further, CEA transferred the concurred DPR of Naying HEP in favour of NEEPCO Limited vide letter no. CEA-HY-12-12/14/2023-HPA Division dated 20.10.2023 and extended the validity of concurrence up to 30/09/2025, which was further extended till 30/09/2027 vide CEA letter no. CEA-HY-12-32/1/2022-HPA Division dated 19/11/2025. However, the Committee noted that while approving the revised power potential, CEA has opined that NEEPCO may review the power potential study with the latest hydrological series to make it more realistic in the present scenario. NEEPCO submitted that they have already completed the water availability studies and submitted to CWC in May 2026, however, flood studies are underway and shall be submitted shortly.

- The EAC was also informed that the Cumulative Impact Assessment & Carrying Capacity Study(CIA&CCS) of Siang River Basin in Arunachal Pradesh have been completed and the report has been accepted by the Ministry. PP further informed that the outcome and recommendations of CIA&CCS been dully incorporated in the updated EIA/EMP.

- The EAC noted that the total estimated project cost is Rs 11835.86 Crore including IDC and escalation. The total budget of EMP is 118.52 Crore, which is 1% of the total project cost.

- During the meeting, the EAC enquired about the availability of fish species and provision of fish pass in the project. In response, the PP informed that a total of 20 fish species inhabit the Siyom River and its tributaries. Further, considering the proposed dam height of 138.0 m (above deepest foundation level), construction of a conventional fish pass/fish ladder is not technically feasible. The EAC observed that environmental flow shall be assessed based on ecological requirements of aquatic species rather than percentage-based criteria, so as to ensure adequate water availability for aquatic survival. Further, in view of the infeasibility of fish

pass, the EAC advised the PP to explore the possibility of fish lifting arrangements and prepare a comprehensive Fish Management Plan accordingly.

55.1.4 The EAC after examining the information submitted and detailed deliberations sought following information for further consideration of the proposal:

1. CEA/CWC observations regarding e-flow in view of change in hydrological data over the period of time.
2. The environmental flow shall be assessed based on ecological requirements of aquatic species rather than percentage-based criteria, so as to ensure adequate water availability for aquatic survival.
3. The PP to explore the possibility of fish lifting arrangements and prepare a comprehensive Fish Management Plan accordingly.

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

Agenda Item No. 55.2

Duggeru Close Loop Pumped Storage Project (2500 MW) in an area of 260 Ha located at Sub District Makkuva and Salur, District Parvathipuram Manyam, Andhra Pradesh by M/s Chinta Green Energy Private Limited – Terms of References (TOR) – reg.

[Proposal No. IA/AP/RIV/569176/2026; F. No. J-12011/25/2026-IA.I(R)]

55.2.1 The proposal is for grant of Terms of Reference (ToR) to the project Duggeru Close Loop Pumped Storage Project (2500 MW) in an area of 260 Ha located at Sub District Makkuva and Salur, District Parvathipuram Manyam, Andhra Pradesh by M/s Chinta Green Energy Private Limited.

55.2.2 The Project Proponent and the accredited Consultant M/s Enviro Infra Solutions Pvt Ltd, made a detailed presentation on the salient features of the project and informed that:

i. The Duggeru Pumped Storage Project (PSP) is a proposed 2500 MW off-stream, closed-loop energy storage scheme located near Duggeru village in Salur Mandal of Parvathipuram Manyam District, Andhra Pradesh.

ii. The scheme comprises an upper and a lower reservoir connected through a system of headrace tunnels, pressure shafts, an underground powerhouse, and tailrace tunnels. The project is planned with 8 reversible pump-turbine units of 312.5 MW each, operating under a gross head of about 478 m. The net storage requirement per operating cycle is approximately 13.10 Mm^3.

iii. As a closed-loop system, water is required mainly for initial filling and to compensate for evaporation and seepage losses, with no continuous dependence on river inflows. During off-peak hours, surplus power—primarily from renewable sources—will be used to pump water to the upper reservoir, while during peak demand periods, stored water will be released to generate electricity. Power evacuation is proposed through a 400 kV switchyard and 400 kV double-circuit transmission lines to the 400/220 kV Maradam Substation, located about 45 km from the project site.

iv. **Project Location**: The project envisages utilization of a gross head of about 478 m available between the proposed upper and lower dams. The upper dam and reservoir are located within the Duggeru Reserved Forest, near Dohivarha and Sirivara villages in Salur Taluka of Parvathipuram Manyam District, Andhra Pradesh. The lower dam and reservoir are also situated within the Duggeru Reserved Forest, near Eguva Konjjapaka village in Salur Taluka of Parvathipuram Manyam District, Andhra Pradesh.

The geographical co-ordinate of the project is at Upper Dam Latitude: 18°45'46.50"N Longitude: 83°08'46.29" E; Lower Dam: Latitude: 18°44'01.65"N -Longitude: 83°09'07.16"E.

v. **Land requirement:** The total land required for the project components and related works has been estimated to be about 260 Hectares, which includes 210 Hectares of forest land and 50 Hectares of non-forest land.

vi. **Water requirement:** The quantity of water required during construction is estimated as 500 KLD which shall be drawn from the river water can be pumped and stored in a tank at higher elevation. The domestic requirement shall be 300 KLD which shall be met from the ground water resource. Post construction the domestic requirement shall be 65 KLD only.

vii. **Project Cost:** Rs. 13436 Crores.

viii. **Project Benefit:** Pumped storage offers multiple benefits to a power system. In addition to providing energy storage, pumped storage can provide power immediately and can be rapidly adjusted to respond to changes in energy demands. These benefits are part of a large group of benefits, known as ancillary services

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.

x. **MoU / any other clearance/ permission signed with State government:** Permission signed with State government: GO MS. No. 84 Dated: 14.10.2025.

xi. **Resettlement and rehabilitation:** The compensation for acquisition land would be paid to the respective land owners/ land titleholders as per the provisions of "Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013".

xii. **Alternative Studies:** The following aspects have been considered for formulation of alternative layouts:

a. Topography of the area and other factors like location, length of water conductor System.
b. Utilization of available head at project site and to the maximum extent feasible.
c. Development of economical and optimized layout
d. Ease of Construction and access to shafts, powerhouse, and related structures.
e. Minimal area of land acquisition to accommodate various project components.

Three alternatives have been considered and best suitable site has been selected. Further details have been provided in PFR.

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

- Solid waste - About 584 MT/year solid municipal wastes is likely to be generated from labour colony. Municipal Solid waste would be disposed as per MSW Rules 2016

- Muck generated from dam's foundation after assuming swell factor of 25% has been estimated as 69,35,650 m3 which shall be utilized for earthen dam, producing coarse and fine aggregate for concrete production and in fillings for developing areas for construction facilities.

xiv. Status of Litigation Pending against the proposal, if any. **Nil**

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

• Project Details:	
Name of the Proposal	Proposed 2500 MW Duggeru Pumped Storage Project (8 x 312.5 MW) Near Duggeru Village, Salur Mandal Parvathipuram Manyam District, Andhra Pradesh Proposal No: IA/AP/RIV/569176/2026 File No: J-12011/25/2026-IA.I(R)

Location (Including Coordinates)	The project is located near Duggeru Village village in Salur Mandal Parvathipuram Manyam District, Andhra Pradesh. Coordinates: **Upper Reservoir:** Near Dohivarha & Sirivara villages **Lower Reservoir:** Near Eguva Konjjapaka village **Upper Dam Coordinates:** 18° 45' 46.50" N 83° 08' 46.29" E **Lower Dam Coordinates:** 18° 44' 01.65" N 83° 09' 07.16" E
Inter- state issue involved	Not Applicable
Seismic zone	Zone-II
• Category Details:	
Category of the project	Category 'A'
Provisions	Pumped Storage Project
Capacity / Cultural command area (CCA)	2500 MW / 15000 MWH
Attracts the General Conditions (Yes/No)	No
Additional information (if any)	Nil
• Electricity Generation Capacity	
Powerhouse Installed Capacity	2500 MW / 15000 MWH
Generation of Electricity	5201 MU annually
No. of Units	8 units of 312.5 MW
Additional information (if any)	Nil
• ToR/ EC Details:	
Cost of project	**Rs.** 13436 Crores
Total area of Project	260 ha
Height of Dam from River Bed (EL)	Upper Dam 670 m long / 100 m high and Lower Dam 845 m long / 69 m high.
Details of submergence area	--
Types of Waste and quantity of generation during construction / Operation	About 584 MT/year solid municipal wastes is likely to be generated from labour colony in the construction phase.

E-Flows for the Project	--	
Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in which project located. If yes then E-flow with TOR / Recommendation by EAC as per CIA&CC study of River Basin. If not the E-Flows maintain criteria for sustaining river ecosystem.	NA	
• Muck Management Details:	After considering a swell factor of 25%, the total quantity of muck generated from excavation is estimated at 1,14,36,500 m^3. Out of this, about 75% of the muck will be reused for producing coarse and fine aggregates for concrete as well as for filling works in developing construction facility areas. The remaining 25% of the muck will be disposed of at designated muck disposal sites.	
No. of proposed disposal area / (type of land- Forest / Pvt land)	35 ha (Non Forest Land)	
Muck management plan	Will be provided in EIA report.	
Monitoring mechanism for Muck Disposal Transportation	Project Proponent	
• Land Area Breakup:		
Project Appurtenance	**Area (ha)**	
Private land (Submergence)	50	
Barrage construction land	-	
Forest land	210	
Proposed Rabi & Kharif irrigation Area	NA	
• **Presence of Environmentally Sensitive Areas in the Study Area:**		
Forest Land/ Protected Area/ Environmental Sensitivity	Yes/No	Details of Certificate/ letter/ Remarks

Reserve Forest / Protected Forest Land	Yes	Duggeru RF
National Park	No	
Wildlife Sanctuary	No	
• **Court Cases Details:**		
Court Case	Nil	
Additional information (if any)	Nil	
• **Affidavit / Undertaking**		
Affidavit/Undertaking		
Additional information (if any)	Nil	
• **Previous EC compliance and necessary approvals:**		
Particulars	Letter No. and Date	
Certified EC compliance report (if	NA	
Status of Stage- I FC	Under Process	
Additional detail (If any)	Nil	
Is FRA (2006) done for FC-I	NA	
• Miscellaneous :		
Particulars	Details	
Details of consultant	Enviro Infra Solutions Pvt.Ltd. Address: - 301, 302 & 305, SRBC, Sec.-9, Vasundhara, GZB-201012 Ph.: 0120-4151183 Email: eis@enviroinfrasolution.com	
Project benefit	Pumped storage offers multiple benefits to a power system. In addition to providing energy storage, pumped storage can provide power immediately and can be rapidly adjusted to respond to changes in energy demands. These benefits are part of a large group of benefits, known as ancillary services	
Status of other statutory	Forest Clearance is under process	
R&R details	The compensation for acquisition land would be paid to the respective land owners/ land titleholders as per the provisions of "Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act,	

55.2.3 The EAC during deliberations noted the following:

- The Expert Appraisal Committee (EAC) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the proposal is for grant of TOR for conducting EIA/EMP and Public hearing for Duggeru Close Loop Pumped Storage Project (2500 MW) in an area of 260 Ha located at Sub District Makkuva and Salur, District Parvathipuram Manyam, Andhra Pradesh by M/s Chinta Green Energy Private Limited.

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

- The EAC noted that although the proposed Upper Reservoir to be located away from any riverine system but lower reservoir is proposed to be located across the existing seasonal nala/stream. Since the lower reservoir will be located on non-perennial nallah/stream, the committee opined that the project shall be categorized as an open-loop project rather than a closed-loop PSP.

- The EAC noted that the total land required for the project components and related works has been estimated to be about 260 Ha; out of which 210 Ha is forest land and remaining 50 Ha is non-forest land. Diversion of forest land for non-forest purpose will be involved for construction of project components. However, it was observed that the application for Stage-I Forest Clearance (FC) has not yet been submitted, which necessitates further action from the Project Proponent. The Committee further emphasized that component-wise land details have not been furnished by the PP during the meeting. Therefore, the Committee opined that the PP shall submit detailed component-wise land requirement/break-up for further appraisal of the project.

- It was noted by the EAC that t he quantity of water required during construction is estimated as 500 KLD which shall be drawn from the river water can be pumped and stored in a tank at higher elevation. The domestic requirement shall be 300 KLD which shall be met from the ground water resource. Post construction the domestic requirement shall be 65 KLD only. The EAC observed that the source of water and associated pipeline network have not been clearly submitted by the PP. The Committee noted that it was not clear whether the water requirement would be met from a different river system or from the project catchment itself. Accordingly, the EAC opined that the PP shall clearly establish the source of water along with details of the proposed pipeline network, if envisaged.

- The EAC, while deliberating on the site selection and alternatives examined by the PP, observed that sufficient clarity has not been provided regarding the comparative assessment of alternatives. The Committee noted that the rationale for selection of the proposed alternative has not been adequately justified by the PP, and therefore a clear basis for the chosen site could not be established.
- The EAC observed that the MoU has been signed between Government of Andhra Pradesh and M/s. Chinta Green Energy Pvt. Ltd vide order dated 14.10.2025 for establishment of 2000 MW Duggeru PSP Project at Duggeru in Makkuva Mandal, Parvathipuram Manyam District, Andhra Pradesh. The EAC noted that the proposed power generation capacity in the current proposal is of 2500 MW, whereas MoU obtained is of 2000 MW, therefore it was advised to obtain amendment in MoU for the proposed current capacity of the project.

55.2.4 The EAC based on the information submitted and as presented during the meeting, deferred the proposal for want of following information:

i. PP shall obtain necessary amendment to the existing MoU with the Government of Andhra Pradesh to align with the proposed project capacity of 2500 MW, and submit a copy of the revised MoU.
ii. PP shall provide a comprehensive and comparative assessment of alternative sites examined, indicating the environmental concerns associated with all shortlisted alternatives. Further, PP shall provide justification and rationale for selection of the proposed site based on environmental, technical, and socio-economic considerations.
iii. PP shall submit detailed component-wise land requirement along with clear break-up for all project components for further appraisal.
iv. PP shall clearly establish the source of water for both construction and operation phases, specifying whether it is from the project catchment or any other river system, along with complete details of the proposed pipeline network, storage, and conveyance system.

Agenda item No. 55.3: Any other items with the permission of the Chair:

[A]. Consideration of the proposal submitted by the NEERI for Conducting Cumulative Impact Assessment (CIA) and Carrying Capacity Study (CCS) of the Son River Basin

1. Background

- The proposal for undertaking a Cumulative Impact Assessment (CIA) and Carrying Capacity Study (CCS) of the Son River Basin emanates from the deliberations of the Expert Appraisal Committee (EAC) in its 3rd meeting held on 10th November, 2023, wherein, while considering the Terms of Reference (ToR) for the Sashnai Pumped Storage Project (1760 MW) located in District Sonbhadra, Uttar Pradesh, the Committee underscored the

necessity of undertaking a basin-level study in view of the increasing number of river valley and hydroelectric project proposals within the Son River catchment.

- The EAC had, inter alia, observed that such a study is essential to ensure environmental sustainability of the river basin and to assess long-term viability of proposed projects, particularly with respect to water abstraction and cumulative hydrological impacts. Accordingly, the Committee recommended that the Ministry undertake a comprehensive CIA & CCS study covering the states of Uttar Pradesh, Bihar, and Madhya Pradesh.

- Subsequently, during the Inter-Ministerial Committee meeting held on 08th January, 2026, it was decided that the National Environmental Engineering Research Institute (NEERI) shall undertake the CIA & CCS study for the entire stretch of the Son River Basin.

- In pursuance of the above decision, NEERI submitted a draft Terms of Reference (ToR) along with a detailed proposal for undertaking the CIA & CCS study to the Ministry for consideration and finalization.

- The said draft ToR and proposal were accordingly placed before the EAC in its 55th meeting held on 25.05.2026.

2. Presentation by NEERI

- During the meeting, NEERI made a detailed presentation on the draft ToR proposal for undertaking the CIA & CCS study of the Son River Basin.
- The presentation, inter-alia, covered the objectives of the study, scope of work, proposed methodology, broad ToR framework, timelines for completion, and overall budgetary requirements.

3. Deliberations of the Committee

- The Committee, after detailed deliberations, observed that the draft ToR proposal submitted by NEERI was preliminary in nature and lacked the requisite level of detail necessary for undertaking a comprehensive CIA & CCS study of a river basin of such scale and ecological significance.

- The EAC noted that critical aspects such as sampling framework, site selection criteria, number and distribution of sampling locations, and primary data collection protocols were not adequately elaborated. In the absence of such details, the Committee opined that it

would not be feasible to arrive at a realistic and scientifically justified cost estimate for the study.

- The Committee emphasized that a CIA & CCS study is a critical decision-support tool, which provides baseline environmental data, evaluates cumulative impacts of multiple river valley projects including Hydroelectric Projects (HEPs), Pumped Storage Projects (PSPs), and irrigation schemes, and facilitates sustainable basin-level planning.

- The EAC further observed that the study must comprehensively assess the current status of ecosystem services, and evaluate the potential impacts of existing and proposed developments on hydrology, ecology, biodiversity, and socio-economic systems within the basin.

- The Committee also highlighted that the present proposal does not adequately address:
  - Basin-wide project inventory and mapping,
  - Sub-basin level delineation,
  - Scientific basis for selection of monitoring locations,
  - Frequency and duration of sampling,
  - Integration of hydrological, ecological, and socio-economic datasets.

- The EAC stressed that the revised ToR must be comprehensive, scientifically robust, and structured in a point-wise manner, incorporating inputs from multidisciplinary domains including hydrology, ecology, forestry, agriculture, socio-economics, and environmental engineering.

4. Recommendations of EAC

The Committee, after detailed deliberations, recommended that NEERI may submit a revised and comprehensive ToR proposal for undertaking the CIA & CCS study of the entire Son River Basin, incorporating the following aspects:

i. A detailed and comprehensive scope of work, including refined Terms of Reference (ToR), study timelines, and realistic cost estimates for the entire basin covering the states of Chhattisgarh, Madhya Pradesh, Uttar Pradesh, Jharkhand, and Bihar.

ii. Identification of monitoring stations, assessment of downstream water availability, and complete enumeration of tributaries within the basin.

iii. Preparation of a comprehensive inventory and mapping of existing and proposed Hydroelectric Projects (HEPs), Pumped Storage Projects (PSPs), and irrigation projects, including assessment of cumulative and cascade impacts, along with recommendations on maintaining ecologically viable free-flowing stretches between projects.

iv. A detailed and scientifically justified sampling strategy, specifying the number and locations of sampling sites for hydrology, water, soil, ecology, and socio-economic parameters, along with sampling frequency and monitoring duration.

v. Submission of a quarter-wise implementation schedule for all study components.

vi. Provision of a detailed cost estimate, including head-wise, sub-head-wise, and activity-wise breakup.

vii. Inclusion of a detailed team composition, clearly defining roles and responsibilities of domain experts, including details of external experts, if any.

viii. Preparation of thematic maps for each sub-basin, covering forest cover, forest types, vegetation, project locations, sampling sites, and other relevant environmental attributes.

ix. Development of a robust carrying capacity assessment framework, supported by appropriate mathematical and geo-spatial models to evaluate basin-level hydrological, ecological, and socio-economic thresholds under cumulative project impacts.

x. Clear mapping of study components with designated experts, ensuring accountability and technical rigor.

xi. The Committee emphasized that the revised proposal should be scientifically robust, comprehensive, and suitable for enabling informed decision-making for sustainable river basin management.

[B] Discussion on Validity of Terms of Reference (ToR) for Kirthai Stage-II Hydroelectric Project (930 MW) in Kishtwar District, Jammu & Kashmir

The Member Secretary, EAC informed that the Ministry has received a proposal from Chenab Valley Power Projects Limited (CVPPL) for grant of transfer of Terms of Reference issued by the Ministry vide letter dated 05.06.2013 for conducting EIA study for proposed construction of the Kirthai Stage-II Hydro Electric Project (930 MW), as a Run-of-River scheme over an area of 225.25 ha located at Village Kirthai, Tehsil Padder, District Kishtwar, Jammu & Kashmir, from "M/s J&K State Power Development Corporation Limited (JKSPDC)" to "M/s Chenab Valley

Power Projects Limited (CVPPL)". The CVPPL is a Joint Venture Company between NHPC (51%) and JKSPDC (49%) formed at the initiative of Government of India and Government of J&K to harness the vast hydro potential of river Chenab.

2. It was further informed that the Terms of Reference (ToR) for Kirthai Stage-II Hydroelectric Project (930 MW) in Kishtwar District, Jammu & Kashmir was initially granted to Jammu and Kashmir State Power Development Corporation on 05.06.2013, with an initial validity of two years i.e., up to 04.06.2015. Subsequently, in terms of Office Memorandum dated 08.10.2014, the validity of ToR for River Valley and Hydroelectric Projects was increased to four years extendable up to one year. Accordingly, the validity of the ToR stood extended up to 04.06.2017.

3. Thereafter, based on the request of the PP, the matter regarding extension of ToR was considered by the Expert Appraisal Committee (EAC) in its meeting held on 11.07.2017, and the validity of ToR was further extended for the 5th year, i.e., up to 04.06.2018, vide letter dated 04.08.2017. Subsequently, the project proponent submitted the proposal for Environmental Clearance (EC), along with draft EIA and EMP reports, on 02.06.2018.

4. The proposal for grant of EC was considered by the EAC in its meetings held on 27.07.2018 and 15.04.2021, and the Committee, after detailed deliberations, recommended the project for grant of EC subject to specific conditions. However, the MoEF&CC vide letter dated 24.05.2021 informed the PP that the EC would not be issued until Stage-I Forest Clearance (FC) for diversion of forest land is obtained and submitted.

5. It was further informed that the techno-economic appraisal (TEA) of the project was accorded by the Central Electricity Authority (CEA) on 04.06.2019. The stipulations of TEA were subsequently complied with, and the TEA was transferred in favour of Chenab Valley Power Projects Private Limited on 27.12.2021, with further revalidation granted up to 13.06.2026. Also, an MoU dated 03.01.2021 was executed between JKSPDC and NHPC for implementation of the project through CVPPL.

6. It was noted that the Forest Clearance (Stage-I) proposal for diversion of 197.27 ha of forest land was submitted on 19.10.2022 on the PARIVESH portal by CVPPL and was considered by the Forest Advisory Committee (FAC) in its meeting held on 24.03.2026, wherein the decision is awaited.

7. In the context of the above developments, and considering the change in the name of PP, a proposal for transfer of ToR of Kirthai Stage-II HEP from JKSPDC to CVPPL was submitted on 03.04.2026 on the PARIVESH portal.

8. As the proposal for transfer of Terms of Reference doesn't require to be considered by the EAC as per EIA Notification, 2006, as amended. However, during the processing of the file, it was decided that the issue related to the validity of ToR shall be examined by the EAC.

EAC deliberations:

The EAC after detailed deliberations noted that the ToR has become perpetual after submission of EIA/EMP report, and therefore it can be transferred from "M/s J&K State Power Development Corporation Limited" to "M/s Chenab Valley Power Projects Limited".

[C]. Cumulative Impact Assessment (CIA) and Carrying Capacity (CC) Study for hydroelectric projects in the Yamuna, Tons and their tributaries

The Member Secretary, informed that earlier, Uttarakhand Jal Vidyut Nigam Limited, a Government of Uttarakhand undertaking, vide letter dated 03.07.2012 entrusted the work of conducting a Cumulative Impact Assessment (CIA) and Carrying Capacity (CC) Study for hydroelectric projects in the Yamuna, Tons and their tributaries to Indian Council of Forestry Research and Education, with defined Terms of Reference.

Background:

2. The EAC noted that the study was undertaken by ICFRE in collaboration with reputed national institutions including Indian Institute of Technology Roorkee, ICAR–Directorate of Coldwater Fisheries Research, Wildlife Institute of India, and Salim Ali Centre for Ornithology and Natural History, with the objective of developing environmentally sustainable strategies for hydropower development, including environmental flow requirements, riparian spacing, and ecological management frameworks.

3. Further, the study area comprised the Yamuna–Tons river basin located in the ecologically sensitive and seismically active Himalayan region of Uttarakhand, covering major tributaries and characterized by complex geological features including the Main Boundary Thrust (MBT) and Main Central Thrust (MCT).

4. Initially, a total of 46 hydroelectric projects (HEPs), comprising 17 large and 29 small projects, across various stages (commissioned, under-construction, and proposed) were considered for assessment, with most projects being run-of-the-river schemes.

5. The study was conducted between 2012 and 2014, and the draft report was submitted on 18.11.2015. The report was subsequently presented before SEIAA/SEAC in 2016 and finalized on 29.05.2017. Thereafter, the matter was placed before the Expert Appraisal Committee for River Valley and Hydroelectric Projects in its 22nd meeting held on 27.02.2019. The EAC, upon

appraisal, identified critical deficiencies in the study, including absence of river cross-section data for environmental flow assessment, inadequate biodiversity analysis, insufficient fish habitat considerations, and lack of linkage between baseline data and recommendations. The Committee also directed expansion of the study up to Paonta Sahib in Himachal Pradesh.

6. The MoEF&CC vide letter dated 24.06.2019 directed ICFRE to submit a revised proposal and in compliance of the same the revised report was submitted on 10.12.2020 and subsequently deliberated in later EAC meetings held in 2023, wherein further gaps in data availability and compliance were noted.

7. During the 12th EAC meeting held on 19.07.2024, UJVNL clarified that the number of techno-economically viable projects had been revised from 46 to 38, and the Committee directed ICFRE to revise the study accordingly, while keeping the Himachal Pradesh component in abeyance.

8. ICFRE accordingly revised the CIA & CC study incorporating EAC observations and submitted the updated report to MoEF&CC on 02.05.2025, which was appraised in the 33rd EAC meeting held on 17.06.2025.

9. The EAC, in its 33rd meeting, appreciated the improvements in the revised study, including incorporation of river cross-section data, refined environmental flow modelling, enhanced biodiversity assessment, and comprehensive recommendations, and recommended acceptance of the report as a valuable framework for basin-level planning and project-level environmental appraisal.

Issue:

10. Subsequently, during the processing of the file for approval of final recommendations EAC, it was observed that despite revision of the number of projects from 46 to 38, the final report continued to reflect the earlier figure of 46 HEPs, resulting in a discrepancy. Accordingly, ICFRE was requested vide letter dated 21.11.2025 to update the report. In response, ICFRE submitted a revised final report on 11.02.2026 incorporating updated inputs from UJVNL, reflecting 38 projects, including revised baseline data.

11. Further, it was informed to the EAC that the developments indicated that two projects, namely Mori-Hanol and Hanol-Tiuni HEPs, were merged into a single Mori-Tiuni HEP, reducing the total number of projects to 37. Additionally, new Pumped Storage Projects (PSPs), including Ichari PSP, Lakhwar-Vyasi PSP, and Vyasi-Katapathar PSP, were proposed and incorporated in the revised report.

12. In light of the above, and considering that the revised CIA & CC study has undergone multiple rounds of appraisal and has been recommended by the EAC, the matter is proposed to be placed before the EAC taking on record and for recommending acceptance of the study report submitted on 11.02.2026.

EAC deliberations:

- The EAC, after detailed deliberations, noted that the discrepancy in the number of projects reflected in the final CIA & CCS report had been duly addressed by ICFRE through submission of the revised report incorporating updated inputs received from UJVNL.

- The Committee observed that the revised report reflects the updated project scenario in the basin, including the reduction in the number of projects from 46 to 37 including consolidation of the Mori-Hanol and Hanol-Tiuni HEPs into the Mori-Tiuni HEP, resulting in a total of 37 hydropower projects from 38. The Committee further noted the inclusion of newly proposed Pumped Storage Projects (PSPs), namely Ichari PSP, Lakhwar-Vyasi PSP, and Vyasi-Katapathar PSP, and the corresponding updates made to the baseline information and impact assessment.

- In view of the above, the EAC accepted the revisions incorporated in the updated CIA & CCS report and recommended that the Ministry may take the revised study on record and accept the same for regulatory, planning, and decision-making purposes in respect of hydropower and allied development activities in the basin.

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

*****

ANNEXURE

ATTENDANCE

S. No.	Name of Member	Role	Remarks
1.	Prof. Govind Chakrapani	Chairman	P
2.	Dr. Uday Kumar R Y	Member	P
3.	DR. J. V. Tyagi	Member	P
4.	Shri Ajay Kumar Lal	Member	P
5.	Shri Balram Kumar	Member Representative of Central Water Commission (CWC)	P
6.	Dr. Kartik Sapre	Member	P
7.	Shri Rakesh Goyal	Member Representative of Central Electricity Authority (CEA)	P
8.	Dr. J.A. Johnson	Representative of Wildlife Institute of India (WII)	A
9.	Dr. A. K. Sahoo	Representative of Central Inland Fisheries Research Institute (CIFRI),	P
10.	Shri Yogendra Pal Singh	Member Secretary	P

APPROVAL OF THE CHAIRMAN

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Thu, 04 Jun 2026 7:07:41 PM +0530

To "Yogendra Pal Singh"<yogendra78@nic.in>
Cc "govind chakrapani"<govind.chakrapani@es.iitr.ac.in>

Approved.
Chakrapani

On Thu, Jun 4, 2026 at 4:23 PM Yogendra Pal Singh <yogendra78@nic.in> wrote:

Dear Sir,

Draft Minutes of the 55th EAC meeting held on 25.05.2026 were circulated to all EAC members. No comments received so far. Language of the EAC recommendation part of the Agenda item 55.2 is slightly refined (highlighted).

Accordingly, the draft MOM is attached herewith for approval please.

With Regards,

Yogendra Pal Singh
Scientist 'F'
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