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

**Date:** 28/08/2026

# Minutes of Meeting

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| **MoM ID :** | EC/MOM/EAC/450267/8/2026 |
| **Agenda ID :** | EC/AGENDA/EAC/450267/8/2026 |
| **Meeting Title :** | Minutes of AGENDA OF 60th MEETING OF THE EXPERT APPRAISAL COMMITTEE ON RIVER VALLEY PROJECTS meeting River Valley and Hydroelectric Projects held from 13/08/2026 to 13/08/2026 |
| **Meeting Venue :** | N/A |
| **Meeting Mode :** | Virtual |
| **Date & Time :** | 13/08/2026 (10:30 AM - 05:30 PM) |

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**1. Opening remarks**

The 60th 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 13th August 2026 through virtual mode, under the Chairmanship of Prof. G. J. Chakrapani.

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

The Minutes of the Meeting held on 59th EAC meeting on 30 July 2026 confirmed.

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

**Index of Proposals**

| S. No. | Proposal Number | Project Details |
|---|---|---|
| 1 | IA/AR/RIV/582227/2026 | (i) Project Name : Attunli Hydroelectric Project (680 MW)<br>(ii) Proponent Name : SJVN LIMITED |

| S. No. | Proposal Number | Project Details |
|---|---|---|
| | | (iii) State : ARUNACHAL PRADESH<br>(iv) Proposal for : Fresh EC<br>(v) Activity : River Valley/Irrigation projects<br>RVHEPs without Pump Storage Projects (1(c)) |
| 2 | IA/JK/RIV/587549/2026 | (i) Project Name : 93 MW New Ganderbal Hydro Electric Project<br>(ii) Proponent Name : JAMMU AND KASHMIR STATE POWER DEVELOPMENT COR PORATION LIMITED<br>(iii) State : JAMMU AND KASHMIR<br>(iv) Proposal for : Application for Validity Extension of EC- Form-6<br>(v) Activity : River Valley/Irrigation projects<br>Multi purpose project with Irrigation and Hydro Power Generation Component (1( c)) |
| 3 | IA/MP/RIV/587636/2026 | (i) Project Name : Patalkot Pumped Storage Project<br>(ii) Proponent Name : TORRENT ENERGY STORAGE SOLUTIONS PRIVATE LIMITED<br>(iii) State : MADHYA PRADESH<br>(iv) Proposal for : Fresh ToR<br>(v) Activity : River Valley/Irrigation projects<br>Standalone Pump Storage Projects (1(c)) |
| 4 | IA/TN/RIV/579943/2026 | (i) Project Name : Formation of Reservoir across Vallimalai Odai<br>(ii) Proponent Name : Water Resource Depatment, Government of Tamil Nadu<br>(iii) State : TAMIL NADU<br>(iv) Proposal for : Fresh ToR<br>(v) Activity : River Valley/Irrigation projects<br>Irrigation Projects (1(c)) |

DAY 1 • 13/08/2026

AGENDA NUMBER

## EC/AGENDA/EAC/450267/8/2026

## Attunli Hydroelectric Project (680 MW)

by **SJVN LIMITED** located at **DIBANG VALLEY, ARUNACHAL PRADESH**

| | |
|---|---|
| **PROPOSAL FOR** | Fresh EC |
| **PROPOSAL NUMBER** | IA/AR/RIV/582227/2026 |
| **FILE NUMBER** | J-12011/61/2006-IA.I (R) |
| **SUBMISSION DATE** | 17/06/2026 |
| **ACTIVITY / SUB-ACTIVITY (SCHEDULE ITEM)** | River Valley/Irrigation projects<br>RVHEPs without Pump Storage Projects (1(c)) |

### 3.1. Agenda Item No 1:

#### 3.1.1. Details of the proposal

| **Attunli Hydroelectric Project (680 MW)** by **SJVN LIMITED** located at **DIBANG VALLEY,ARUNACHAL PRADESH** | | | |
|---|---|---|---|
| **Proposal For** | | Fresh EC | |
| **Proposal Number** | **File Number** | **Submission Date** | **Activity<br>Sub-Activity<br>(Schedule Item)** |
| IA/AR/RIV/582227/2026 | J-12011/61/2006-IA.I (R) | 17/06/2026 | River Valley/Irrigation projects<br>RVHEPs without Pump Storage Projects (1(c)) |

#### 3.1.2. Project Salient Features

The study area comprises 18 villages, all located within the Etalin Circle of Dibang Valley district, Arunachal Pradesh. As per Mission Antyodaya (2020), the total population of the study area is 541, residing in 116 households with an average family size of 4–5 members. Females constitute 55.27% of the population, resulting in a favourable sex ratio of 1,235 females per 1,000 males. Children (0–6 years) account for 15.43% of the total population. Scheduled Tribes constitute 81.03% of the population, while there is no Scheduled Caste population in the study area. The majority of the inhabitants belong to the Idu Mishmi community. The overall literacy rate is 48.01%, with only a marginal gender difference in literacy levels. The workforce participation rate is 40.07% of the total population, with males accounting for 56.19% of workers and females for 43.81%. About 51.33% of the workers are main workers, while 48.67% are engaged as marginal workers, indicating a considerable dependence on seasonal employment. Agriculture remains an important livelihood, with cultivators constituting 31.86% of the workforce. However, the majority of workers (65.04%) are engaged in non-agricultural occupations such as government services, trade, transport, construction, and other service-related activities.

**Period**: **From March 2024 to February 2025**

**AAQ parameters at 06 locations (Min. & Max.)**

**Core Zone**

| Parameter | Unit | Min | Max | Mean Value | Standards |
|---|---|---|---|---|---|
| $PM_{2.5}$ | $mg/m^3$ | 6.20 | 19.00 | 12.60 | 60 |
| $PM_{10}$ | $mg/m^3$ | 16.80 | 50.50 | 33.65 | 100 |
| $SO_2$ | $mg/m^3$ | 4.70 | 8.10 | 6.40 | 80 |
| $NO_2$ | $mg/m^3$ | 5.20 | 15.10 | 10.15 | 80 |

**Buffer Zone**

| Parameter | Unit | Min | Max | Mean Value | Standards |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| $PM_{2.5}$ | $mg/m^3$ | 6.80 | 17.0 | 11.90 | 60 |
| $PM_{10}$ | $mg/m^3$ | 16.70 | 50.50 | 33.60 | 100 |
| $SO_2$ | $mg/m^3$ | 5.10 | 6.10 | 5.60 | 80 |
| $NO_2$ | $mg/m^3$ | 6.20 | 11.90 | 9.05 | 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] | Standards |
|---|---|---|---|---|---|
| $PM_{10}$ | $mg/m^3$ | 50.50 | 30.3 | 80.8 | 100 |
| $PM_{2.5}$ | $mg/m^3$ | 17 | 10.2 | 27.2 | 60 |
| $SO_2$ | $mg/m^3$ | 6.10 | 9.15 | 15.25 | 80 |
| $NO_2$ | $mg/m^3$ | 8.30 | 12.45 | 20.75 | 80 |

**Buffer Zone**

| Criteria Pollutant | Unit | Baseline Concentration [A] | Predicted incremental value considering worst case stability class [B] | Total GLC [A]+[B] | Standards |
|---|---|---|---|---|---|
| $PM_{10}$ | $mg/m^3$ | 50.50 | 0 | 50.50 | 100 |
| $PM_{2.5}$ | $mg/m^3$ | 19.00 | 0 | 19.00 | 60 |
| $SO_2$ | $mg/m^3$ | 8.10 | 0 | 8.10 | 80 |
| $NO_2$ | $mg/m^3$ | 15.10 | 0 | 15.10 | 80 |

**River water samples (06 samples)**

**Core Zone**

| S. No. | Parameters | Min | Max | Standards | Class |
|---|---|---|---|---|---|
| 1 | pH | 6.03 | 8.17 | 8.5 | A |
| 2 | Total Dissolved Solids, mg/L | 17 | 46 | 0 | NA |
| 3 | Dissolved Oxygen (mg/l) | 8.5 | 11.5 | 6 | A |
| 4 | Chloride (as Cl), mg/L | 9.1 | 15.2 | 0 | NA |
| 5 | Total Hardness (as CaCO3), mg/L | 58.7 | 73.5 | 0 | NA |
| 6 | Biological Oxygen Demand (mg/l) | 0 | 0 | 2 | A |
| 7 | Chemical Oxygen Demand (mg/l) | 0 | 0 | 0 | NA |
| 8 | Total Coliform (MPN/100 ml) | 0 | 0 | 50 | A |

**Buffer Zone**

| S. No. | Parameters | Min | Max | Standards | Class |
|---|---|---|---|---|---|
| 1 | pH | 6.72 | 7.9 | 8.5 | A |
| 2 | Total Dissolved Solids, mg/L | 17 | 31 | 0 | NA |
| 3 | Dissolved Oxygen (mg/l) | 8.7 | 10.7 | 6 | A |
| 4 | Chloride (as Cl), mg/L | 9.4 | 14.3 | 0 | NA |
| 5 | Total Hardness (as CaCO3), mg/L | 64.4 | 73.5 | 0 | NA |
| 6 | Biological Oxygen Demand (mg/l) | 0 | 0 | 2 | A |
| 7 | Chemical Oxygen Demand (mg/l) | 0 | 0 | 0 | NA |

| | | | | | |
|---|---|---|---|---|---|
| 8 | Total Coliform (MPN/100 ml) | 0 | 0 | 50 | A |

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**Ground Water samples at 06 locations**

**Core Zone**

| S. No. | Parameters | Min | Max | Desired Limits | Permissible Limits |
|---|---|---|---|---|---|
| 1 | pH | 7.64 | 8.3 | 6.5 | 8.5 |
| 2 | Total Dissolved Solids, mg/L | 42 | 156 | 500 | 2000 |
| 3 | Chloride (as Cl), mg/L | 34.1 | 39.62 | 250 | 1000 |
| 4 | Total Hardness (as CaCO3), mg/L | 141.03 | 176.86 | 200 | 600 |
| 5 | Fluoride (as F), mg/L | 0.09 | 0.12 | 1.0 | 1.5 |

**Buffer Zone**

| S. No. | Parameters | Min | Max | Desired Limits | Permissible Limits |
|---|---|---|---|---|---|
| 1 | pH | 7.2 | 8.19 | 6.5 | 8.5 |
| 2 | Total Dissolved Solids, mg/L | 35 | 256 | 500 | 20 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | 0<br>0 |
| 3 | Chloride (as Cl), mg/L | 35.7 | 40.22 | 250 | 1<br>0<br>0<br>0<br>0 |
| 4 | Total Hardness (as CaCO3), mg/L | 154.93 | 183.28 | 200 | 6<br>0<br>0<br>0 |
| 5 | Fluoride (as F), mg/L | 0.09 | 0.14 | 1.0 | 1.<br>5 |

**Noise levels Leq (Day & Night) at 07 locations**

| Zone | Category | Leq Day dB(A) | | Leq Night dB(A) | | Prescribed Limits | |
|---|---|---|---|---|---|---|---|
| | | From | To | From | To | Day | Night |
| Core | Residential | 52.1 | 54.2 | 37 | 42.1 | 55 | 45 |
| Buffer | Residential | 49.2 | 56.3 | 31.4 | 43.9 | 55 | 45 |

**Core Zone**

| S. No. | Parameters | Min | Max | Prescribed Limits |
|---|---|---|---|---|
| 1 | Calcium (mg/kg) | 216 | 312 | 500 |
| 2 | Magnesium (mg/kg) | 96 | 117 | 500 |
| 3 | Nitrogen (kg/ha) | 360 | 450 | 500 |
| 4 | Phosphorus (kg/ha) | 12.8 | 16.8 | 50 |
| 5 | Potassium (kg/ha) | 85.4 | 99.2 | 500 |
| 6 | Carbon (%) | 0.96 | 1.5 | 1 |
| 7 | Sodium Absorption Ratio | 2.4 | 4.1 | 10 |
| 8 | Salinity (ppt) | 0 | 0 | 0 |

**Buffer Zone**

| S. No. | Parameters | Min | Max | Prescribed Limits |
|---|---|---|---|---|
| 1 | Calcium (mg/kg) | 245 | 318 | 500 |
| 2 | Magnesium (mg/kg) | 85 | 113 | 500 |
| 3 | Nitrogen (kg/ha) | 310 | 397 | 500 |
| 4 | Phosphorus (kg/ha) | 14.3 | 16.8 | 50 |
| 5 | Potassium (kg/ha) | 70.5 | 96.5 | 500 |
| 6 | Carbon (%) | 0.92 | 1.3 | 1 |
| 7 | Sodium Absorption Ratio | 2.1 | 2.93 | 10 |
| 8 | Salinity (ppt) | 0 | 0 | 0 |

As per Wildlife Protection Amendment Act, 2022, 27 mammals (Himalayan Serow, Himalayan Goral, Sambar, Gongshan muntjac, Red Panda, Indian fox, Jackal, Wild Dog, Asiatic golden cat, Leopard, Leopard cat, Jungle Cat, Fishing Cat, Indian Mongoose, Small Indian Mongoose, Smooth Coated Otter, Yellow-throated Marten, Asiatic black Bear, Large Indian Civet, Small Indian Civet, Himalayan palm civet, Chinese pangolin, Indian pangolin, Assam Macaque, Brush-tailed porcupine, Indian Crested Porcupine and Black Giant Squirrel); 1 bird (Great Hornbill); and 2 herpetofauna (Rat Snake and King Cobra) species are listed as Schedule I species.

· 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.

· 9 muck disposal yards has been identified with a total area of 80.84 ha and capacity has been worked as 50.20 lakh cum which is more than the total quantity of muck to be disposed i.e. 45.27 lakh cum. All the sites 30m away from HFL.

**Suggestions/ Comments Given by Stakeholders**

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| 1 | Shri Nadim Lombo, Apanli Village, Chairman, Etalin Hydroelectric Project Affected People (EHEPAP)<br>· We welcome the Project and our seniors also accepted the project earlier<br>· We understand the degree of advantages from the establishment and operation of this project<br>· We look for an opportunity from this project, like unemployment issues, road and other necessary issues will be resolved<br>· We also know that the Talo river is in V-Shape pattern and it is very difficult for us to do agriculture and horticulture activities<br>· It is requested to project proponent to provide employment to the project affected people. | SJVN Ltd. is fully committed to comply with all the applicable acts, rules, regulations, and guidelines issued by both the Central and State Governments for development of hydropower projects, as well as the provisions outlined in the MoU signed with the State Government on 12.08.2023.<br>All mitigation measures proposed in the EIA/EMP report will be implemented during both the construction and operation phases of the project.<br>Suitable provisions have been incorporated in the EMP under CER, with focus areas including education, healthcare, skill development, infrastructure, livelihood enhancement, and sports. These initiatives will be finalized in consultation with the local public and district administration to ensure meaningful improvement in the project area.<br>Mobile Medical Van, equipped with basic diagnostic facilities and staffed by an MBBS doctor, is providing free doorstep healthcare services across all project-affected areas since April 2025 under SJVN's CSR initiative. Additional CSR measures will be implemented in the project area in line with the Corporation's CSR policy and status of project development.<br>It was further clarified that setting up of Office at project site shall be done in due course of time considering requirement for the project. It was further clarified that representations received from public that are falling within the purview of p |
| 2 | · Shri Keprunda Mena, Legal Advisor for Attunli Project Affected Peoples Committee (Submitted Memorandum attached in-I)<br>· Mandatory Job Reservation for Project Affected Families in the categories as prescribed in the Memorandum of Agreement signed on 12th August 2023 between the Government of Arunachal Pradesh and the SJVN Limited, which are as follows:<br>a) Managerial/Professional post (Group A & B) = 25%<br>b) Ministerial/Clerical post (Group C & D post) = 50%<br>c) Skilled Jobs = 25%<br>d) Unskilled Jobs = 75%<br>· As mentioned in the Article 6.9 of the MOA, the project affected eligible candidates shall be given preference over others against the above-mentioned reservation in various categories of posts. Further, the recruitment drive of the same shall be held within the state (preferably within the district) as mentioned in the Article 6.2 of the MOA.<br>· The State Government and the Corporation (SJVN) shall ensure allocation of Local Area Development Fund (LA | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | DF) as per the Hydro Power Policy, 2008. The funds shall be provided as per the Clause 9.14 of the Hydro Power Policy, 2008 or as per the Article 14 Sub-Clause (1) of the Memorandum of Agreement signed Between Government of Arunachal Pradesh and SJVN.<br>· The Local Area Development Fund (LADF) shall be allocated 100% (one hundred percent) to the Project Affected Area (PAA) as per Clause 5 of Sub-Clause (1) of "Local Area Development Fund Guidelines for Hydro Electric Projects in Arunachal Pradesh 2022" notified vide Government of Arunachal Pradesh Notification bearing no. SHPD/E-74/2019/2789-97 dated 15.06.2022 and shall be utilised strictly for development works within the project affected villages.<br>· That the two representatives of the APAPC/PAFs i.e. the then incumbent Chairman and General Secretary, shall be mandatorily included in the Local Area Development Committee as its members as and when the Committee is constituted for the implementation of LADF.<br>· The Permanent Office Colony of SJVN has not been set up in the project affected area till now. It is therefore demanded that the permanent Colony of SJVN shall be set up at the designated Project affected area/site before the initiation of construction of the project.<br>· That before initiation of construction, boundary of the earmarked/acquired land of the project proponent and village or community land should be clearly demarcated so as to avoid land dispute and conflicts in between project proponent and PAFs in future.<br>· Indemnification for loss of Life and property: That the Government of Arunachal Pradesh and SJVN must assume full responsibility for any losses- including human lives, livestock's, agricultural land, infrastructure or homes- caused by Attunli HEP construction, operation or failure as agreed in MoA.<br>· APAPC demands for allocation of contract work up to 5 (five) crores on non-tender basis to the Project Affected Families (PAFS).<br>· Strict adherence to formalities with regards to issue of Inner Line Permit (ILP) to large number of labourers who will be hired by the project developer and contractors during construction period of Athunli Hydro Electric Project (680 MW). Hence, the Project Proponent i.e. SJVN and especially the District Administration is hereby requested to maintain strict procedure for issue of ILP to hired labourers for the security, safety and safeguard of the PAFs and the region. | roject work, including corrections suggested in the names of rivers and nallahs, will be duly incorporated into the EIA/EMP reports and addressed in accordance with applicable Acts, rules, regulations, and guidelines. |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | · That, if the project proponent requires additional land for the purpose of construction activities of the dam, the project proponent shall acquire the land as per provisions of LARR Act, 2013.<br>· The Government and the SJVN shall design and implement livelihood restoration and enhancement programs for the PAFS whose traditional agriculture, fishing and river-based economies may be disrupted by the project. These programs should include skill development, micro-finance support and access to alternative employment opportunities linked to local resources as prescribed in the Environment Management Plan of the Draft EIA Report.<br>· The periodic review of Memorandum of Agreement (MoA) and performance-based compliance should be reviewed at every Five (5) years. A joint compliance Review Committee comprising State Govt., SJVN and representative of APAPC/PAFs must be constituted to ensure that all MoA terms are adhered to.<br>· The local contractors (PAFs) shall be given opportunities in supply and locally available materials, machines and work force to the Project developer more particularly during the construction phase of the project.<br>· Proper and timely implementation/utilisation of Corporate Social Responsibility (CSR) funds for the Local Area Development Plan of the Project affected areas. In as much as, the CSR is concerned, it is clearly mentioned in the MoA that the Corporation must earmark certain amount for the social work under CSR fund. The operative part of the MoA is reproduced herein as Quote " The Corporation shall earmark a reasonable amount for the social works in and around its operational area in accordance with Corporation's Policy on CSR (Corporate Social Responsibility) and the National Policy on Rehabilitation and Resettlement-2007(NPRR-2007). The Corporation shall also adhere/conform to the local laws of the State as well as law made by the Parliament" Unquote.<br>· Therefore, it is demanded that the CSR funds must be implemented in the project affected areas in sectors such as health, education, or other social welfare sectors, properly and in timely manner.<br>· The Corporate Environment Responsibility Fund of Rs. 10 Crore (Rupees Ten Crore) shall be implemented/allocated 100% (One Hundred Percent) in the Project Affected Areas and for the benefit of Project Affected Families (PAFs) in letter and spirit. The focus area for ac | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | tivities and implementation of CER fund shall be decided after taking consultation from the APAPC/PAFs.<br>· The Environment Management Plan which outlines the administrative framework to reduce negative impacts of the project during the construction and operational phase and minimize environmental degradation shall be implemented in letter and spirit as per Environmental Management Plan prescribed under section 10 of the EIA Draft.<br>· The involvement of affected families in planning and implementation of Environment Management Plan is vital; therefore, it is demanded that the representative of PAFS/APAPC shall be appointed as one of the members of the Environmental Monitoring Cell (EMC) for effective implementation of all Environmental safeguard measures.<br>· The entire land required for the various project activities is mentioned as Unclassified State Forest (USF) land, under section 7 sub clause-1.1 of the Draft EIA Report. However, it is to be state that there is no state/gadget notified USF land in the project area. The whole area is Community (Clan Wise) preserved land. Therefore, it is demanded that the entire land required for the various project activities shall be mentioned/described as the Community (Clan Wise) preserved land.<br>· The potential health issues and impact on the local communities or project affected families due to the influx of large number of workers is very high, hence the project proponent and the State Government shall establish Public Health Delivery System as mentioned under Section 10.11 of the Draft EIA in toto in order to mitigate the health-related issues in the project affected areas and to its communities.<br>· The profile of Project Affected villages and Families under Rehabilitation and Resettlement mentioned in Section 7.1 of the EIA/EMP Draft Report has been prepared basing upon the data of the Social Impact Assessment (SIA) Report. The SIA date prepared 7 to 8 years ago has several discrepancies and gaps in its data, which were previously made known to the concerned authorities by the affected families through several correspondences. However, no concrete actions were initiated to resolve the issue. It is therefore, demanded that the same SIA Report data shall not be based upon to prepare the Resettlement and Rehabilitation (R&R) Plan. The new data should be collected through fresh survey for R&R Plan and every person who have attained 1 | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | 8 years of age and above should be identified and given R&R benefits as per RFCTLARR Act 2013.<br>· The Concerned State authorities shall ensure that the Project Affected Families (PAFs) receive Annual Annuity for the entire life of Hydropower Project paid directly via Direct Benefit Transfer (DBT) through the Local Area Development Fund (LADF) in addition to Compensation and R&R Packages as approved by the State Cabinet recently.<br>· The regular sanitation programme under CSR scheme shall be undertaken involving the APAPC executive members and the PRI functionaries at R & R villages/colony to maintain the health and hygiene of the Project Affected Families (PAFs).<br>· No Muck dumping at River side or near road. Muck which includes excavated earth, rock and debris from construction activities possess serious threat to River's fragile ecosystem and to the communities rely on it. Therefore, it is demanded that all construction related waste must be (a) deposited at designated, approved disposal sites, (b) Stabilize with vegetation or cover to prevent erosion.<br>· Further, it is demanded that the muck dumping plan and appropriate mitigation measures of EMP shall be implemented properly and the monitoring of Ambient Air Quality and water quality during the construction period as proposed under Air and Water Monitoring Plan of EMP in the Draft EIA shall be implemented in letter and spirit.<br>· The charter of demands are the genuine grievances of the Project Affected Families keeping in view the long-term impact of the project and the extinguishment of access to Rights and Privileges of the affected families. It is therefore, demanded that the aforesaid demands be complied and be implemented by the Project Proponent i.e. SJVN and the State Authorities. | |
| 3. | Shri. Sadhu Mihu, Zilla Parishad Chairperson<br>· Almost all the points were presented by the Project affected families.<br>· Welcome the project for the betterment of the area<br>· The Attunli HEP and Etalin HEP have been continuing since 2008, whereas Public hearing for Etalin HEP was conducted in 2014, but the Attunli HEP could not proceed.<br>· We support the project proponents in getting the necess | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | ary clearances from concerned authorities. | |
| 4 | Shri Mohina Pulu, Akulin Village<br>· Welcome the project for the sake of development of the area.<br>· Hope the project will benefits all the project affected families. | |
| 5 | Shri Janta Umpey, Apanli Village (Submitted Memorandum attached in-2)<br>· At least 75% of employment opportunities in the project, both skilled and unskilled, be reserved and provided to the local and project-affected population strictly in accordance with the provisions of the MOUs executed for the said project.<br>· Priority in Technical Posts: That first priority in technical and skilled posts be given to eligible local candidates, provided they possess the requisite qualifications and competence, so as to ensure meaningful participation of the affected population in the project.<br>· Allocation of Local Contracts: That all project-related works and contracts up to the value of Rs. 1 crore be exclusively allotted to the local populace i.e contractors and entrepreneurs, thereby promoting local economic development and rehabilitation.<br>· Implementation of R&R (Rehabilitation and Resettlement): That the Rehabilitation and Resettlement (R&R) measures be implemented at the earliest in strict compliance with the provisions of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, ensuring just and fair compensation along with sustainable rehabilitation of affected families.<br>· Future Safeguards and Relief Measures: That appropriate mechanisms be put in place to provide additional relief, safeguards, and compensation in the event of any unforeseen adverse impact arising from the project in future, including environmental, social, or livelihood-related consequences.<br>· All the demands should be addressed in a time-bound manner, safeguarding the rights and interests of the affected families. | |
| 6 | Smt Tina Mena, Echanli Village<br>· Happy to know that the project is going to establish.<br>· This project will bring many opportunities to the project | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | affected people.<br>· We welcome the project | |
| 7 | Shri Dipoji Mili, Attunli Village<br>· Welcome the project for the benefits of the project affected families. | |
| 8 | Shri Ngasi Mena, Echanli Village (Submitted Memorandum attached in-3)<br>· The project overview such as detailed description of project location, purpose, and total area, especially highlighting compliance with 2006 EIA notification guidelines should be proper.<br>· Identification of potential negative impacts on air, water, land, and local biodiversity be clear.<br>· Specific, actionable steps outline in the Environmental Management Plan (EMP), such as pollution control, water Recycling and waste management etc should be mentioned properly.<br>· Focus on employment opportunities for local, corporate social responsibilities (CSR) initiative, and community Development plan with outmost transparency is required.<br>· Project Proponent must address feedback from stakeholders regarding Environmental Damage, health risks or rehabilitation and resettlement issues.<br>· Property and baseline survey had been already conducted by involving Officers of the line department which is still pending for computation of compensation and awards. Stakeholders would urge the district administration to initiate as early as possible to make award. PAFs would also appeal to Jurisdictional Deputy Commissioner to take into possession of land acquisition award after the expiry of 60 (sixty) days mandatory period of the claim & objections.<br>· Project Proponent must establish a health care system with state of art healthcare facilities integrate advance technology, sustainable green design, and therapeutic Art to create safe, efficiency, and healing environment. These modern institute prioritized intensive care units. Health infrastructure - comprising hospitals, clinics, Skilled personal and technology is essential for delivering quality medical care, preventing diseases, and economic growth. It enables early diagnosis, emergency response, and improved life expectancy. A robust system also boosts worker productivity and strengtheni | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | ng over all development.<br>· In collaboration with the district Administration the Project proponent need to work out for establishment of good quality educational institute within the vicinity of the Project affected areas (PAA) to provide a quality education to the Project affected families. Significant disparities exist in education quality between rural land urban areas, along high dropout rates and limited access for marginalized groups. The present scenario of literacy rates in the district is very low and having a high rate in drop out from middle, secondary and higher secondary including under graduate level which needs to initiative of vocational and skill development trainings through the sponsorship of the project proponents.<br>· On going through the EIA and EMP report of the proposed project, so many spelling mistakes has been found, which is required to be corrected. | |
| 9 | Smt Emi Umpey, Apanli Village<br>· We extend support to the project.<br>· The project is for the benefit of project affected people.<br>· We welcome the project. | |
| 10 | Shri Ote Mena, Echanli Village<br>· We expect a lot from the establishment of the project, specially in the field of education and health care.<br>· We welcome the project whole heartedly. | |
| 11 | Shri Natu Mena, Echanli Village<br>· The district administration and project proponent should work together for the welfare of the project affected people.<br>· Welcome the project. | |
| 12 | Shri Miju Mena, Echanli Village<br>· We need development.<br>· Employment opportunities should be given to project affected families on priority.<br>· Scholarship should be given to the students pursuing higher studies. | |

| **1.0 Location** | | | |
|---|---|---|---|
| | State | Arunachal Pradesh | |

| | | | |
|---|---|---|---|
| | District | Dibang Valley | |
| | River | Tangon (Talo) | |
| | Coordinates | | |
| | · Dam Site | $28^0$ 40' 01"N, $96^0$ 07' 01"E | |
| | · Powerhouse | $28^0$ 39' 48"N, $96^0$ 01' 55"E | |
| **2.0 Hydrology** | | | |
| | Catchment Area at diversion site | 2358 $km^2$ | |
| | Design Flood (PMF) | 9,927 $m^3/s$ | |
| | GLOF | 2,227 $m^3/s$ | |
| | Diversion Flood | 2,678 $m^3/s$ (1 in 25 years non-monsoon flo od) | |
| | Annual Sediment Load | 0.1 Ha.m/sq.km/year | |
| | Average Annual Rainfall | Varies from 2000 mm to 4000 mm | |
| | Average Annual Yield and 90% D ependable Yield | 6028.29 MCM (2557 mm) and 4811 MCM 2040.3 mm | |
| **3.0 Reservoir** | | | |
| | FRL | El. 1360 m | |
| | MDDL | El. 1349 m | |
| | Gross Storage at FRL | 7.02 MCM | |
| | Gross Storage at MDDL | 4.26 MCM | |
| | Live Storage | 2.76 MCM | |
| | Reservoir Area (at FRL) | 31.25 Ha | |
| | Length of reservoir | 2.60 km | |
| **4.0 Diversion Tunnels** | | | |
| | Number | 2 nos. | |
| | Diameter | 11.5 m Circular shape | |

| | | | |
|---|---|---|---|
| | Inlet Invert / Outlet Invert | El. 1297.0 m / El. 1289.0m | |
| | Length | 359.0 m & 487.0 m | |
| | Number and size of Gates in each tu nnel | 2 Nos, 4.75 m (W) x 11.5 m (H) | |
| | Hoist Arrangement and Capacity | Rope Drum Hoist, 65.0 MT | |
| **5.0 Gravity Dam** | | | |
| | River bed level | El. 1289.0 m | |
| | Top elevation | El. 1362.0 m | |
| | Height above deepest foundation | 85.0 m | |
| | Height from river bed level | 73.0 m | |
| | Length at top | 204.0 m | |
| | No. of blocks | 13; 3-NOF (left), 5-Spillways, 1-Auxillary S pillway, 4-NOF (right) | |
| **6.0 Main Spillway** | | | |
| | Numbers | 5 | |
| | Crest elevation | El. 1310.0 m | |
| | Gate Type and Size | Radial Gates; 8.0 m (W) x 12.8 m (H) | |
| | Hoist Type and Capacity | Twin Hydraulic Cylinders 2 x 170.0 MT | |
| | Stop Log Gates | 1 No., 6 units, unit size 8.0 m (W) x 2.727 m (H) | |
| | Hoist Type and Capacity | Gantry Crane, 45 MT | |
| **7.0 Auxiliary Spillways** | | | |
| | Numbers | 1 | |
| | Crest elevation | El. 1356.0 m | |
| | Size | 5.0 m x 4.0 m | |
| | Number and size of Gates | 2 Nos, 5.0 m (W) x 4.2 m (H) | |
| | Hoist Type and Capacity | Gantry Crane operating Stoplogs units | |

| | | | |
|---|---|---|---|
| **8.0 Intake** | | | |
| | Numbers | 3 | |
| | Invert elevation | El. 1336.0m | |
| | No. of Trash rack bays | 15 bays of 3.2 m each | |
| | Gate opening size | 5.2 m (W) x 5.8 m (H) | |
| | Number of Gates | 3 — Service Gates<br>3 — Emergency Gate (Bulk Head) | |
| | Hoist Arrangement and Capacity | Rope Drum Hoist, 60 MT for Service Ga tes and 35 MT for Bulkhead gates | |
| | Length of Inlet Tunnel | 271 m, 302 m, 333 m | |
| | Nos., Diameter of Inlet Tunnel | 3 nos., 5.8m MHS | |
| **9.0 Desilting Chamber** | | | |
| | Number and Type | 3, Underground DuFour type | |
| | Size | 17.0 m (W) x 24 m (H) | |
| | Length | 350m | |
| | Particle size removal | 0.2 mm | |
| | Design discharge per basin | 102.23 $m^3/s$ | |
| | Outlet gate, Number and size | 3 Nos, 4.5m (W) x 5.4m (H) | |
| | Gate Invert level | El. 1335.4m | |
| | Hoist arrangement and capacity | Rope Drum Hoist, 30 MT | |
| | Design discharge per flushing d uct | 18.58 $m^3/s$ | |
| | Flushing duct (up to SFT Gate c hamber) | | |
| | · Number and size | 3 Nos - 2.0 m (W) x 2.4 m (H) | |
| | · Length | 143m, 104m and 66m | |
| | Flushing duct (SFT Gate chambe r to Main SFT | | |

| | | | |
|---|---|---|---|
| | · Number and size | 3 Nos - 2.0 m (W) x 3.5 m (H) | |
| | · Length | 115m, 69m and 19m | |
| | Flushing Duct Gate, Number & Size | 6 Nos, 2.0m (W) X 2.4m (H) (2 Gates in ea ch duct) | |
| | Gate Invert level | El. 1312.65m | |
| | Gate Hoist arrangement and capacit y | Individual Hydraulic Hoist, 200 MT | |
| | Silt Flushing Tunnel (SFT) size | 4.0 m (W) x 5.5 m (H) | |
| | Length of flushing tunnel | 749 m | |
| | Outlet level of flushing tunnel | El. 1309.25m | |
| **10.0 Link Tunnel-I** | | | |
| | Numbers | 3 | |
| | Diameter & Shape | 5.4m, Modified horse shoe | |
| | Length | 128.0 m, 84.0 m and 115.0 m | |
| **11.0 Link Tunnel-2** | | | |
| | Numbers | 1 | |
| | Diameter & Shape | 7.6 m, Modified horse shoe | |
| | Length | 83.0 m | |
| **12.0 Headrace Tunnel** | | | |
| | Numbers | 1 | |
| | Diameter & Shape | 9.4 m, Circular | |
| | Length | 7955 m | |
| | Design discharge | 278.8 $m^3/s$ | |
| | Flow velocity | 4.02 m/s | |
| | Number of intermediate adits | 3 | |
| | Length of Adits (Al, A2, A3) | 358 m, 297 m, 179 m | |

| | | | |
|---|---|---|---|
| | Adit plug gate | 2.2 m (W) x 2.2 m (H) in Adit A2 | |
| **13.0 Surge Shaft** | | | |
| | Numbers & Type | 1, Restricted Orifice & Open to sky | |
| | Diameter | 21.0 m | |
| | Orifice Diameter | 4.25 m | |
| | Height | 93.0 m | |
| | HRT invert at Surge shaft | El. 1306.0 m | |
| | Top of Surge shaft | El. 1399.0 m | |
| | Maximum surge level | El. 1397.5 m | |
| | Minimum surge level | El. 1319.9 m | |
| **14.0 Pressure Shaft** | | | |
| | Numbers & Type | 2, Underground | |
| | Diameter | 5.2 m | |
| | Length (each shaft) | 318.0m | |
| **15.0 Unit Pressure Tunnel** | | | |
| | Numbers & Type | 4, Underground | |
| | Diameter | 3.7m | |
| | Length (each shaft) | 30.0 m | |
| **16.0 Butterfly Valve (BFV) Chamber** | | | |
| | Dimension | 58.0 m (L) x 10.0 m (W) x 21.0 m (H) | |
| | No. of BF Valves | 2 Nos | |
| | BFV diameter | 5.2 m | |
| | BFV Centerline elevation | El. 1308.6 m | |
| | Floor Invert elevation | El. 1304.0 m | |
| **17.0 Powerhouse** | | | |

| | | | |
|---|---|---|---|
| | Type | Underground | |
| | Dimensions | 135.0 m (L) x 23.5 m (W) x 52.0 m (H) | |
| | Installed Capacity | 680 MW | |
| | Overload capability | 10% of continuous rated capacity | |
| | No of Units | 4 X 170 MW | |
| | Gross Head | 286.3 m | |
| | Service bay level | El. 1074.0m | |
| | Main Access Tunnel (MAT) | 465 m, 8.0(w) x 8.0m(h) | |
| | Service Bay | 35 m long, El.1074.0 m | |
| | Control Block | 20m long, 7 floors | |
| | Turbine centerline elevation | El. 1061.0m | |
| | Type of Turbine | Francis | |
| | Turbine efficiency | 94.5% | |
| | Rated Head including Maximum Net Head & Minimum Net Head | Maximum Net Head = 292.1m<br>Minimum Net Head = 259.80 m<br>Net Rated Head = 267.13 m | |
| | Rated Synchronous Speed | 250 rpm | |
| | Generator arrangement | Semi Umbrella | |
| | Power Factor | 0.85 | |
| | Generator Efficiency | 98.5% | |
| | Generation voltage | 3P, 13.8kV ±10% | |
| **18.0 Transformer Hall** | | | |
| | Dimensions | 153.2m (L) x 16.5m (W) x 25m (H) | |
| | Transformer Floor level | El. 1074.0 m | |
| | GIS Floor level | El. 1086.0m | |
| | No. of GIS bays | 9 | |

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|---|---|---|---|
| | GSU Transformer | 13 nos., Indoor, Single phase, 75 MVA, 13.8 kV/400kV, 50Hz | |
| | Switchyard | Indoor GIS,400kV,3150A,3P,50kA for 1sec, 10 Bays | |
| | Pothead Yard | Outdoor, 52.5m x 69.0m, El 1085m | |
| | Transmission line | 880MVA, 400kV, Double circuit, ACSR Con ductor | |
| **19.0 Collection Gallery** | | | |
| | Dimensions | 90 m (L) x 13.5 m (W) x 47 m (H) | |
| | TWL; Normal | El. 1073.7 m | |
| | TWL; Minimum | El. 1067.8 m | |
| | MWL; Maximum water level | El. 1089.7 m | |
| | Draft Tube Gate Number and Size | 4 Nos, 5.6 m (W) x 6.2 m (H) | |
| | Gate Invert level | El. 1059.0 m | |
| | Hoist Arrangement and Capacity | Rope Drum Hoist, 40MT | |
| | Deck level | El. 1091.0 m | |
| **20.0 Tailrace Tunnel** | | | |
| | Numbers & Shape | 1, D-Shape | |
| | Width | 10.0 m | |
| | Height | Varies from 9.5 m to 17.5 m | |
| | Length | 570 m | |
| **21.0 TRT Outfall** | | | |
| | Invert at Outfall gate | El. 1067.0 m | |
| | Transition - size | 1 No – 10.0m D-shape to 2 No – 5.0m (W) x 9.5m (H) Rectangle | |
| | Transition - length | 3.0 m | |
| | Minimum TWL | El. 1067.8 m | |
| | Normal TWL | El. 1073.7 m | |

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|---|---|---|---|
| | Maximum TWL | El. 1083.0m | |
| | Gate Operating Platform | El. 1084.0 m | |
| | TRT Outfall Gates | 2 Nos, 5.0 m (W) x 9.5m (H) | |
| | Hoist Arrangement and Capacity | Rope Drum Hoist, 55.0 MT | |
| **22.0 Power Evacuation** | | | |
| | Type of Switchyard (GIS / AIS, rating) No. of Bays<br>Switching Scheme at different voltage level | Indoor and GIS, 400 kV, 1600A, 3Phase, 40 kA for 1 Sec, No. of Bays — 10 (at different voltage levels)<br>415V/13.8kV/400kV | |
| | Bus-Bar Arrangement | Gas Insulated Double Bus Bar Arrangement | |
| | Transmission Voltage | 400kV | |
| **23.0 Energy Benefits** | | | |
| | Annual Energy generation in 90% Dependable Year | 2781.08 MU | |
| | Design Energy in 90% Dependable Year with 95% Plant availability | 2728.50 MU | |
| | Corresponding Annual Load Factor | 46.69% | |
| | Corresponding Daily Peaking Duration (Minimum) | 3 Hours | |
| | Environmental Flow | Lean Season (Dec to Mar)-17.60 $m^3/s$<br>Monsoon Season (Jun to Sep)-23.60 $m^3/s$<br>Intermediate Period (Remaining)-19.80 $m^3/s$ | |
| **24.0 Construction** | | | |
| | Schedule | 30 months (Pre works) + 60 months (Main works including commissioning) | |
| | Total Land requirement | 261.53 Ha | |
| | Project roads & bridges | 22km, 5nos | |
| | Construction power requirement | 12 MVA | |
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| Name of the Proposal | Attunli Hydroelectric Project (680 MW) |
| Proposal No. | IA/AR/RIV/582227/2026 |
| Location<br>(Including Coordinates) | The dam site is located about 130 m downstream of Kac hi nala and 1.2 km upstream of Apanli village, Etalin Circl e, Dibang Valley District of Arunachal Pradesh with the g eographical latitude of 28°40'01"N and longitude 96°07' 01"E and the power house is located near Attunli village, Etalin Circle, Dibang Valley District of Arunachal Pradesh with the geographical latitude of 28°39'48"N and longitu de 96°01'55"E. |
| Company's Name | M/s SJVN Limited |
| CIN no. of Company/user agency | L40101HP1988GOI008409 |
| Accredited Consultant and certific ate no. | Name: R S Envirolink Technologies Pvt. Ltd.<br>Certificate No.: NABET/EIA/25-28/RA 0415 |
| Project location (Coordinates /River/ Reservoir) | · The dam site is located about 130 m downstream of Ka chi nala and 1.2 km upstream of Apanli village, Etalin Circle, Dibang Valley District of Arunachal Pradesh wi th the geographical latitude of 28°40'01"N and longit ude 96°07'01"E.<br>· Power house is located near Attunli village, Etalin Circl e, Dibang Valley District of Arunachal Pradesh with th e geographical latitude of 28°39'48"N and longitude 96°01'55"E. |
| Inter- state issue involved | No |
| Proposed on River/ Reservoir | Tangon (Talo) River |
| Type of Hydro-electric project | Run-of-river |
| Seismic zone | V |

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| Category of the project | A |
| Capacity / Cultural command area (CCA) | 680 MW |
| Attracts the General Conditions (Yes/No) | Yes |
| Additional information (if any) | - |

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| ToR Proposal No. | IA/AR/RIV/455548/2023 |

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| EAC meeting date | 09.02.2024 |
| ToR Letter No. | J-12011/61/2006-IA.I (R) |
| ToR grant Date | 05.03.2024 |
| Cost of project | · Rs. 7505.24 Crores (without SGST reimbursement)<br>· Rs. 7096.27 Crores (with SGST reimbursement) |
| Total area of Project | 261.53 ha |
| Height of Dam from River Bed (EL) | 73.0 m (85 m from deepest foundation level) |
| Details of submergence area | 31.25 ha |
| District to provide irrigation facility (if applicable) | NA |
| Details of tunnels on upper level & lower level and length of canal (if applicable) | · 7.955 km long Head Race Tunnel<br>· 0.57 km long Tail Race Tunnel |
| No. of affected Village | 07 |
| No. of Affected Families | 92 |
| Project Benefits | On completion of the Project the following benefits can be derived:<br>· The project is with diurnal peaking power benefits. The project has been found commercially viable and the generation from the project shall mitigate the miseries of power-starved industry and people particularly in the eastern and north eastern state.<br>· A number of marginal activities and jobs will be available to the locals during the construction phase.<br>· Local Area Development, facilities in Education, medical, transportation, road network and other infrastructure.<br>· An opportunity for small-scale and cottage industries to develop in the area. |
| R&R details | Total 7 villages shall be affected due to acquisition of land for various components of proposed project. Total 92 project affected families and 366 project affected persons have been identified. Total 37 project affected families have been identified as coming under Involuntary Displacement due to loss of their houses. A budgetary provision of Rs. 2432.00 lakh has been kept towards implementation of R&R plan. |
| Catchment area | 2358 sq km |

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| Types of Waste and quantity of generation during construction/Operation | · Muck during construction – 45.27 lakh cum (to be disposed)<br>· Municipal Solid Waste during construction - Degradable (1000.00 Tons), Non degradable (1360 Tons) |
| Material used for blasting and its composition as per DGMS standards. | Explosive is mainly required for open and underground rock excavation. About 1930 MT of explosives will be required over entire construction period of the project. It has been assessed that 2 magazines of 20 MT capacity each at dam site and power house site would be sufficient to meet the fortnightly demand from the project sites. |
| E-Flows for the Project | E-Fow during the leanest four months (Dec to March) has been recommended as 20% (17.60 $m^3$/s) of the average flow of 90% dependable year. For the monsoon months (June to September), it has been recommended as 10% (23.60 $m^3$/s). For non-monsoon, non-lean months (Apr-May and Oct-Nov) it has been recommended as 15% (19.80 $m^3$/s). |
| Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in which project located. If yes then<br>c) E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin.<br>d) If not the E-Flows maintain criteria for sustaining river ecosystem. | Yes<br>E-Fow during the leanest four months (Dec to March) has been recommended as 20% (17.60 $m^3$/s) of the average flow of 90% dependable year. For the monsoon months (June to September), it has been recommended as 10% (23.60 $m^3$/s). For non-monsoon, non-lean months (Apr-May and Oct-Nov) it has been recommended as 15% (19.80 $m^3$/s). |
| Details on provision of fish pass | As the diversion structure being a Gravity Dam of 85.0m height, construction of any fish passage or fish ladder is not feasible in the proposed dams. |
| Project benefit including employment details (no of employee) | During the peak construction phase, there will be a need to engage about 3750 labourers and 300 technical manpower. The majority of this labour force will be from the adjacent localities. Some other unskilled and skilled labourers will be brought from outside. These labourers will be settled near the construction site in the labour camps set up by the project authorities through their labour contractors. |
| Area of Compensatory Afforestation (CA) with tentative no of plantation. | 523.06 ha; tentative no. of plantation - 5,75,366 |
| 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 | Approx. 20000 no. of trees proposed to be planted under Green Belt Development Plan will be marked under "Ek Ped M |

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| | aa Ke Naam" Campaign. |
| Powerhouse Installed Capacity | 680 MW |
| Generation of Electricity Annually | 2728.50 MU |
| No. of Units | 4 (each of 170 MW) |
| No. of proposed disposal area/ (type of land- Forest/Pvt land) | 9 nos. (forest land) |
| Cross section of proposed muck are a, Height of muck with slope. | Attached as Appendix I |
| Distance of muck disposal area (locatio n), from muck generation sources (proj ect area)/River, HFL of proposed muck disposal area. | 30 m from HFL. |
| Total Muck Disposal Area | 80.84 ha |
| Estimate Muck to be generated | 46.40 lakh cum |
| Transportation | Excavated muck will be transported from construction s ites to designated disposal areas using covered tipper tr ucks through dedicated haul roads. Loading, transportat ion, and unloading operations will be carried out in a co ntrolled manner with regular water sprinkling, speed re strictions, and dust suppression measures to minimize e nvironmental impacts. All transportation activities will b e supervised to ensure compliance with safety, traffic m anagement, and environmental management requireme nts. |
| Monitoring mechanism for Muck Disposa l Transportation | Dedicated supervisory personnel will oversee muck handl ing, transportation, and disposal operations, ensuring co mpliance with statutory and environmental management requirements. In addition, it is proposed that a monitorin g and supervision mechanism will be established to ensur e adherence to environmental, safety, and operational pr otocols. |
| Private land | 0.00 |
| Government land | 0.00 |
| Forest Land | 261.53 |
| Total Land | 261.53 |

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| Submergence area/Reservoir area | 31.25 |
| Additional information (if any) | Out of the total land required, 247.34 ha is surface area and 14.19 ha is notional underground area |

| Forest Land/ Protected Area/ Environmental Sensitivity Zone | Yes/ No | Details of Certificate/ letter/ Remarks |
|---|---|---|
| Reserve Forest/ Protected Forest Land | No | |
| National Park | No | |
| Wildlife Sanctuary | Yes | Reservoir tail end is at a distance of 3.7 km and 2.7 km from the Dibang WLS and its ESZ boundary respectively. |
| Archaeological sites monuments/ historical temples etc. | No | |
| Additional information (if any) | - | |

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| Advertisement for PH with date | The Times of India and The Arunachal Times dated 18.02.2026 and Echo of Arunachal dated 23.02.2026 |
| Date of PH | 01/04/2026 |
| Venue | Government Middle School, Athunli, Dibang Valley District |
| Chaired by | Deputy Commissioner, Dibang Valley District |
| Main issues raised during PH | i. Environmental protection, proper muck disposal, pollution control, and implementation of EMP.<br>ii. Land acquisition issues, land demarcation, and concerns regarding land ownership/status.<br>iii. Need for transparency, addressing stakeholder concerns, updating surveys, and correcting discrepancies in project documents.<br>iv. Effective utilization of LADF, CSR and CER funds for development of project-affected villages, with participation of local communities.<br>v. Improvement of healthcare, education, sanitation, and other social infrastructure in the project area.<br>vi. General expectation that the project should contribute to local development while safeguarding community interests and environment.<br>vii. Employment opportunities and preference for local people/PAFs, including reservation in jobs and opportunities for local contractors.<br>viii. Implementation of Rehabilitation & Resettlement (R&R), fair |

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| | compensation, livelihood restoration, and protection of rights of affected families.<br>Complete issues raised during PH and clarification given by Project Proponent are attached as **Appendix II** |
| No. of people attended | 122 |

| **Particulars** | **Details** | | |
|---|---|---|---|
| **Period of baseline data collection/Sampling period.** | **Pre-Monsoon/ Summer** | **Monsoon** | **Winter** |
| Soil | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Air Environment | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Noise & Traffic | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Vegetation | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Faunal | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Water and Aquatic Ecology | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Socio-economic survey of study area villages | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Socio-economic survey of project affected families | May - December 2024 | | |
| Brief description on hydrology and water assessment as per the approved Pre-DPR: | Attunli HEP is a run-of-river scheme with diurnal pondage proposed on the Tangon (Talo) River, a major tributary of the Dibang River in the Brahmaputra Basin of Arunachal Pradesh. The Tangon River originates at an elevation above 5,000 m near Kaya Pass and flows approximately 58.5 km to the proposed diversion site. The project intercepts a catchment area of 2,358 km², of which 176 km² is snow-fed. Water availability has been assessed using a 36-year (1986–87 to 2021–22) discharge series derived from Elopa and Munli G&D stations and approved by the CWC. The PMF at the dam site has been estimated as 9,927 | | |

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| | m³/s based on hydrometeorological studies using IMD's PMP e stimates and CWC methodologies. The diversion flood for cons truction has been estimated as 2,678 m³/s, while the peak GLO F has been assessed as 2,227 m³/s, both concurred by CWC. R eservoir elevation-area-capacity curves have been developed fr om detailed topographic surveys conducted at a scale of 1:5,0 00 with a 5 m contour interval. A sedimentation rate of 0.10 ha m/km²/year, consistent with the downstream Dibang Multipurp ose Project, has been adopted for reservoir sedimentation asse ssment and design. |
| Additional detail (If any) | - |

| **Particulars** | **Letter no. and date** |
|---|---|
| Status of Stage- I FC | Stage-I (in-principle) approval granted by MoEF&CC (F orest Conservation Division) on 09.06.2026. Online Pr oposal No. FP/AR/HYD/IRRIG/462108/2024 |
| Approval of Central Water Comm ission | · Revised water availability series approval vide letter T-11013/4/2024-HYD(NE) Dte dated 10.04.2024.<br>· FE&SA clearance vide letter 11/65/TE/2014/FE&SA/4 7-50 dated 02.02.2015.<br>· Interstate Aspects Clearance vide letter 7/2/12(NE)/2 013-ISM/190-191 dated 27.03.2014<br>· General layout approval vide letter 20/36/2014-CMD D(E&NE)/269-270 dated 21.07.2017<br>· Dam design approvals vide letter No. 20/36/2014-C MDD(E&NE)/193-196 dated 20.04.2015.<br>· Hydel Civil Design approvals vide letter No. 3/5/201 4/HCD(E&NE)/259 dated 10.06.2015.<br>· Gates/HM approval vide letter no. 26/4/92-GO(E&N E)/ 279-80 dated 08.09.2015.<br>· Instrumentation approval vide letter no. Inst/1-143/2 014/379-80 dated 04.09.2015.<br>· Plant planning approval vide letter no. 21/AR/24/201 6-CMC/294-296 dated 24.10.2016. |
| Approval of Central Electricity Au thority | · CEA vide its Letter No. 2/ARP/27/CEA/10- PAC/1775- 1819 dated 02.07.2018 accorded Concurrence to A ttunli Hydro Electric Power Company Limited (AHEP CL), a joint venture company of Jindal Power Limite d (JPL) and Hydro Power Development Corporation of Arunachal Pradesh Limited (HPDCAPL).<br>· Subsequently, Concurrence was transferred in favour of M/s SJVN Ltd. vide CEA's Letter No. CEA-HY-12- 13/3/2021-HPA Division dated 09-11-2023.<br>· CEA vide Letter No. CEA-HY-12-31/3/2021-HPA Divi sion-I/42873/2024 dated 06.09.2024 issued revise d Power Potential Study of the project. |

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| | · Further, CEA vide Letter dated 12.08.2025, Vetted th e Total Project Cost at Completion level.<br>· Further, CEA vide Letter No. CEA-HY-12-13/3/2021-HPA Division/875-881 dated 09-02-2026 has exten ded the validity of concurrence further upto 30-06-2027. |
| Additional detail (If any) | - |
| **Is FRA (2006) done for FC-I** | Is under process with District Administration. An under taking has been submitted regarding conducting FRA b efore Stage II Forest Clearance in accordance with the provisions made in Rule-10(10) of Van (Sanrakshan Ev am Samvardhan) Rules, 20230. |

| S. No. | EMP COMPONENTS | Capital Cost (Rs. In lakh) | Recurring Cost (Rs. in lakh) | | | | | Tota |
|---|---|---|---|---|---|---|---|---|
| | | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | (Rs. i |
| 1 | Catchment Area Treatment Plan | 3365.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3 |
| 2 | Biodiversity Conservation & Wildlife Conservation Plan | 1500.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1 |
| 3 | Fisheries Development Plan | 253.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4 | Muck Dumping and Management Plan | 2073.15 | 1300.00 | 750.00 | 300.00 | 300.00 | 235.00 | 4 |
| 5 | Landscaping, Restoration of Construction Sites | 552.20 | 54.50 | 45.13 | 65.50 | 75.50 | 20.50 | |
| 6 | Reservoir Rim Treatment Plan | 413.10 | 25.10 | 20.00 | 20.10 | 25.00 | 20.13 | |
| 7 | Green Belt Development Plan | 20.00 | 15.50 | 33.30 | 50.00 | 70.00 | 50.00 | |
| 8 | Sanitation and Solid Waste Management Plan | 170.00 | 36.04 | 36.02 | 36.02 | 36.02 | 35.02 | |
| 9 | Public Health Delivery System | 110.00 | 38.45 | 38.44 | 38.45 | 38.44 | 38.44 | |
| 10 | Energy Conservation Measures | 46.00 | 57.00 | 57.00 | 57.00 | 57.00 | 57.00 | |
| 11 | Labour Management Plan | 35.00 | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | |
| 12 | Disaster Management Plan | 275.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | |
| 13 | Pollution Control and Mitigatio | 0.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | n Measures | | | | | | | |
| 14 | Environmental Monitoring Prog ram | 0.00 | 15.67 | 15.67 | 15.67 | 15.67 | 15.66 | |
| | **Total Cost** | **8813.92** | **1603.26** | **1056.56** | **643.74** | **678.63** | **532.75** | **13** |

| S. No. | R&R and CER Cost | Cost (Rs. In lakh) |
|---|---|---|
| 1 | Rehabilitation and Resettlement (R&R) Plan | **2432.00** |
| 3 | Corporate Environmental Responsibility (Local Area Development Plan) | **1000.00** |

| S. No | Forest Components | Capital Cost (Rs. In lakh) |
|---|---|---|
| 1 | Compensatory Afforestation | 2454.34 |
| 2 | Net Present Value (NPV) | 3615.52 |
| | **Total** | **6069.86** |

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

N/A

**3.1.4. Deliberations by the EAC in current meetings**

The EAC deliberated upon the information furnished by the Project Proponent (PP) and the details presented during the meeting. The PP informed the Committee that the proposal is for grant of Environmental Clearance (EC) to the Attunli Hydroelectric Project (680 MW), involving a total project area of 261.53 ha, located in Dibang Valley District, Arunachal Pradesh, and proposed by M/s SJVN Limited.

The PP informed that the project falls under Item 1(c) of the Schedule to the EIA Notification, 2006, and is categorized as a Category 'A' project, requiring appraisal at the Central level by the Expert Appraisal Committee (EAC).

The PP further informed that the EIA/EMP reports and other requisite documents have been prepared and submitted through a consultant accredited by QCI/NABET. The PP also confirmed that an undertaking has been furnished affirming that the data and information provided in the application and accompanying documents are true and accurate to the best of its knowledge and that no material information has been suppressed in the EIA/EMP reports.

The PP further acknowledged that, in the event any data or information submitted by it is found to be false or misleading at any stage, the proposal may be rejected and any Environmental Clearance granted may be revoked, at the risk and cost of the Project Proponent.

The EAC deliberated upon the project history and statutory clearances as presented by the PP. The PP informed that the Attunli Hydroelectric Project was originally conceived by Attunli Hydro Electric

Power Company Limited (AHEPCL), a joint venture between Jindal Power Limited and Hydro Power Development Corporation of Arunachal Pradesh Limited. The PP informed that the Techno-Economic Clearance (TEC) for the Detailed Project Report (DPR) was accorded by the Central Electricity Authority (CEA) on 02.07.2018. Subsequently, the project was allotted to SJVN Limited, and the DPR concurrence was transferred and extended up to June 2027. The PP further informed that MoEF&CC granted the Terms of Reference (ToR) on 05.03.2024 for undertaking the EIA study.

The PP informed that the project involves diversion of 261.53 ha of Unclassified State Forest (USF) land, for which Stage-I Forest Clearance was accorded by MoEF&CC on 09.06.2026.

The PP further informed that the CEA, vide Letter No. CEA-HY-12-31/3/2021-HPA Division-I/42873/2024 dated 06.09.2024, issued the revised Power Potential Study for the project. The CEA subsequently vetted the total project cost at completion level vide letter dated 12.08.2025. The PP also informed that the validity of the CEA concurrence was further extended up to 30.06.2027 vide CEA Letter No. CEA-HY-12-13/3/2021-HPA Division/875-881 dated 09.02.2026.

The PP informed that the baseline environmental studies were carried out from March–May 2024 to February 2025, during which the monitored environmental parameters were reported to be within the prescribed standards/norms. The PP further informed that the total land requirement of the project is 261.53 ha, comprising entirely of forest land.

The Committee noted that the Dibang Wildlife Sanctuary (WLS) and Dihang-Dibang Biosphere Reserve are located within 10 km of the project site. The tail end of the project reservoir is located at approximately 3.7 km from the Dibang WLS and 2.7 km from the boundary of its Eco-Sensitive Zone (ESZ). During EIA various Schedule-I species were reported but the PP denied the presence of Tiger and Bengal Florican Bird in the study area .

The EAC deliberated upon the Rehabilitation & Resettlement (R&R) aspects of the project. It was noted that seven villages would be affected due to acquisition of land for various project components. A total of 92 Project Affected Families (PAFs) comprising 366 Project Affected Persons (PAPs) have been identified. Out of these, 37 PAFs have been identified as subject to involuntary displacement due to loss of their houses. The PP informed that a budgetary provision of ₹24.32 crore has been earmarked towards implementation of the R&R Plan.

The EAC further noted that the Public Hearing (PH) for the project was conducted on 01.04.2026 at Government Middle School, Athunli, Dibang Valley District, under the chairmanship of the Deputy Commissioner, Dibang Valley District. The PP further informed that the Public Hearing notice was duly published in The Times of India and The Arunachal Times on 18.02.2026, and in Echo of Arunachal on 23.02.2026, in accordance with the prescribed procedure.

The EAC deliberated upon the issues and concerns raised by the stakeholders during the Public Hearing and examined the Action Plan submitted by the PP for addressing the same. The EAC deliberated upon the issues and concerns raised by the local stakeholders during the Public Hearing and examined the action plan submitted by the Project Proponent to address the same. After detailed deliberations, the Committee found the proposed action plan and mitigation measures to be satisfactory and adequate for addressing the concerns raised during the Public Hearing. The EAC recommended that the concerns and commitments arising out of the Public Hearing shall be fully implemented by the Project Proponent in a stipulated and time-bound manner.

During deliberations on environmental flow, the representative of CIFRI informed the EAC that the environmental flow study of the Attunli River was undertaken by CIFRI and has recommended minimum release requirements based on site-specific considerations. The EAC also noted that after CIFRI e-flow study a Cumulative Impact Assessment & Carrying Capacity (CIA&CC) study of the Dibang River Basin was conducted by the Ministry. The Project proponent and the consultant explained that the TOR prescribed by the EAC/MoEF&CC mandated that the EIA study should be undertaken in accordance with recommendations of the Dibang River basin study and the project parameters/salient features of the project such as Dam height, FRL, Submergence area, total land requirement, e-flow etc. as recommended in the Dibang River basin study should remain unchanged. Accordingly, based on the final approved Dibang Basin study report, e-flow adopted for Attunli HEP is

17.60 m3/s for lean season (Dec-Mar), 23.60 m3/s for monsoon season (June-Sept) and 19.80 m3/s for remaining months (Apr, May, Oct and Nov). No reference to adoption of CIFRI's earlier site-specific study was made in the ToR, although CIFRI was a member during ToR finalization. Considering CIFRI values at this stage would go beyond the ToR framework. The matter was deliberated in detail and it was discussed that most of the river basins with large number of hydropower projects in cascade have been studied cumulatively and such CIA and CCS study reports, after review and recommendation by EAC have been approved by the Ministry. These are comprehensive studies accounting for cumulative impacts of hydropower development on terrestrial and aquatic biodiversity, physical and social environment providing broad framework of environmental action plan to mitigate the adverse impacts on that particular river basin. Attunli HEP has been studied as part of Dibang basin study, for which CIA&CCS study was appraised and recommended by EAC in 95th EAC meeting, held on 11–12 July 2016. The Ministry thereafter communicated the approved study recommendations in September 2016 to the State Government, including project-specific e-flow recommendations to be implemented by each project. The SJVNL submitted that as directed by the State Government and as mandated by MoEF&CC in ToR issued to Attunli HEP, the e-flow for Attunli HEP have been adopted from the approved Dibang basin study. EAC discussed the matter in detail and recommended that e-flow for Attunli HEP should be adopted based on the e-flow recommendations made in the Dibang basin study.

The PP informed that the estimated project cost is ₹7,505.24 crore without SGST reimbursement and ₹7,096.27 crore with SGST reimbursement. The PP further informed that a total capital cost of ₹133.2886 crore has been earmarked towards implementation of the Environmental Management Plan (EMP).

**3.1.5. Recommendation of EAC**

Recommended

**3.1.6. Details of Environment Conditions**

**3.1.6.1. Specific**

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| **[D] Miscellaneous:** | |
| 1. | After 5 years of the commissioning of the project, a study shall be undertaken regarding impact of the project on the environment. The study shall be undertaken by an independent agency. |
| 2. | A dedicated team to oversee environmental management activities (at project site) shall be set up comprising Environment Manager having Post Graduate qualification in Environmental Sciences/ Environment Engineering along with other supporting staff. The Environment Manager shall report to Project Head directly. |
| 3. | PP shall procure construction material only from those Organizations having all valid legal/statutory clearances/permissions or necessary permission to be obtained for quarrying construction materials. |
| **[C] Socio-economic:** | |
| 1. | Land acquired for the project shall be suitably compensated in accordance with the prevailing guidelines of the state government and provisions under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. |
| 2. | Solar panel be provided to the families living in rural areas within 10 km radius of project with annual maintenance. |
| 3. | Bio-Gas plant shall be installed in the Project affected area for Utilizing Cattle waste (Cow Dung) into renewable source of fuel. |
| 4. | School up to $12^{th}$ Standard with smart classes shall be established and managed to provide free quality education for children from project affected villages/Tribal villages. |
| 5. | 50 bed multi-speciality hospital shall be established to cater the need of tribal population/locals. The tribal population within 10 km radius of the project shall be given free of cost medical facility. |
| 6. | Skill development Centre shall be established within 10 km radius of the project and regular training programmes for development and promotion of traditional art/products of tribal/local population. |
| 7. | Preference in employment opportunities and admission to ITI institutions shall be given to Project Affected Families (PAFs). |
| 8. | An institutional mechanism to be developed to ensure the preference of jobs to PAFs and |

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| | also a policy for preferential treatment for award of sundry works to the PAFs and their dependents. |
| 9. | The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit once in year. The compliance report of IRO shall be regularly submitted to MoEF&CC. |
| **[B]. Disaster Management:** | |
| 1. | Disposal of the excavated muck and its filling on the low-lying area with proper measures for the stabilization and greenery to minimize the impacts of the generated construction muck shall be taken up pari passu with construction work. |
| 2. | Stabilization of muck disposal sites using biological and engineering measures shall be taken up immediately to ensure that muck does not roll down the slopes and does not pollute the natural streams and water bodies in surrounding area. The plantation on muck disposal site with local species for restoration of ecology and environment of the project site area shall be done as per instructions of the Forest Department. |
| 3. | Necessary control measures such as water sprinkling arrangements, and construction of paved roads leading to muck disposal sites etc. shall be taken up on priority to arrest fugitive dust at all the construction sites. |
| 4. | Solid waste generated, especially plastic waste, etc. should not be disposed of as landfill material. It should be treated with scientific approach and recycled. Use of single-use plastics may be discouraged. |
| 5. | Sensor based/AI driven Early Warning System (EWS) shall be established. |
| 6. | Disaster prone places/villages in 10 km upstream and downstream of the project shall be identified and proper disaster management practices shall be applied in such places to mitigate/minimize the impact of any unprecedented event. |
| 7. | GLOF and related flash flood risk management plan shall be prepared and implemented under guidance of expert government research institute. |
| **[A] Environmental management and Biodiversity conservation:** | |
| 1. | The Project Proponent shall strictly implement the Environmental Flow (E-flow) regime in the downstream stretches of the river, as recommended in the CIA&CCS study conducted for Dibang river basin, throughout the operational life of the project. The other recommendations of the CIA&CCS, as applicable shall also be complied with in letter and spirit. |
| 2. | The Project Proponent shall install and maintain continuous online flow monitoring systems, including calibrated flow meters and telemetry/data transmission facilities, at all designated E-flow release points. The real-time discharge data shall be continuously recorded and transmitted to the Regional Office of MoEF&CC and the State Pollution Control Board and |

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| | shall be made available for inspection and monitoring. |
| 3. | The spillway capacity and associated flood-mitigation and safety structures shall be designed to safely accommodate the maximum design flood/discharge, duly factoring in the potential peak discharge associated with Glacial Lake Outburst Flood (GLOF) events. The final design, hydrological assessment, layouts and requisite safety certifications shall be duly vetted/approved by the Central Electricity Authority (CEA) and Central Water Commission (CWC), as applicable, prior to commencement of construction of the main dam. |
| 4. | The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP reports. The budgetary provisions for implementation of EMP, shall be fully utilized and not to be diverted to any other purpose. In case of revision of the project cost or due to price level change, the cost of EMP shall also be updated proportionately. |
| 5. | The contract clause limiting the No. of vehicles used during excavation and transportation shall followed scrupulously and the same shall informed to the ministry. |
| 6. | Ambient Air Quality Monitoring Stations for real time data to be installed at project site before commencement of the construction, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC. |
| 7. | No vehicle purchase shall be allowed from funds earmarked for implementation of Wildlife Conservation plan. Measures for minimizing the human-animal conflict specially for black bear and leopard be suitably incorporated in the wildlife conservation plan in consultation with State Forest Department. |
| 8. | Plantation of saplings shall be carried out as a part of the tree plantation campaign "Ek Ped Ma Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in). 10000 plants shall be planted around the muck disposal area and the survival of plants shall be submitted with the 6 monthly compliance report. |
| 9. | Biodiversity hotspots in the 10 km radius of the project site shall be identified and listed for their conservation and preservation through time bound action plan in consultation with WII/Expert Government Institute. |
| 10. | The Project Proponent shall formulate and implement a site-specific Aquatic Ecology Management and Conservation Plan for protection of native fish species, macro-invertebrates and the downstream aquatic ecosystem. |

**3.1.6.2. Standard**

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| 1(c) | **River Valley/Irrigation projects** |
| **Statutory compliance** | |
| 1. | The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project. |

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| 2. | The project proponent shall obtain clearance from the National Board for Wildlife, if applicable. |
| 3. | The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area). |
| 4. | The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee. |
| 5. | NOC shall be obtained from National Commission of Seismic Design Parameters (NCSDS) of CWC. |
| 6. | Necessary approval of CEA shall be obtained for those projects having the project cost more than Rs. 1,000 crores. |
| **Air quality monitoring and preservation** | |
| 1. | Regular monitoring of various environmental parameters viz., Water Quality, Ambient Air Quality and Noise levels as per the CPCB guidelines at designated locations shall be carried out on monthly basis and a detailed database of the same shall be prepared and recorded. This shall be used as a baseline data for post construction EIA / Monitoring purposes. |
| 2. | Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed standards. |
| 3. | Necessary control measures such as water sprinkling arrangements, etc. bet taken up to arrest fugitive dust at all the construction sites. |
| 4. | Conjunctive use of surface water to be planned in the project to check water logging as well as to increase crops productivity. The field drains shall be connected with natural drainage system (if applicable). |
| 5. | Remodelling of existing natural drains (link drains) and connecting them with irrigated land through constructed field drains, collector drains, etc. are to be ensured on priority basis (if applicable). |
| 6. | Before impounding of the water, Cofferdams for both at the upstream and downstream are to be decommissioned as per EIA/EMP report so that once the project is commissioned; cofferdam should not create any adverse impact on water environment including the rock mass and muck used for the Cofferdam. |
| 7. | As the reservoir will be acting as balancing reservoir and there would be fluctuation of water level during peaking period, efforts be made to reduce impact on aquatic life including impacts during spawning period both at the upstream and downstream of the project. |
| 8. | Water depth sensors shall be installed at suitable locations to monitor e-flow. Hourly data to be collected and converted to discharge data. The Gauge and Discharge data in the form of Excel Sheet be submitted to the Regional Office, MoEF & CC and to the CWC on weekly basis. |
| 9. | Mixed irrigation shall be practised and necessary awareness be given to all the farmers and trained in the use of such systems. Proper crops selection shall be carried out for making irrigation facility more |

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| | effective (if applicable). |
| 10. | On Farm Development (OFD) works like landscaping, land levelling, drainage facilities, field irrigation channels and farm roads, etc. should be taken up in phased manner prior to the start of irrigation in the entire command area. The Command Area Development Plan should be strictly implemented as proposed in the EIA/EMP report (if applicable). |
| **Noise monitoring and prevention** | |
| 1. | All the equipment likely to generate high noise shall be appropriately enclosed or inbuilt noise enclosures be provided so as to meet the ambient noise standards as notified under the Noise Pollution (Regulation and Control) Rules, 2000, as amended in 2010 under the Environment Protection Act (EPA), 1986. |
| 2. | The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time. |
| **Catchment Area Treatment Plan** | |
| 1. | Catchment Area Treatment (CAT) Plan as proposed in the EIA/EMP report shall be implemented in consultation with the State Forest Department and shall be implemented in synchronization with the construction of the project. |
| **Waste management** | |
| 1. | Muck disposal be carried out only in the approved and earmarked sites. The dumping sites shall be located sufficiently away from the HFL of the river. Efforts be made to reuse the muck for construction and other filling purposes and balanced be disposed of at the designated disposal sites. Once the muck disposal sites are inactive, proper treatment measures like both engineering and biological measures be carried out so that sites are stabilized quickly. |
| 2. | Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead be used for various purposes as envisaged in the EIA/EMP reports. Efforts be made to avoid one time use of plastics. |
| **Green Belt and Wildlife Management** | |
| 1. | Based on the recommendation of Cummulative Impact Assessment and Carrying capacity study of river basin or as per the ToR conditions or minimum 15% of the average flow of four consecutive leanest months, whichever value is higher, shall be released as environmental flow. |
| 2. | Detailed information on species composition particular to fish species from previous study/literature be inventoried and proper management plan shall be prepared for insitu conservation in the streams, tributaries of river and the main river itself for which adequate budget provision be made and followed strictly. |
| 3. | Wildlife Conservation Plan approved by the Chief Wildlife Warden shall be implemented in consultation with the local State Forest Department. |
| 4. | To enrich the habitat of the project site, plantation shall be raised as envisaged in the EIA/EMP report. Plantation to be developed along the periphery of the reservoir in multi-layers with local indigenous species in consultation with the local State Forest Department. |

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| 5. | Compensatory afforestation programme shall be implemented as per the plan approved. |
| 6. | Fish ladder/pass as envisaged in the EIA/EMP report shall be provided for migration of fishes. Regular monitoring of this facility be carried out to ensure it effectiveness. |
| **Public hearing and Human health issues** | |
| 1. | Resettlement & Rehabilitation plan be implemented in consultation with the State Govt. as approved by the State Govt. |
| 2. | Budget provisions made for the community and social development plan including community welfare schemes shall be implemented in toto. |
| 3. | Preventive measures viz. fuming and spraying of mosquito control shall be done in and around the labour colonies, affected villages, stagnated pools, etc. Provisions be made to not to create any stagnated pools to avoid creation of breeding grounds of the vector borne diseases. |
| 4. | Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project. |
| 5. | Labour force to be engaged for construction works shall be examined thoroughly and adequately treated before issuing them work permit. Medical facilities shall be provided at the construction sites. |
| **Risk Mitigation and Disaster Management** | |
| 1. | Early Warning Telemetric system shall be installed in the upper catchment area of the project for advance intimation of flood forecast. |
| 2. | Drilling and blasting shall be done only either by licensed explosive agent or by the proponent after obtaining required approvals from Competent Authorities. |
| 3. | Emergency preparedness plan be made for any eventuality of the dam failure and shall be implemented as per the Disaster Management Plan. |
| 4. | Stabilization of muck disposal sites using biological and engineering measures shall be taken up to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area. The engineering measures for the muck disposal arrangements be evolved after carrying out required slope stability analysis. |
| 5. | Catchment area treatment plan shall be prepared and sufficient fund shall be provided for afforestation, rim plantation, pasture development, nursery development. |
| **Corporate Environment Responsibility** | |
| 1. | The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 30th September, 2020, as applicable, regarding Corporate Environment Responsibility. |
| 2. | Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their long time livelihood generation |

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| 3. | The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation/violation of the environmental / forest / wildlife norms/conditions and / or shareholders/ stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report. |
| 4. | A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization. |
| 5. | Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report. |
| 6. | Post EIA and SIA be prepared for the project through a third party and evaluation report be submitted to the Ministry after five years of commissioning of the project. |
| 7. | Multi Disciplinary Committee (MDC) be constituted with experts from Ecology. Forestry, Wildlife, Sociology. Soil Conservation, Fisheries, NGO, etc. to oversee implementation of various environmental safeguards proposed in EIA/EMP report during construction of the project. The monitoring report the Committee shall be uploaded in the website of the Company. |
| 8. | Formation of Water User Association/Co-operative be made involment of the whole community be ensured for discipline use of available water for irrigation purposes |
| **Miscellaneous** | |
| 1. | The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently. |
| 2. | The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt. |
| 3. | The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis. |
| 4. | The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal. |
| 5. | The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company. |
| 6. | The project proponent shall inform the Regional Office as well as the Ministry, the date of financial |

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| | closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project. |
| 7. | The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government. |
| 8. | The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee. |
| 9. | No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC). |
| 10. | Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986. |
| 11. | The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory. |
| 12. | The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions. |
| 13. | The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports. |
| 14. | The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter. |
| 15. | Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010. |

DAY 1 • 13/08/2026

AGENDA NUMBER

## EC/AGENDA/EAC/450267/8/2026

## 93 MW New Ganderbal Hydro Electric Project

by **JAMMU AND KASHMIR STATE POWER DEVELOPMENT CORPORATION LIMITED** located at **GAND ERBAL, JAMMU AND KASHMIR**

| | |
|---|---|
| **PROPOSAL FOR** | Application for Validity Extension of EC- Form-6 |
| **PROPOSAL NUMBER** | IA/JK/RIV/587549/2026 |
| **FILE NUMBER** | J-12011/7/2008-IA. I |
| **SUBMISSION DATE** | 01/08/2026 |
| **ACTIVITY / SUB-ACTIVITY (SCHEDULE ITEM)** | River Valley/Irrigation projects<br>Multi purpose project with Irrigation and Hydro Power Generation Component (1(c)) |

### 3.2. Agenda Item No 2:

### 3.2.1. Details of the proposal

| **93 MW New Ganderbal Hydro Electric Project** by **JAMMU AND KASHMIR STATE POWER DEVELOPMENT CORPORATION LIMITED** located at **GANDERBAL,JAMMU AND KASHMIR** | | | |
|---|---|---|---|
| **Proposal For** | | Application for Validity Extension of EC- Form-6 | |
| **Proposal Number** | **File Number** | **Submission Date** | **Activity<br>Sub-Activity<br>(Schedule Item)** |
| IA/JK/RIV/587549/2026 | J-12011/7/2008-IA. I | 01/08/2026 | River Valley/Irrigation projects<br>Multi purpose project with Irrigation and Hydro Power Generation Component (1(c)) |

### 3.2.2. Project Salient Features

**60.4.1**: The Project Proponent made a detailed presentation on the salient features of the project and informed that:

i. New Ganderbal Hydro Electric Project (NGHEP) is a Run-of-the-river scheme with peaking storage capacity, proposed on Sindh Nallah, a tributary of River Jhelum with installed capacity of 93 MW.

ii. Originally the project was contemplated, because the existing Ganderbal HEP, commissioned in 1955 to 1962, with an installed capacity of 15 MW (2x3MW) & (2x4.5MW). Now the project has outlived its normal life. Renovation & modernization has been restricted to only one unit of 4.5MW. The headworks can be approached by National Highway (Srinagar-Leh National Highway – NH 1D) and is at a distance of 40 Km from Srinagar. The powerhouse site is also to be approached through NH-1D and is about 20 km from Srinagar.

iii. Significant Salient features are as under:

Barrage 58m long and 11.5m high from OGL, live poundage of 0.03MCM.
Underground desilting basin 145m (L) x 54.8m (W) x 9.5m (H)
Headrace tunnel of 5.9m dia,11.663 km long & Surge shaft 13.5m dia & 72.6 m height.
Surface powerhouse 69.60 m (L) X 16.55 m (W) X 34.85 m (H)
Tail race channel 1.4km long.
Three Vertical Francis Turbine-driven Generating Units, each of 31 MW capacity and operating under a **Rated Head of 142.37 m** and rated discharge of **72.38 Cumecs.**
The power generated at NGHEP would be evacuated through 4Km, two nos. of 132 kV double circuit line connecting through LILO arrangement to the 132 kV D/C line from Alesteng Grid Station to Badampora Grid Sub-Station.
Diversion Barrage 340 16' 21.89" N , 740 52' 34.98" E
Power House Site 340 13' 14.69" N , 740 46' 47.03" E

iv. Total 245 families belonging to four villages losing their land due to acquisition. All the affected families have already been partially compensated for the land that has been acquired from them.

v. The Environmental Clearance (EC) was originally granted by the Ministry of Environment and Forests (MoEF) vide letter No. J-12011/7/2008-IA.I dated 27.09.2013. In accordance with the subsequent MoEF&CC Office Memorandum (OM) dated 13.12.2022, the validity of the EC has been extended to 13 years from the initial date of issuance. Consequently, the Environmental Clearance remains valid until 26.09.2026.

vi. The project site has been maintained in full conformity with applicable environmental safeguards and also the Project Authority remains fully committed to the timely and complete implementation of the Environmental

Management Plan (EMP) as approved in the EC, including Catchment Area Treatment, Compensatory Afforestation, Biodiversity Conservation and Wildlife Management, Fisheries Development, Greenbelt Creation, and obligation of social upliftment measures.

vii. Further no unauthorized construction or activity detrimental to the environment has taken place till date. JKSPDC has submitted the latest monitoring report to MoEF on 21-08-2025.

viii. The proposal for award of main project works to L1 bidder M/S HCC-CPPPL (JV), resulting from the third round of tendering, has been submitted to the UT of J&K for approval.

ix. The EC is valid till 14-09-2026 and is thus required to be extended as the process of award of works is expected to take some more time

x. The Project shall be completed in 48 months from the date of start of work.

**Project Details**

| | | |
|---|---|---|
| Name of the Proposal | VALIDITY EXTENSION OF EC OF 93MW NGHEP GANDERBAL | |
| Proposal No. | IA/JK/RIV/587549/2026 | |
| Location (Including Coordinates) | Diversion Barrage | $34^0$ 16' 21.89" N , $74^0$ 52' 34.98" E |
| | Power House Site | $34^0$ 13' 14.69" N , $74^0$ 46' 47.03" E |
| Company's Name | JAMMU & KASHMIR STATE POWER DEVELOPMENT CORPORATION LIMITED | |
| CIN no. of Company/user agency | U40101JK1995SGC001418 | |
| Accredited Consultant and certificate no. | M/S EQMS INDIA Pvt. Ltd. NABET/EIA/2225/RA 0303 | |
| Project location (Coordinates /River/ Reservoir) | GANDERBAL DISTRICT UT OF J&K (RIVER SINDH WITH CORDINATES: $34^0$ 16' 21.89" N , $74^0$ 52' 34.98" E ) | |
| Inter- state issue involved | NA | |
| Proposed on River/ Reservoir | SINDH RIVER | |
| Type of Hydro-electric project | RUN OF THE RIVER SCHEME | |
| Seismic zone | V | |

**Category Details**

| | |
|---|---|
| Category of the project | A CATEGORY |
| Capacity / Cultural command area (CCA) | 0.0010 TMC/1578 Ha THROUGH SINDH POWER CANAL |
| Attracts the General Conditions (Yes/No) | No |
| Additional information (if any) | |

**ToR/EC details**

| | |
|---|---|
| ToR Proposal No. | |
| EAC meeting date | 26TH TO 27TH DEC 2012 & 22ND 23RD MARCH 2013 |
| ToR Letter No. | |
| ToR grant Date | |
| Cost of project | 965.87 Cr ON PRICE LEVEL JANUARY 2014 SUBSEQUENTLY REVISED 1610.55Cr ON PRICE LEVEL JANUARY 2021 |
| Total area of Project | 63.70 Ha |
| Height of Dam from River Bed (EL) | 11.5 M |
| Details of submergence area | 7.5 Ha |
| District to provide irrigation facility (if applicable) | GANDERBAL |
| Details of tunnels on upper level & lower level and length of canal (if applicable) | HRT(11.663Km) INCLUDING ADIT-I(686m) & ADIT-II (609m) |
| No. of affected Village. | 3 |
| No. of Affected Families | 245(9 FULLY+236 PARTIALLY) |
| Project Benefits | HYDRO POWER GENERATION,IRRIGATION ,DRINKING WATER SUPPLY AND SOCIO ECONOMICAL BENEFITS |
| R&R details | DRAFT R&R POLICY FRMED AT A COST OF Rs 906 40 Lakh AS PER NRRP 2007 |
| Catchment area/ Command area | 1352 Sq Km/1578 Ha |
| Types of Waste and quantity of generation during construction/Operation | MUCK/DEBRIS QTY OF 1256960cum +42% SWELL FACTOR |
| Material used for blasting and its Composition as per DGMS standards. | CONVENTIONAL DRILLING & BLASTING AS PER THE NORM |
| E-Flows for the Project | 2.42 cumecs |
| Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in which project located. If yes then | NO |

| | |
|---|---|
| c) E-flow with TOR/Recommendation by EAC as per CI A&CC study of River Basin.<br><br>d) If not the E-Flows maintain criteria for sustaining riv er ecosystem. | |
| Details on provision of fish pass | YES. AS PROPOSED IN THE EMP WIDTH OF FIS H LADDER=1.2m |
| Project benefit including employment details (no of em ployee) | 189 |
| Area of Compensatory Afforestation (CA) with tentative no of plantation. | 54.4 Ha USING 18 DIFFERENT PLANT SPECIES |
| Previous EC details | EC is valid till sept 2026 already issued Vide J-1 2011/7/2008-IA. I Dated: -27-09-2013 & F.No. 1A3-22/28/2022-1A.111 (E 181584) dated 13-12-2022. |
| EC Compliance Report by R.O, MOEF&CC | COMPILANCE REPORT HAS BEEN SUBMITTED ON 21/08/2025 |
| No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign | NA |

**1.**

| **Electricity generation capacity:** | |
|---|---|
| **Muck Management Details:** | |
| Powerhouse Installed Capacity | 3*31 MW=93MW |
| Generation of Electricity Annually | 383.09 Gwh |
| No. of Units | 3 UNITS |

**2.**

| | |
|---|---|
| No. of proposed disposal area/ (type of land- Forest/Pvt land) | 4 No.OF DUMPING SITES (UNDER FOREST LAND USE CLASS).LAND AREA HAS BEEN DI VERTED TO DUMPING SITE IN 10Ha |
| Cross section of proposed muck area, Height of muck with slope. | ATLEAST 30M HORIZONTAL AWAY FROM T HE EDGE OF RIVER CORRESPONDING TO H FL.THE SITES SHALL BE SUPPORTED BY AD EQUATE HEIGHT AT BASE WITH GABION ST RUCTURE AT DIFFERENT ELEVATIONS OR B Y RCC RETAINING WALLS. |
| Distance of muck disposal area(location), from muck gen | AS PER THE EIA/EMP REPORT |

| | |
|---|---|
| eration sources (project area)/River, HFL of proposed muck disposal area. | |
| Total Muck Disposal Area | 10Ha |
| Estimate Muck to be generated | 15.43 LAKH Cum |
| Transportation | BY MECHANICAL MEANS |
| Monitoring mechanism for Muck Disposal Transportation | AS PER THE GUIDELINES |

**Land Area Breakup:**

| | |
|---|---|
| Private land | 24 Ha |
| Government land | 12.5 Ha |
| Forest Land | 27.2 Ha |
| Total Land | 63.70 Ha |
| Submergence area/Reservoir area | 7.5Ha |
| Additional information (if any) | - |

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

| **Forest Land/ Protected Area/ Environmental Sensitivity Zone** | **Yes/No** | **Details of Certificate/ letter/Remarks** |
|---|---|---|
| Reserve Forest/Protected Forest Land | YES | DIVERETD IN THE NAME OF PROJ ECT |
| National Park | NO | |
| Wildlife Sanctuary | NO | |
| Archaeological sites monuments/historical t emples etc | NO | |
| Additional information (if any) | - | |

**Availability of Schedule-I species in study area**

**Public Hearing (PH) Details**

| | |
|---|---|
| Advertisement for PH with date | 2ND APRIL 2011 |
| Date of PH | 4th May 2011 |
| Venue | PRENG, DISTRICT GANDERBAL |

| | |
|---|---|
| Chaired by | DEPUTY COMMISIONER GANDERBAL |
| Main issues raised during PH | 1. EMPLOYMENT TO THE LOCALS, PREFERABLY TO THOSE WHOSE LAND HAS BEEN PROPOSED FOR ACQUISITION.<br>2. PROTECTION WALL SHOULD BE ERECTED TO AVOID FLOODING OF HABITATION.<br>3. TIMELY AND FULL COMPENSATION OF THE LAND TO THE LAND OWNERS WHOSE LAND IS PROPOSED TO BE ACQUIRED. |
| No. of people attended | ALL INTERESTED PERSON/ORGANISATION /GROUPS WERE INVITED TO PARTICIPATE IN PUBLIC HEARING |

Brief of base line Environment:

<table>
<tr><th>Particulars</th><th>Details</th></tr>
<tr><td>Period of baseline data collection/Sampling period.</td><td rowspan="4">AS PER THE EIA/EMP REPORT</td></tr>
<tr><td>(Air, noise, water, land)</td></tr>
<tr><td>flora and fauna of the project area,</td></tr>
<tr><td>aquatic ecology, etc.</td></tr>
<tr><td>Brief description on hydrology and water assessment as per the approved Pre-DPR:</td><td>HYDROLOGY
<table>
<tr><td>Catchment Area At Intake Site</td><td>1352 km2</td></tr>
<tr><td>Snow Catchment</td><td>208 km2</td></tr>
<tr><td>Design Discharge</td><td>72.38 m3/s</td></tr>
<tr><td>Design flood (1 in 100 yrs)</td><td>1800 m3/s</td></tr>
<tr><td>Standard Project Flood</td><td>2600 m3/s</td></tr>
<tr><td>Diversion Flood</td><td>820 m3/s</td></tr>
</table></td></tr>
<tr><td>Additional detail (If any)</td><td></td></tr>
</table>

**Court case details:**

| | |
|---|---|
| Court Case | NA |
| Additional information (if any) | |

**Status of other statutory clearances**

| Particulars | Letter no. and date |
|---|---|
| Status of Stage- I FC | 175-FST OF 2012 DATED:-02-04-2012 & 232-F |

| | |
|---|---|
| | ST OF 2017 DATED:-22-09-2017 |
| Approval of Central Water Commission | CEA HAS ACCORDED APPROVAL TEC TO THE PR OJECT VID ELTTER NO:-2/J&K/12/95-PAC/1615-44 DATED:-10/06/2014 . |
| Approval of Central Electricity Authority | |
| Additional detail (If any) | |
| **Is FRA (2006) done for FC-I** | NA |

**Details of the EMP**

| | | |
|---|---|---|
| 1. | Catchment Area Treatment Plan | 14.05 |
| 2. | Resettlement & Rehabilitation Plan (including community development works and R & R Grants) | 9.064 |
| 3. | Compensatory Afforestation Scheme | 2.455 |
| 4. | Green Belt Development Plan | 0.13 |
| 5. | Bio-diversity plan | 1.982 |
| 6. | Muck Disposal Plan | 7.04 |
| 7. | Restoration Plan for Quarries | 0.20 |
| 8. | Landscape and Restoration Plan | 0.125 |
| 9. | Public Health Delivery System | 0.64 |
| 10. | Energy Conservation Measures | 1.9420 |
| 11. | Solid Waste Management Plan | 3.28 |
| 12. | Fisheries Development and Management Plan | 0.65 |
| 13. | Environment Monitoring Plan | 1.07 |
| **TOTAL** | | **42.62 Cr** |

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

N/A

**3.2.4. Deliberations by the EAC in current meetings**

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

The EAC during deliberations noted that the proposal is for extension in validity of EC dated 27.09.2013 of 93 MW New Ganderbal Hydro Electric Project to Gandervbal District of Jammu Kashmir by M/s Jammu & Kashmir State Power Development Corporation Ltd

The EAC noted that Environmental Clearance (EC) was originally granted by the Ministry of Environment and Forests (MoEF) vide letter No. J-12011/7/2008-IA.I dated 27.09.2013. In accordance with the MoEF&CC Notification S.O. 1886 (E) dated 20.04.2022, the EC validity of River valley and Hydro-electric project is 13 years which can be extended to 2 years from the initial date of issuance. Consequently, the Environmental Clearance remains valid until 26.09.2026.

The EAC noted that **no construction activity has commenced at the project site to date** and that implementation of the **Environmental Management Plan (EMP)** has also not yet been initiated. The Committee further observed that, once commenced, implementation of the EMP would require approximately **4 years (48 months)** for completion. Similarly, as per project implementation schedule mentioned in the DPR the construction and completion of the main project works would also require approximately **48 months**.

In view of the above parallel timelines, the Committee expressed concern that the project is unlikely to be completed within the existing **Environmental Clearance (EC) validity period, which will expire on 26.09.2026.** Even if a further extension of **two years, up to 26.09.2028**, is considered, the project construction works as well as implementation of the EMP would still not be completed within the extended validity period.

**60.4.3:** After detailed deliberation on the information and documents submitted by the Project Proponent, the EAC observed that **on-site physical construction work has not yet commenced**. The Committee further noted that **significant financial changes and price escalations have occurred since the project was originally formulated.**

In view of the above, the Committee recommended that **M/s Jammu & Kashmir State Power Development Corporation Ltd.** to submit a **fresh and updated proposal** for grant of prior Environmental Clearance for the **93 MW New Ganderbal Hydro Electric Project**, located in **Ganderbal District, Jammu & Kashmir**, incorporating updated project details and other relevant information in the present context.

**3.2.5. Recommendation of EAC**

Returned in present form

DAY 1 • 13/08/2026

AGENDA NUMBER

## EC/AGENDA/EAC/450267/8/2026

### Patalkot Pumped Storage Project

by **TORRENT ENERGY STORAGE SOLUTIONS PRIVATE LIMITED** located at **CHHINDWARA, MADHYA PRADESH**

| | |
|---|---|
| **PROPOSAL FOR** | Fresh ToR |
| **PROPOSAL NUMBER** | IA/MP/RIV/587636/2026 |
| **FILE NUMBER** | J-12011/43/2026-IA.I(R) |
| **SUBMISSION DATE** | 04/08/2026 |
| **ACTIVITY / SUB-ACTIVITY (SCHEDULE ITEM)** | River Valley/Irrigation projects<br>Standalone Pump Storage Projects (1(c)) |

### 3.3. Agenda Item No 3:

#### 3.3.1. Details of the proposal

| **Patalkot Pumped Storage Project** by **TORRENT ENERGY STORAGE SOLUTIONS PRIVATE LIMITED** located at **CHHINDWARA,MADHYA PRADESH** | | | |
|---|---|---|---|
| **Proposal For** | | Fresh ToR | |
| **Proposal Number** | **File Number** | **Submission Date** | **Activity<br>Sub-Activity<br>(Schedule Item)** |
| IA/MP/RIV/587636/2026 | J-12011/43/2026-IA.I(R) | 04/08/2026 | River Valley/Irrigation projects<br>Standalone Pump Storage Projects (1(c)) |

#### 3.3.2. Project Salient Features

**60.2.1:** 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:

*Upper Reservoir: 22°24'6.23"N, 78°48'48.35"E*
*Lower Reservoir: 22°25'43.74"N, 78°48'0.65"E*
*Forest Land : 140.00 ha*
*Non-forest Land : 200.00 ha*
*Total Land : 340.00 ha*

| **Parameters** | **Villages** | | | | |
|---|---|---|---|---|---|
| | **Chimtipur** | **Kathotiya** | **Dongra** | **Chhindi** | **Dhana Kheda** |
| Households | 49 | 84 | 176 | 485 | 113 |
| Total Population | 250 | 348 | 937 | 2232 | 618 |
| Male Population | 120 | 168 | 449 | 1131 | 307 |
| Female Population | 130 | 180 | 488 | 1101 | 311 |
| Scheduled Caste (SC) | 0 | 0 | 0 | 31 | 7 |
| Scheduled Tribe (ST) | 250 | 331 | 896 | 1288 | 609 |

- Ø The demographic profile of the villages surrounding the project area indicates that Chhindi village has the highest total population (2232) with 485 households.
- Ø Chimtipur village is the smallest settlement with a population of 250 with 49 households.
- Ø All villages show a near-even split between male and female populations, with one location (Chhindi village) having a slightly higher number of males compared to females.
- Ø Scheduled Tribe (ST) communities constitute the dominant population group in Chhindi village, followed

by Dongra village, Dhana Kheda village, Kathotiya village and Chimtipur village, respectively. Scheduled Caste (SC) communities are also represented in a few villages, with the highest numbers in Chhindi village (31).

vii. **Water requirement:** 1500MW Patalkot Pumped Storage Project will require ~ 21.43 MCM for one time filling and thereafter ~ 3.50 MCM per year will be required.

viii. **Project Cost:** The estimated project cost is Rs 8060.32 crore including IDC. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).

ix. **Project Benefit**: The project will generate employment for approximately 1,000 people during the construction phase and 55 people during the O&M phase, both through direct and indirect employment opportunities.

x. **Environmental Sensitive area:** Satpura Tiger Reserve is the nearest protected area which is about 17.0km from project components. River/ water body, Water will be pumped from Dudhi River, a tributary of Narmada River, 13km from the Lower Reservoir.

xi. The initial allotment for the proposed 1,500MW Pumped Hydro Storage (PHS) Project in Chhindwara District, Madhya Pradesh issued by the Office of the Commissioner, New and Renewable Energy, Bhopal, vide Letter No. F/NRE/PHS/2026/22746 dated 17.07.2026.

xii. **Resettlement and rehabilitation:** R&R issue will be studied during EIA/ EMP studies.

xiii. **Alternative Studies:** The following criteria were used to evaluate and compare alternate schemes:

· Minimal area of land acquisition to accommodate various project components.
· Minimal impact on local populace by way of lower need for R & R.
· Topography of the area and other factors like location, length of water conductor system and impact on the vegetation in acquired land.
· Utilization of available head at project site and to the maximum extent feasible.
· Development of economical and optimized layout.
· Ease of Construction and access to shafts, powerhouse, and related structures.
· Conceiving a layout without interference to the avoidable existing infrastructure features such as high voltage transmission lines, underground gas pipelines, roads, temples etc.

**TABLE-1: LAND DETAILS OF ALTERNATIVE LAYOUTS**

| S. no | Activities | Alternative-1 (Selected) 1500MW | | | Alternative-2 1500MW | | | Alternative-3 660MW | | | Alternative-4 1500MW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Forest | Non-Forest | Total | Forest | Non-Forest | Total | Forest | Non-Forest | Total | Forest | Non-Forest | Total |
| 1a | Site office at Upper Reservoir | 0.00 | 1.00 | **1.00** | 0.00 | 0.50 | **0.50** | 0.0 | 0.5 | **0.5** | 0.00 | 0.50 | **0.50** |
| 1b | Site office at Lower Reservoir | 0.00 | 0.00 | **0.00** | 0.00 | 0.50 | **0.50** | 0.0 | 0.5 | **0.5** | 0.00 | 0.50 | **0.50** |
| 2a | Concrete Batching Plant, Crusher Plant, RMC Plant at Upper Reservoir | 0.00 | 4.50 | **4.50** | 0.00 | 4.50 | **4.50** | 0.0 | 4.5 | **4.5** | 0.00 | 4.50 | **4.50** |
| 2 | Concrete Batching | 0.0 | 4.5 | **4.5** | 0.00 | 4.5 | **4.5** | 0.0 | 4.5 | **4.5** | 0.0 | 6.0 | **6.** |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| b | Plant, Crusher Plant, RMC Plant at Lower Reservoir | 0 | 0 | **0** | | 0 | **0** | | | | 0 | 0 | **0 0** |
| 3 a | Stacking Area at Upper Reservoir | 0.0 0 | 4.0 0 | **4.0 0** | 0.00 | 4.0 0 | **4.0 0** | 0.0 | 4.0 | **4.0** | 0.0 0 | 5.0 0 | **5. 0 0** |
| 3 b | Stacking Area at Lower Reservoir | 0.0 0 | 4.0 0 | **4.0 0** | 0.00 | 4.0 0 | **4.0 0** | 0.0 | 4.0 | **4.0** | 0.0 0 | 4.0 0 | **4. 0 0** |
| 4 a | Magzine Area at Upper Reservoir | 0.0 0 | 0.5 0 | **0.5 0** | 0.00 | 0.5 0 | **0.5 0** | 0.0 | 0.5 | **0.5** | 0.0 0 | 0.5 0 | **0. 5 0** |
| 4 b | Magzine Area at Lower Reservoir | 0.0 0 | 0.5 0 | **0.5 0** | 0.00 | 0.5 0 | **0.5 0** | 0.0 | 0.5 | **0.5** | 0.0 0 | 0.5 0 | **0. 5 0** |
| 5 a | Labour Camp at Upper Reservoir | 0.0 0 | 2.0 0 | **2.0 0** | 0.00 | 2.0 0 | **2.0 0** | 0.0 | 2.0 | **2.0** | 0.0 0 | 2.0 0 | **2. 0 0** |
| 5 b | Labour Camp at Lower Reservoir | 0.0 0 | 2.0 0 | **2.0 0** | 0.00 | 2.0 0 | **2.0 0** | 0.0 | 2.0 | **2.0** | 0.0 0 | 2.0 0 | **2. 0 0** |
| 6 a | Colony Area at Upper Reservoir | 0.0 0 | 2.0 0 | **2.0 0** | 0.00 | 2.0 0 | **2.0 0** | 0.0 | 2.0 | **2.0** | 0.0 0 | 2.0 0 | **2. 0 0** |
| 6 b | Colony Area at Lower Reservoir | 0.0 0 | 2.0 0 | **2.0 0** | 0.00 | 2.0 0 | **2.0 0** | 0.0 | 2.0 | **2.0** | 0.0 0 | 2.0 0 | **2. 0 0** |
| 7 | HM and EM Work shop | 0.0 0 | 4.0 0 | **4.0 0** | 0.00 | 4.0 0 | **4.0 0** | 0.0 | 4.0 | **4.0** | 0.0 0 | 4.0 0 | **4. 0 0** |
| 8 a | Muck Disposal at Upper Reservoir | 0.0 0 | 16. 54 | **16. 54** | 0.00 | 13. 00 | **13. 00** | 0.0 | 10. 5 | **10. 5** | 0.0 0 | 27. 00 | **27. 0 0** |
| 8 b | Muck Disposal at Lower Reservoir | 0.0 0 | 34. 35 | **34. 35** | 0.00 | 11. 30 | **11. 30** | 0.0 | 10. 5 | **10. 5** | 0.0 0 | 25. 00 | **25. 0 0** |
| 9 a | Upper Reservoir and Dam | 1.1 6 | 10 6.1 0 | **10 7.2 6** | 190. 50 | 0.0 0 | **19 0.5 0** | 62. 5 | 13. 1 | **75. 6** | 79. 00 | 18. 00 | **97. 0 0** |

**TABLE-2: COMPARISON OF PROJECT PARAMETERS**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 b | Lower Reservoir a nd Dam | 75. 24 | 0.0 0 | **75. 24** | 172. 66 | 22. 77 | **19 5.4 3** | 75. 2 | 0.0 | **75. 2** | 83. 00 | 0.0 0 | **8 3. 0 0 0** |
| 1 0 | WCS, PH, ADIT, M AT, Pothead yard | 34. 47 | 3.2 3 | **37. 70** | 35.0 0 | 0.0 0 | **35. 00** | 36. 5 | 0.0 | **36. 5** | 40. 00 | 0.0 0 | **4 0. 0 0 0** |
| 1 1 | Diversion of Strea m | 0.0 0 | 1.4 0 | **1.4 0** | 0.00 | 0.0 0 | **0.0 0** | 0.0 | 0.0 | **0.0** | 0.0 0 | 0.0 0 | **0. 0 0 0** |
| 1 2 | Water filling Pipeli ne | 18. 04 | 0.9 1 | **18. 95** | 3.17 | 4.3 4 | **7.5 1** | 6.4 | 1.4 | **7.8** | 14. 43 | 0.7 2 | **1 5. 1 5** |
| 1 3 | Proposed Road | 7.6 5 | 4.8 5 | **12. 50** | 4.65 | 0.2 0 | **4.8 5** | 7.3 | 0.0 | **7.3** | 10. 00 | 6.7 0 | **1 6. 7 0** |
| 1 4 | Village Road stren gthing & upgradat ion | 3.4 4 | 1.6 2 | **5.0 6** | 2.24 | 2.4 0 | **4.6 4** | 3.4 | 1.8 | **5.2** | 2.5 0 | 1.0 0 | **3. 5 0** |
| **TOTAL AREA IN HECT ARE** | | **14 0.0 0** | **20 0.0 0** | **34 0.0 0** | **408. 22** | **85. 01** | **49 3.2 3** | **19 1.2 6** | **68. 26** | **25 9.5 2** | **22 8.9 3** | **11 1.9 2** | **34 0. 8 5** |

Source: Project Feasibility Report, PATALKOT Project, Maharashtra

| S. No. | Parameters | | Units | Alt-1 | Alt-2 | Alt-3 | Alt-4 |
|---|---|---|---|---|---|---|---|
| **1** | **Project Capacity** | | **MW** | **1500** | **1500** | **660** | **1500** |
| 2 | Upper Reservoir | FRL/MDDL | El in m | 1105/1086 | 712/686 | 836/803 | 870/833 |
| 3 | | Dam Type | - | Geo-Membrane Faced Rockfilled Dam (GFRD) | | | |
| 4 | | Dam Crest Length | m | 5019 | 1083 | 2696 | 3379 |
| 5 | | Max Height of Dam from ground level | m | 37 | 38 | 40 | *45* |
| 6 | | Live Storage | MCM | 13.59 | 16.42 | 6.00 | 14.96 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7 | | Dead Storage | MCM | 0.95 | 0.81 | 0.10 | 0.9 |
| 8 | | Gross Storage | MCM | 14.54 | 17.23 | 6.10 | 15.84 |
| 9 | Lower Reservoir | FRL / MDDL | El in m | 694/671 | 477/455 | 534/517 | 539/508 |
| 10 | | Dam Type | - | Concrete Gravity Dam | | | |
| 11 | | Dam Crest Length | m | 334 | 2126 | 272 | 481 |
| 12 | | Max height of Dam from ground level | m | 45 | 35 | 44 | *31* |
| 13 | | Live Storage | MCM | 12.64 | 16.42 | 5.62 | 15.30 |
| 14 | | Dead Storage | MCM | 4.91 | 1.91 | 4.055 | 1.85 |
| 15 | | Gross Storage | MCM | 17.55 | 18.33 | 9.675 | 17.15 |
| 16 | WCS | Total Length of WCS (L) | m | 2030 | 3330 | 2780 | 2515 |
| 17 | Head | | m | 420 | 225.75 | 289 | 362 |
| 18 | **L / H** | | - | **4.83** | **14.75** | **9.62** | **6.94** |
| 19 | MAT Length | | m | 1517 | 1153 | 1387 | 1584 |
| 20 | Shortest Tunnelling Length to reach Powerhouse | | m | 904 (266 m from Adit to MAT + 638 m in MAT) | 1153 (from MAT) | 87 (from MAT) | 1584 (from MAT) |

**TABLE 3: MERITS AND DEMERITS OF ALTERNATIVE LAYOUTS**

| S. No. | Layout | Merits | Demerits |
|---|---|---|---|
| 1 | Alt-02 | Alt-2 has higher capacity (1500 MW) than Alt-3 (660 MW) Upper Reservoir crest length is less | Length of water conductor system is highest and unfavorable 14.75 m. Therefore, higher L/H ratio indicating higher cycle efficiency Construction time will be longer Total land requirement and Forest land requirement is the highest among the Alter |

| S. No. | Layout | Merits | Demerits |
|---|---|---|---|
| | | | natives |
| 2 | Alt-03 | Compared to Alt-2 Alt-3 has less L/H ratio | Project capacity is least Length of water conducto r system is high compared to Alternate-1. Theref ore, higher L/H ratio indicating higher cycle efficie ncy MAT length is high, consequently the constru ction time will be longer. The total land requireme nt and Forest land requirement is higher than Alt-1 |
| *4* | *Alt-04* | *L/H ration,MAT & adit lengths, Ac cess to site,* | L/H is 6.94 which is higher compared to alt 1<br>Due lack of connectivity to lower reservoir long t unneling is required for MAT & adits which in turn delays project schedule.<br>In Alternative 4, state highway no 22 from project location is at 32km which is not practical for the c onstruction schedule of pumped storage projects, therefore due to lack of road connectivity Alterna tive 4 is not considered further |

**Conclusion**

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| **1** | **Location** | | |
| 1.1 | Country | - | India |
| 1.2 | State | - | Madya Pradesh |
| 1.3 | District | - | Chhindwara |
| 1.4 | Taluka | - | Tamia |
| 1.5 | Village near Upper Reservoir | - | Kathotiya |
| 1.6 | Village near Lower Reservoir | - | Chimtipur |
| **2** | **Type of Project** | | |
| 2.1 | Type | - | Off-Stream Closed Loop PSP |
| 2.2 | Installed Capacity | MW | 1500 |
| 2.3 | Peak operation Generation | hr | 6.25 |
| 2.4 | Peak operation Pumping | hr | 7.15 |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| 2.5 | Daily Energy Generation | GWh | 9.375 |
| 2.6 | Annual Energy Generation (100% machine availability) | GWh | 3421.88 |
| 2.7 | Annual Energy Generation (95% machine availability) | GWh | 3250.78 |
| 2.8 | Estimated Daily Pumping Energy | GWh | 10.73 |
| 2.9 | Estimated Annual Pumping energy (100% machine availability) | GWh | 3914.63 |
| 2.10 | Annual Pumping energy required (95% machine availability) | GWh | 3718.89 |
| 2.11 | Storage Utilized for generation | MCM | 11.37 |
| 2.12 | Cycle Efficiency | % | 79.46 |
| **3** | **Upper Reservoir** | | |
| 3.1 | Live Storage | MCM | 13.59 |
| 3.2 | Dead Storage | MCM | 0.95 |
| 3.3 | Gross Storage | MCM | 14.54 |
| **4** | **Upper Dam** | | |
| 4.1 | Type of Dam | - | GFRD |
| 4.2 | Top of Dam | EL (m) | 1109 |
| 4.3 | Full Reservoir Level (FRL) | EL (m) | 1105 |
| 4.4 | Minimum Draw Down Level (MDDL) | EL (m) | 1086 |
| 4.5 | Maximum Water Level (MWL) | EL (m) | 1107 |
| 4.6 | Lowest Riverbed Level | m | 1072 |
| 4.7 | Length of Dam | m | 5019 |
| 4.8 | Max Height of Dam | m | ≈37 (above deepest bed level) |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| 4.9 | Type of Spillway | - | Side Channel Spillway |
| 4.1 | Spillway Capacity | m3/s | ≈ 75 |
| 4.11 | Spillway Crest Length | m | 20 |
| 4.12 | Spillway Crest Level | EL (m) | 1105.3 |
| **5** | **Lower Reservoir** | | |
| 5.1 | Live Storage | MCM | 12.64 |
| 5.2 | Dead Storage | MCM | 4.91 |
| 5.3 | Gross Storage | MCM | 17.55 |
| **6** | **Lower Dam** | | |
| 6.1 | Type of Dam | - | Concrete Gravity Dam |
| 6.2 | Top of Dam | EL (m) | 697 |
| 6.3 | Maximum Water Level (MWL) | EL (m) | 695 |
| 6.4 | Full Reservoir level (FRL) | EL (m) | 694 |
| 6.5 | Minimum Draw Down Level (MDDL) | EL (m) | 671 |
| 6.6 | Length of Dam | m | 334 |
| 6.7 | Max Height of Dam | m | ≈45 (above deepest bed level) |
| 6.8 | Type of Spillway | - | Gated (9 m W x 7 m H) |
| 6.9 | No of bays | Nos | 3 |
| 6.1 | Length of Each Bay | m | 9 |
| 6.11 | Width of Pier | m | 3 |
| 6.12 | Total Length of Spillway | m | 39 |
| 6.13 | Crest Level of Spillway | EL (m) | 687 |
| 6.14 | Spillway Capacity | m3/s | ≈ 664 |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| **7** | **Upper Intake** | | |
| 7.1 | Number of Intakes | Nos | 3 |
| 7.2 | Type | - | Horizontal Diffuser Type |
| 7.3 | Sill Level | EL (m) | 1066 |
| **8** | **Head Race Tunnel** | | |
| 8.1 | Head Race Tunnels | No's | 3 |
| 8.2 | Shape / Lining | - | Circular Concrete Lined |
| 8.3 | Diameter | m | 8.5 |
| 8.4 | Length | m | 175 |
| **9** | **Pressure Shaft/ Tunnel** | | |
| 9.1 | Type | - | Circular Steel Lined |
| 9.2 | Number of Pr. Shaft | Nos. | 3 |
| 9.3 | Diameter | m | 6 |
| 9.4 | Length | m | ~580 |
| **10** | **Unit Pressure Shaft/ Tunnel** | | |
| 10.1 | Type | - | Circular Steel Lined |
| 10.2 | Number of Unit Pr. Shaft | Nos. | 6 |
| 10.3 | Diameter | m | 4.3 |
| 10.4 | Length | m | ~400 |
| **11** | **MIV (Main Inlet Valve)** | | |
| 11.1 | Type | - | Spherical Valve |
| 11.2 | Diameter | m | 3 |
| **12** | **Powerhouse Cavern** | | |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| 12.1 | Type | - | Underground |
| 12.2 | Size (L) X (W) X (H) | mxmxm | 226.40 x 24 x 46 |
| 12.3 | Pump-turbine Centre line | EL (m) | 619 |
| **13** | **Transformer Cavern** | | |
| 13.1 | Type | - | Underground |
| 13.2 | Size (L) X (W) X (H) | m xmxm | 203.30 x 16 x 26.50 |
| **14** | **Tail Race Tunnel** | | |
| 14.1 | Type | - | Concrete Lined |
| 14.2 | Finished Shape | - | Circular |
| 14.3 | No. of Main TRTs | Nos. | 3 |
| 14.4 | No. of Unit TRTs | Nos. | 6 |
| 14.5 | No. of Draft Tube Tunnels | Nos. | 6 |
| 14.6 | Diameter of Main TRT | m | 8.5 |
| 14.7 | Diameter of Unit TRT | m | 6 |
| 14.8 | Diameter of Draft tube Tunnel | m | 6.6 |
| 14.9 | Length of Main TRT | m | ~488 |
| 14.1 | Length of Unit TRT | m | ~50 |
| 14.11 | Length of Draft Tube Tunnel | m | ~110 |
| **15** | **D/s Surge Chamber** | | |
| 15.1 | Type | - | Restricted Orifice |
| 15.2 | Dimensions | m | 10 (W) x 140 (L) |
| **16** | **Lower Intake** | | |
| 16.1 | Number | - | 3 |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| 16.2 | Type | - | Horizontal Diffuser Type |
| 16.3 | Sill Level | EL (m) | 654 |
| **17** | **Access Tunnels** | | |
| 17.1 | Length of Main Access Tunnel (MAT) | m | 1321 |
| 17.2 | Construction adit to MAT | m | 207 |
| 17.3 | Cable Cum Ventilation Tunnel | m | 412 |
| 17.4 | Branch Adit to Powerhouse cavern top | m | 107 |
| 17.5 | Branch Adit to D/S Surge | m | 440 |
| 17.6 | Adit to Erection Chamber | m | 603 |
| 17.7 | Branch Adit to PS Bottom | m | 293 |
| 17.8 | Access Tunnel to Lower Intake gate Shaft | m | 206 |
| **18** | **Electro-Mechanical Equipment** | | |
| 18.1 | Type | - | Fixed speed, Reversible Francis |
| 18.2 | Units | Nos. | 6 |
| 18.3 | Total Installed Capacity | MW | 1500 |
| 18.4 | Turbine Capacity | MW | 250 |
| 18.5 | Synchronous Speed | RPM | 277.77 |
| 18.6 | Rated Net Head (Generation mode) | m | 404.98 |
| 18.7 | Rated Discharge (Generation mode) | $m^3/s$ | 83.78 |
| 18.8 | Pump Capacity | MW | 275 |
| 18.9 | Rated Net Head (Pump Mode) | m | 418.28 |
| 18.10 | Rated Discharge (Pump Mode) | $m^3/s$ | 73.27 |
| **19** | **Project Cost** | | |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| 19.1 | Civil Works | ₹ Cr | 3065.63 |
| 19.2 | Electro-Mechanical Works | ₹ Cr | 2977.2 |
| 19.3 | Escalation | ₹ Cr | 860.26 |
| 19.4 | IDC & FC | ₹ Cr | 1157.23 |
| 19.5 | Project Capital (Completion) Cost | ₹ Cr | 8060.32 |
| **20** | **Project Benefits** | | |
| 20.1 | Levelized tariff (without considering cost of pumping energy) | ₹/kWh | 4.14 |
| 20.2 | Levelized tariff (pumping energy rate of ₹ 2/Unit | ₹/kWh | 6.74 |
| 20.3 | Levelized tariff (pumping energy rate of ₹ 2/Unit | ₹/kWh | 8.03 |

| | |
|---|---|
| | |
| | |
| Location including Coordinates | **LOWER RESERVOIR:**<br>Longitude: 78°48'0.65"E |
| | **UPPER RESERVOIR:**<br>Latitude: 22°24'6.23"N<br>Longitude: 78°48'48.35"E |
| | No |
| | Zone-III |

| **CATEGORY DETAILS** | |
|---|---|
| Category of the Project | A |
| Provisions | - |
| Capacity / ~~Cultural command area (CCA)~~ | 1500MW |
| Attracts the General Conditions (Yes/No) | No |
| Additional information (if any) | Nil |

| | |
|---|---|
| **ELECTRICITY GENERATION CAPACITY** | |
| Powerhouse Installed Capacity | 1500MW |
| Generation of Electricity Annually | 3250.78MU |
| Number of units | 6 nos. (6x250MW) |
| ditional information (if any) | Nil |
| **TOR/EC DETAILS** | |
| Cost of the Project | INR. 8060.32 crores |
| Total Area of the Project | 340.0ha |
| Height of Dam from riverbed (EL) | Lower Dam-45.0m, Upper dam-37.0m |
| Length of the Tunnel/Channel | 2030m |
| Details of Submergence Area | 182.5ha |
| Types of Waste and quantity of generation during construction/ Operation | Muck from excavation, solid waste from labour colony and construction waste |
| Additional information (if any) | Nil |
| E-Flows for the Project | As the proposed scheme is a closed-loop pumped storage project, no consumptive use of water is envisaged for power generation, and the same water will be continuously recycled between the upper and lower reservoirs during operation. To maintain the natural drainage regime and downstream hydrological connectivity, runoff generated within the catchments intercepted by the reservoir will be released downstream. Appropriate spillway and low-level outlet arrangements will be provided at the embankment. |
| Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then | |
| a) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. | No |
| b) If not the E-Flows maintain criteria for sustaining river ecosystem. | |
| No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign | 1000 |

| | |
|---|---|
| **MUCK DISPOSAL DETAILS** | |
| No. of proposed disposal area/ (type of land-Forest/Pvt. land) | 50.89ha (Non-Forest Land) |
| Muck Management Plan | Will be provided in EIA/EMP Report |
| Monitoring Mechanism for Muck Disposal | Will be provided in EIA/EMP Report |
| **LAND AREA BREAK-UP** | |
| Private Land | 200.0 ha |
| Government Land | - |
| Forest Land | 140.0 ha |
| **Total Land** | **340.0 ha** |
| Submergence Area/Reservoir Area | 182.5 ha |
| Additional Information if any | Nil |

| **PRESENCE OF ENVIRONMENTALLY SENSITIVE AREAS IN THE STUDY AREA** | | |
|---|---|---|
| **Forest Land/ Protected Area/ Environmental Sensitivity Zone** | **YES/NO** | **Details of Certificate / letter/Remarks** |
| Reserve Forest/Protected Forest Land | YES | 140.00ha is combination of PF/RF land. Application under Van Sanrakshan Evam Samvardhan Adhiniyam 1980 shall be made after the grant of ToR |
| National Park | NO | Satpura Tiger Reserve is the nearest protected area which is about 17.0km from project components. |
| Wildlife Sanctuary | | |

| **COURT CASES DETAILS** | |
|---|---|
| Court Case | Nil |
| Additional information (if any) | Nil |

| **AFFIDAVIT/UNDERTAKING DETAILS** | |
|---|---|
| Affidavit/Undertaking | Enclosed |
| Additional information (if any) | Nil |

| PREVIOUS EC COMPLIANCE AND NECESSARY APPROVALS | |
|---|---|
| **Particulars** | **Letter no. and date** |
| Certified EC compliance report (if applicable) | Not Applicable |
| Status of Stage- I FC | Yet to Apply |
| Additional details (If any) | Nil |
| **Is FRA (2006) done for FC-I** | Yet to Apply |

| **Miscellaneous** | | |
|---|---|---|
| **Particulars** | **Details** | |
| Details of consultant | M/s. RS Envirolink Technologies Pvt. Ltd. (RSET) (*NABET* Accredited *Consultant Organization*) | |
| | Certificate No | : NABET/EIA/25-28/RA0415 |
| | Validity | : August 15, 2028 |
| | Contact Person | : Mr. Ravinder Bhatia |
| | Name of Sector | : River Valley & Hydroelectric Projects |
| | Category | : A |
| | MoEF&CC Schedule | : 1(C) |
| | Address | : 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana - 122009 |
| | E-mail | : ravi@rstechnologies.co.in |
| | Landline | : (0124) 4295383 |
| | Cellular | : (+91) 9810136853 |
| Project Benefits | Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, compared favorably to other energy storage technologies and thermal technologies. This effectively shifts stores, and reuses energy generated until there is corresponding demand for system reserves and v | |

| | |
|---|---|
| | ariable energy integration. This shifting can also occur to a void transmission congestion periods, to help more efficien tly manage transmission grid, and to avoid potential interru ptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., win d and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that i ncrease the release of greenhouse gas emissions.<br>Further, pumped storage projects are critical to the nationa l economy and overall energy reliability because it's:<br>Apart from this, proposed PSP will also benefit the local co mmunity by creating employment opportunities and will re sult in upliftment of livelihood and socio-economic conditi ons. |
| Status of other statutory clearances | **Forest Clearance-** Online application seeking forest diversi on for around 140.0ha after receipt of ToR Approval. Along side, other statutory clearances (as applicable) from State as well as Central government will be obtained post compl etion of Detailed Project Report. |
| R&R details | Details shall be evaluated during EIA/EMP Studies |
| Additional detail (If any) | Nil |

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

N/A

**3.3.4. Deliberations by the EAC in current meetings**

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

The EAC deliberated upon the information submitted by the Project Proponent (PP), including Form-1, Pre-Feasibility Report, KML file and other relevant documents, and the presentation made during the meeting. The PP informed that the proposal is for grant of Terms of Reference (ToR) for undertaking EIA/EMP studies and conducting Public Hearing for the Patalkot Pumped Storage Project (1500 MW; 6 × 250 MW), a closed-loop off-stream pumped storage project located near Patalkot village, Tamia Taluka, Chhindwara District, Madhya Pradesh.

The PP informed that the project falls under Category 'A', Item 1(c) – River Valley Projects, of the Schedule to the EIA Notification, 2006, and therefore requires appraisal at the Central level by the EAC.

It was noted by the EAC that the total land requirement is 340.00 ha, comprising 140.00 ha of forest land and 200.00 ha of non-forest land. The forest land is proposed for diversion for various project components. The EAC noted that the Stage-I Forest Clearance proposal has not yet been submitted and advised the PP to initiate the same at the earliest in accordance with the applicable provisions.

The PP informed that the project envisages construction of upper and lower reservoirs and that the estimated water requirement of 21.43 MCM would be met by pumping water from a river source located approximately 13 km from the project site on the Dudhi River, a tributary of the Narmada River.

The PP further informed that no National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger/Elephant Reserve or Wildlife Corridor is located within 10 km of the project site. The Satpura Tiger Reserve, at approximately 17

km, is the nearest protected area.
The PP informed that the completed project cost is estimated at ₹8,060.32 crore, including IDC

**3.3.5. Recommendation of EAC**

Recommended

**3.3.6. Details of Terms of Reference**

**3.3.6.1. Specific**

| | |
|---|---|
| **[D] Disaster Management:** | |
| 1. | Impact of Project activities (specially blasting and drilling) on the aquatic and terrestrial ecosystem, within study area to be studied and be incorporated in EIA/EMP report. |
| 2. | The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks. |
| **[C] Muck Management/ Disaster Management:** | |
| 1. | Details of quantity of muck generation component wise, types of muck (Excavation in tunnels, pressure shaft and powerhouse etc.) and disposal site/ transportation to be provided. |
| 2. | Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc. to be provided. |
| 3. | Safety measures for avoiding spill over muck into the riverbed/streams and its flow into the river during the high discharge/ flood or monsoon period. Prepare plan for stabilization of muck disposal sites using biological and engineering measures to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area. |
| 4. | Restoration plan for construction area including dumping site of excavated materials by levelling, filling up of burrow pits, landscaping etc. |
| **[B] Socio-economic Study:** | |
| 1. | Declaration by the project proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project. |
| 2. | All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.. |
| 3. | PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7$^{th}$ October, 2014 for the project land to be acquired. |

| | |
|---|---|
| 4. | Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP. |
| **[A] Environmental Management and Biodiversity Conservation:** | |
| 1. | The Project Proponent shall submit the Stage-I Forest Clearance proposal for diversion of 140.00 ha of forest land within the stipulated timeline. |
| 2. | The EIA/EMP report shall include a comprehensive assessment of the incremental impact of tree felling due to diversion of 140.00 ha of forest land. |
| 3. | The PP shall submit a detailed water filling plan for the reservoir from the Dudhi River, along with requisite approval from the Water Resources Department/competent authority. |
| 4. | The EIA/EMP study shall assess the cumulative impact of water abstraction by the proposed and other projects in the basin on the sustainability and flow regime of the Dudhi River. |
| 5. | The PP shall undertake a detailed assessment to optimize and minimize the diversion of forest land required for various project components. |
| 6. | The PP will submit 10 years water availability data certified by the CWC/State Water Resource Department for quantity of water that is received annually by the small stream on which upper reservoir is proposed to be constructed. |
| 7. | The PP will submit a monitoring mechanism for releasing the self -catchment water of small stream draining in to upper reservoir of the project along with action plan for conservation and protection of other streams/rivulets draining in to upper and lower reservoirs. |
| 8. | Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE. |
| 9. | Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area. |
| 10. | Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site. |
| 11. | Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within proposed the Wildlife Sanctuary shall be included in the EIA report. |
| 12. | Environmental Cost Benefit Analysis shall be done in terms of loss of Forest ecosystem due |

| | |
|---|---|
| | to diversion of Forest land/loss of biodiversity, water availability, water uses for generation of hydro power and Ecological flows. |
| 13. | The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment. |
| 14. | Calculation and values of GHGs (CO2, CH4 etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted. |
| 15. | The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report. Presence of any critical mineral zone in the proposed area be clarified from GSI. |
| 16. | Quantitative impact modelling of environmental parameters shall be carried out for both the construction and operation phases. The corresponding mitigation measures for the identified impacts during each phase shall also be submitted. |
| 17. | Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied. |
| 18. | Action plan for survival or diversion of the rivulets/stream, if any, leading to join river shall be submitted. |
| 19. | Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons. |
| 20. | A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared. |
| 21. | Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP. |
| 22. | Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report. |
| 23. | Aquifers mapping shall be done through expert government institute in project catchment area and accordingly Aquifers Conservation Action Plan be submitted. |

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| 24. | Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted. The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC. |
| 25. | Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI. |
| **[E] Miscellaneous** | |
| 1. | Both capital and recurring expenditure under EMP shall be submitted. |
| 2. | Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted. |
| 3. | The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples. |
| 4. | Drone video of project site shall be recorded and to be submitted. |
| 5. | Undertaking need to be submitted on affidavit stating that no activities has been started on the project site after the abandonment of project by Water Resources Department (WRD), Government of Maharashtra. |
| 6. | Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project. |
| 7. | Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports. |
| 8. | As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before EAC without submission of application for forest clearance, wherever applicable. |
| 9. | The conditions mentioned in the Western Ghats notification (draft notification no. S.O.3060(E) dated 31.07.2024) for development of hydro-power projects issued by the MOEF&CC shall be complied with while preparing EIA/EMP report. |

**3.3.6.2. Standard**

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| 1(c) | **River Valley/Irrigation projects** |
| **Scope of EIA Study** | |

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| 1. | The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study. |
| **Details of the Project and Site** | |
| 1. | General introduction about the proposed project. |
| 2. | Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of Dam/Barrage into the main river. |
| 3. | A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location. |
| 4. | Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map. |
| 5. | Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity. |
| 6. | Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components. |
| 7. | Drainage pattern and map of the river catchment up to the proposed project site. |
| 8. | Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India. |
| 9. | Soil characteristics and map of the project area. |
| 10. | Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites. |
| 11. | Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area. |
| 12. | Land details including forests, private and other land. |
| 13. | Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability. |
| 14. | Different riverine habitats like rapids, pools, side pools and variations in the river substratum bedrocks, rocks, boulders, sand/silt or clay etc. need to be covered under the study |
| **Description of Environment and Baseline Data** | |

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| 1. | To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment and command area should be documented. The study area should comprise of the following: |
| 2. | (i) Catchment area up to the dam/barrage site. |
| 3. | (ii) Submergence Area. |
| 4. | (iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc. |
| 5. | (iv) Downstream upto 10 km from the tip of the reservoir. |
| **Details of the Methology** | |
| 1. | The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed. |
| **Methodology for Collection of Biodiversity Data** | |
| 1. | The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity). |
| 2. | The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number. |
| 3. | The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such |

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| | literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports. |
| 4. | The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN). |
| **Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as fo llows:** | |
| 1. | null |
| 2. | null |
| 3. | Physical geography, Topography, Regional Geological aspects and structure of the Catchment. |
| 4. | Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams. |
| 5. | Landslide zone or area prone to landslide existing in the study area should be examined. |
| 6. | Presence of important economic mineral deposit, if any. |
| 7. | Justification for location & execution of the project in relation to structural components (dam /barrage height). |
| 8. | Impact of project on geological environment. |
| 9. | null |
| 10. | Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station. |

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| 11. | Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO2) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations. |
| 12. | Existing Noise Levels and traffic density in the study area at 5-6 Locations. |
| 13. | null |
| 14. | Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area. |
| 15. | null |
| 16. | (i) Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared. |
| 17. | null |
| 18. | History of the ground water table fluctuation in the study area. |
| 19. | Water quality for both surface water and ground water for (i) Physical parameters (pH, temperature, electrical conductivity, TSS); (ii) Chemical parameters (Alkalinity, Hardness, BOD, COD, NO2, PO4, Cl, SO4, Na, K, Ca, Mg, Silica, Oil & Grease, phenolic compounds, residual sodium carbonate); (iii) Bacteriological parameter (MPN, Total coliform) and (iv) Heavy Metals (Pb, As, Hg, Cd, Cr-6, total Cr, Cu, Zn, Fe) (6 locations). |
| 20. | Delineation of sub and micro-watersheds, their locations and extent based on the All India Soil and Land Use Survey of India (AISLUS), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through silt yield index (SYI) method of AISLUS |
| 21. | Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring. |
| 22. | Run off, discharge, water availability for the project, sedimentation rate, etc. |
| 23. | Basin characteristics |
| 24. | Catastrophic events like cloud bursts and flash floods, if any, should be documented. |
| 25. | For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1. |
| 26. | Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation. |
| 27. | Flow series, 10 daily with 90%, 75% and 50% dependable years discharges. |
| 28. | Information on the 10-daily flow basis for the 90 per cent dependable year the flow intercepted at the |

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| | dam, the flow diverted to the power house and the spill comprising the environmental flow and additional flow towards downstream of the dam for the project may be given. |
| 29. | The minimum environmental flow shall be 20% of the flow of four consecutive lean months of 90% dependable year, 30% of the average monsoon flow. The flow for remaining months shall be in between 20-30%, depending on the site specific requirements. A site specific study shall be carried out by an expert organization. |
| 30. | Sedimentation data available with CWC may be used to find out the loss in storage over the years. |
| 31. | Hydrological studies/data as approved by CWC shall be utilized in the preparation of EIA/EMP report. Actual hydrological annual yield may also be given in the report. Sedimentation data available with CWC may be used to find out the loss in storage over the years. |
| 32. | A minimum of 1 km distance from the tip of the reservoir to the tail race tunnel should be maintained between upstream and downstream projects. |
| 33. | Besides primary studies, review of secondary data/literature published for project area on flora & fauna including RET species shall be reported in EIA/EMP report. |
| 34. | null |
| 35. | Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan. |
| 36. | Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups). |
| 37. | General vegetation profile and floral diversity covering all groups of flora including lichens and orchids. A species wise list may be provided. |
| 38. | Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index (IVI) , Shannon Weiner index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems. |
| 39. | Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed. |
| 40. | Economically important species like medicinal plants, timber, fuel wood etc. |
| 41. | Details of endemic species found in the project area. |
| 42. | Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along-with economic significance. Species diversity curve for RET species should be given. |
| 43. | Cropping pattern and Horticultural Practices in the study area. |
| 44. | null |
| 45. | Fauna study and inventorisation should be carried out for all groups of animals in the study area. Their |

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| | present status alongwith Schedule of the species. |
| 46. | Documentation of fauna plankton (phyto and zooplankton), periphyton, benthos and fish should be done and analysed. |
| 47. | Information (authenticated) on Avi-fauna and wildlife in the study area. |
| 48. | Status of avifauna their resident/ migratory/ passage migrants etc. |
| 49. | Documentation of butterflies, if any, found in the area. |
| 50. | Details of endemic species found in the project area. |
| 51. | RET species-voucher specimens should be collected along-with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972. |
| 52. | Existence of barriers and corridors, if any, for wild animals. |
| 53. | Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity. |
| 54. | Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components. |
| 55. | For categorization of sub-catchment into various erosion classes and for the consequent CAT plan, the entire catchment (Indian Portion) is to be considered and not only the directly the draining catchment. |
| 56. | Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantktons, benthos etc. |
| 57. | Fish and fisheries, their migration and breeding grounds. |
| 58. | Fish diversity composition and maximum length & weight of the measured populations to be studies for estimation of environmental flow. |
| 59. | Conservation status of aquatic fauna. |
| 60. | Sampling for aquatic ecology and fisheries and fisheries must be conducted during three seasons Pre-monsoon (summer), monsoon and winter. Sizes (length & weight) of important fish species need to be collected and breeding and feeding grounds should also be identified along the project site or in vicinity. |
| 61. | Collection of baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surroundings population. |
| 62. | Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent. |
| 63. | Collection of information on sensitive habitat of historical, cultural and religious and ecological importance. |

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| 64. | The socio-economic survey/ profile within 10 km of the study area for demographic profile; Economic Structure; Developmental Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc. |
| 65. | Documentation of demographic, Ethnographic, Economic Structure and development profile of the area. |
| 66. | Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc. |
| 67. | Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land. |
| 68. | List of all the Project Affected Families with their name, age, educational qualification, family size, sex, religion, caste, sources of income, land & house holdings, other properties, occupation, source of income, house/land to be acquired for the project and house/land left with the family, any other property, possession of cattle, type of house etc. |
| 69. | Special attention has to be given to vulnerable groups like women, aged persons etc. and to any ethnic/indigenous groups that are getting affected by the project. |
| **Impact Prediction and Mitigation Measures** | |
| 1. | The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described. |
| 2. | Changes in ambient and ground level concentrations due to total emissions from point, line and area sources. |
| 3. | Effect on soil, material, vegetation and human health. |
| 4. | Impact of emissions from DG set used for power during the construction, if any, on air environment. |
| 5. | Pollution due to fuel combustion in equipments and vehicles |
| 6. | Fugitive emissions from various sources |
| 7. | Changes in surface and ground water quality |
| 8. | Steps to develop pisci-culture and recreational facilities |
| 9. | Changes in hydraulic regime and downstream flow. |
| 10. | Water pollution due to disposal of sewage |
| 11. | Water pollution from labour colonies/ camps and washing equipment. |
| 12. | Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting for commissioning of HRT, TRT and some other structures. |
| 13. | Changes in land use / land cover and drainage pattern |

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| 14. | Immigration of labour population |
| 15. | Quarrying operation and muck disposal |
| 16. | Changes in land quality including effects of waste disposal |
| 17. | River bank and their stability |
| 18. | Impact due to submergence. |
| 19. | Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc. |
| 20. | Pressure on existing natural resources |
| 21. | Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors |
| 22. | Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt. |
| 23. | Impact on fish migration and habitat degradation due to decreased flow of water |
| 24. | Impact on breeding and nesting grounds of animals and fish. |
| 25. | Impact on local community including demographic profile. |
| 26. | Impact on socio-economic status |
| 27. | Impact on economic status. |
| 28. | Impact on human health due to water / vector borne disease |
| 29. | Impact on increase traffic |
| 30. | Impact on Holy Places and Tourism |
| 31. | Impacts of blasting activity during project construction which generally destabilize the land mass and leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period. |
| 32. | Positive and negative impacts likely to be accrued due to the project are listed. |
| **Environmental Management Plan** | |
| 1. | null |
| 2. | Biodiversity and Wildlife Conservation and Management Plan for the conservation and preservation of rare, endangered or endemic floral/faunal species or some National Park/Sanctuary/ Biosphere Reserve or other protected area is going to get affected directly or indirectly by construction of the project, then suitable conservation measures should be prepared in consultation with the State Forest Department and with the physical and financial details. Suitable conservation techniques (in-situ/ ex- |

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| | situ) will be proposed under the plan and the areas where such conservation is proposed will be marked on a project layout map. |
| 3. | Compensatory Afforestation shall be prepared by the State Forest Department in lieu of the forest land proposed to be diverted for construction of the project as per the Forest (Conservation) Act, 1980. Choice of plants for afforestation should include native and RET species, if any. This will be a part of the forest clearance proposal. |
| 4. | Fisheries Conservation and Management Plan - a specific fisheries management measures should be prepared for river and reservoir. If the construction of fish ladder/ fish-way etc. is not feasible then measures for reservoir fisheries will be proposed. The plan will detail out the number of hatcheries, nurseries, rearing ponds etc. proposed under the plan with proper drawings. If any migratory fish species is getting affected then the migratory routes, time/season of upstream and downstream migration, spawning grounds etc will be discussed in details. |
| 5. | Green Belt Development Plan along the periphery of the reservoir, approach roads around the colonies and other project components, local plant species must be suggested with physical and financial details. A layout map showing the proposed sites for developing the green belt should be prepared. |
| 6. | Environmental Monitoring Programme to monitor the mitigatory measures implemented at the project site is required will be prepared. Provision for Environment Management Cell should be made. The plan will spell out the aspects required to be monitored, monitoring indicators/parameters with respect to each aspect and the agency responsible for the monitoring of that particular aspect throughout the project implementation. |
| 7. | Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of free draining/ directly draining catchment based upon Remote Sensing and Geographical Information System (GIS) methodology and Sediment Yield Index (SYI) method of AISLUS, Deptt. of Agriculture, Govt. of India coupled with ground survey. Areas or watersheds falling under 'very severe' and 'severe' erosion categories should be provided and required to be treated. Both biological as well as engineering measures should be proposed in consultation with State Forest Department for areas requiring treatment. Year-wise schedule of work and monetary allocation should be provided. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included. |
| 8. | Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. Results of the site specific earthquake design parameters should be approved by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi. |
| 9. | Dam Break Analysis and Disaster Management Plan The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario. To identify inundation areas, population and structures likely to be affected due to catastrophic floods in the event of dam failure. DMP will be prepared with the help of Dam Break Analysis. Maximum water level that would be attained at various points on the downstream in case of dam break will be marked on a detailed contour map of the downstream area, to show the extent of inundation. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities. |
| 10. | Reservoir Rim Treatment Plan for stabilization of land slide / land slip zones, if any, around the reservoir periphery is to be prepared based on detailed survey of geology of the reservoir rim area. Suitable engineering and biological measures for treatment of identified slip zones to be suggested with physical and financial schedule. Layout map showing the landslide/landslip zones shall be prepared and appended in the chapter. |

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| 11. | Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately. Deatailed muck transportation plan delinating the path ways, number of trucks, quantity of muck to be transportated along with monitoring mechanism using latest technology, shall be prepared. |
| 12. | Restoration Plan for Quarry Sites and landscaping of colony areas, working areas, roads etc. Details of the coarse/fine aggregate/clay etc. required for construction of the project and the rock/clay quarries/river shoal sites identified for the project should be discussed along-with the Engineering and Biological measures proposed for their restoration with physical and financial details. Layout map showing quarry sites vis-à-vis other project components, should be prepared. |
| 13. | Resettlement and Rehabilitation Plan needed to be prepared on the basis of findings of the socio-economic survey coupled with the outcome of public consultation held. The R&R package shall be prepared after consultation with the representatives of the project affected families and the State Government. Detailed budgetary estimates are to be provided. Resettlements site should be identified. The plan will also incorporate community development strategies. |
| 14. | Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local populace. |
| 15. | Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Pancahayats. Appropriate schemes shall be prepared under EMP for the Local Area Development Plan with sufficient financial provisions. |
| 16. | Labour Management Plan for their Health and Safety. |
| 17. | Sanitation and Solid waste management plan for domestic waste from colonies and labour camps etc. |
| 18. | Energy Conservation Measures for the work force during construction with physical and financial details. Alternatives will be proposed for the labour force so that the exploitation of the natural resource (wood) for the domestic and commercial use is curbed. |
| 19. | Environmental safeguards during construction activities including Road Construction. |
| 20. | A summary of Cost Estimates for all the plans, cost for implementing all the Environmental Management Plans. |
| 21. | Water, Air and Noise Management Plans to be implemented during construction and post-construction periods. |

DAY 1 • 13/08/2026

AGENDA NUMBER

## EC/AGENDA/EAC/450267/8/2026

### Formation of Reservoir across Vallimalai Odai

by **Water Resource Depatment, Government of Tamil Nadu** located at **TIRUNELVELI, TAMIL NADU**

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| PROPOSAL FOR | Fresh ToR |
| PROPOSAL NUMBER | IA/TN/RIV/579943/2026 |
| FILE NUMBER | J-12011/26/2026-IA.I(R) |
| SUBMISSION DATE | 10/06/2026 |
| ACTIVITY / SUB-ACTIVITY (SCHEDULE ITEM) | River Valley/Irrigation projects<br>Irrigation Projects (1(c)) |

### 3.4. Agenda Item No 4:

### 3.4.1. Details of the proposal

| **Formation of Reservoir across Vallimalai Odai** by **Water Resource Depatment, Government of Tamil Nadu** located at **TIRUNELVELI,TAMIL NADU** | | | |
|---|---|---|---|
| **Proposal For** | | Fresh ToR | |
| **Proposal Number** | **File Number** | **Submission Date** | **Activity<br>Sub-Activity<br>(Schedule Item)** |
| IA/TN/RIV/579943/2026 | J-12011/26/2026-IA.I(R) | 10/06/2026 | River Valley/Irrigation projects<br>Irrigation Projects (1(c)) |

### 3.4.2. Project Salient Features

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

i. The proposal is for ToR to the project for Formation of reservoir across Vallimalai Odai near Therkku Veeravanallur Village of Cheranmahadevi Taluk in Tirunelveli District of Tamil Nadu by Water Resources Department (WRO), Government of Tamil Nadu

ii. Reason for appraisal at Central Level by Expert Appraisal Committee (EAC). The proposed project attracts the General Conditions as the project falls in the KMTR Protected area

iii. The geographical co-ordinate of the project are $8^0$ 37' 38.35" N, $77^0$ 29 '57.81" E

iv. Formation of reservoir across Vallimalai Odai for Irrigation of 2910 Ha Cultural Command Area in Tirunelveli District of Tamil Nadu

v. **Land requirement:**

| **Nature of Land involved** | **Area in Ha** |
|---|---|
| Non-Forest Land (A) | 263.155 |
| Forest Land (B) | - |
| **Total Land (A+B)** | **263.155** |

vi. **Demographic details in 10 km radius of project area:** The proposed project is located in Cheranmahadevi Taluka in Tirunelveli District. As per Census 2011, the total population in the study area is 1,97,753. The male and Female population in study area blocks comprises about 49.13% and 50.86% respectively of the total population

vii. **Water requirement:**
Water requirement during Construction phase is estimated as 9.45 KLD

viii. **Project Cost:** The estimated project cost is Rs.550 Crores**.**

ix. **Project Benefit:** The proposed project shall irrigate cultural Command of 2910 Ha. The implementation of proposed project will enhance the food production in the region and shall benefit the local population and Flood in the area.

x. **Environmental Sensitive Area:** The proposed project falls under Kallakkad Mundanthurai Tiger Reserve (KMTR).

xi. **Resettlement and rehabilitation:** To be prepared as part of EIA Study

xii. **Scheduled-I species:** To be determined as part of EIA study after approval of ToR

xiii. **Alternative Studies:** No.
xiv. **Details of Solid waste/ Hazardous waste generation/ Muck and its management:** Solid Waste – 4.75 TPA (Construction Phase) ; Management Plans to be prepared as part of EMP of EIA study after approval of ToR
xv. **Status of Litigation Pending against the proposal, if any**. No
xvi. **The salient features** of the project are enclosed as under:

**Project details**

| | |
|---|---|
| Name of the Proposal | Formation of reservoir across Vallimalai Odai near Therkku Veeravanallur Village of Cheranmahadevi Taluk in Tirunelveli District of Tamil Nadu |
| Location<br>(Including coordinates) | Village: Therkku Veeravanallur Village of Cheranmahadevi Taluk in Tirunelveli District of Tamil Nadu<br>**Coordinates:**<br>Latitude : $08^0$ 37' 38.35" N<br>Longitude : $77^0$ 29 '57.81" E |
| Inter- state issue involved | Nil |
| Seismic zone | III |

**Category details**

| | |
|---|---|
| Category of the project | Category A |
| Provisions | -- |
| Capacity / Cultural command area (CCA) | 2910 Ha |
| Attracts the General Conditions (Yes/No) | Yes |
| Additional information (if any) | -- |

**Electricity generation capacity**

| | |
|---|---|
| Powerhouse Installed Capacity | -- |
| Generation of Electricity Annually | -- |
| No. of Units | -- |
| Additional information (if any) | -- |

**ToR/ EC Details**

| | |
|---|---|
| Cost of project | Rs. 550 Crores |
| Total area of Project | 263.155 Ha |
| Height of Dam from River Bed (EL) | 18 m |
| Length of Tunnel/Channel | - |

| | |
|---|---|
| Details of Submergence area | 177 Ha |
| Types of Waste and quantity of generation during co nstruction/ Operation | Solid Waste – 4.75 TPA (Construction Phase) |
| E-Flows for the Project | As Applicable |
| Is Projects earlier studies in Cumulative Impact ass essment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then<br>a) E-flow with TOR/ Recommendation by EAC as p er CIA&CC study of River Basin.<br>b) If not the E-Flows maintain criteria for sustainin g river ecosystem. | No |
| No. of trees/ saplings proposed in view of 'Ek Ped M aa Ke Naam' campaign | Shall be proposed during EIA study |

**Muck Management Details**

| | |
|---|---|
| No. of proposed disposal area/(type of land-Forest/Pvt. land) | All the Muck generated shall be utilized for Bund f ormation of the Reservoir |
| Muck Management Plan | -- |
| Monitoring mechanism for Muck Disposal | -- |

**Land Area Breakup**

| | |
|---|---|
| Private land /Non-Forest Land | 211.738 Ha |
| Government land | 51.417 Ha |
| Forest Land | - |
| Total Land | 263.155 Ha |
| Submergence area/Reservoir area | 177.00 Ha |
| Additional information (if any) | -- |

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

| **Forest Land/ Protected Area/ Environmental Sensitivity Zone** | Yes/No | **Details of Certificate/ letter/Re marks** |
|---|---|---|
| Reserve Forest/Protected Forest Land | No | Kallakkad Mundanthurai Tiger Rese rve (KMTR) |
| National Park | No | |
| Wildlife Sanctuary | Yes | |

**Court case detail: Nil**

**Affidavit/Undertaking details:**

| | |
|---|---|
| Affidavit/Undertaking | NA |
| Additional information (if any) | - |

**Previous EC compliance and necessary approvals**

| **Particulars** | **Letter no. and date** |
|---|---|
| Certified EC compliance report (if applicable) | NA |
| Status of Stage-I FC | Yet to be submitted |
| Additional detail (If any) | - |
| Is FRA (2006) done for FC-I | No |

**Miscellaneous**

| **Particulars** | **Details** |
|---|---|
| Details of consultant | WAPCOS Limited |
| Project Benefits | · The implementation of proposed project wil l enhance the food production in the regi on and shall benefit the local population<br>· Mitigation of the Flood in the area |
| Status of other statutory clearances | Application for NBWL clearance has been sub mitted |
| R&R details | To be prepared as part of EIA Studies |
| Additional detail (If any) | - |

**3.4.3. Deliberations by the committee in previous meetings**

**Date of EAC 1 :**30/06/2026

**Deliberations of EAC 1 :**

The EAC noted that the PP has not attended the Meeting. Accordingly, the EAC decided to defer the proposal.

**3.4.4. Deliberations by the EAC in current meetings**

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

The EAC deliberated on the information submitted by the Project Proponent (PP), including Form-1, Pre-Feasibility Report, KML file and other relevant documents, along with the presentation made during the meeting. The PP informed that the proposal is for grant of Terms of Reference (ToR) for undertaking EIA/EMP

studies and conducting Public Hearing for the proposed formation of a reservoir across Vallimalai Odai near Therkku Veeravanallur Village, Cheranmahadevi Taluk, Tirunelveli District, Tamil Nadu, by the Water Resources Department (WRD), Government of Tamil Nadu.

The PP informed that the proposed project attracts the General Conditions under the EIA Notification, 2006, as amended, due to its location within the Kalakkad Mundanthurai Tiger Reserve (KMTR). Accordingly, the proposal falls under the appraisal jurisdiction of the Ministry and requires appraisal and review at the Central level by the EAC.

The PP informed that the Thamiraparani is the primary river basin in Tirunelveli District and that Vallimalai Odai is a minor tributary of the Koppuraiyar River, which is one of the three main tributaries of the Koraiyar River. The PP further informed that another major tributary of the Koppuraiyar flows adjacent to Vallimalai Odai and that the project proposes to divert the water of this tributary into the proposed reservoir. The primary objective of the scheme is to harvest and store seasonal flood flows during the monsoon, thereby facilitating conversion of single-crop agricultural lands into double-crop areas, conversion of drylands into wetlands, stabilization of existing irrigation systems and creation of additional ayacuts through systemic groundwater recharge of local wells.

The PP informed that 2,765 Mcft of water is utilized under the Tamiraparani-Karumeniyar-Nambiyar River Linking Scheme and that, even after implementation of all newly proposed schemes, a substantial surplus quantity of 7,860 Mcft would remain available downstream of the Srivaikundam Anicut.

The PP informed that a total of 263.155 ha of combined private and Government land is required for construction and formation of the proposed reservoir across Vallimalai Odai. The proposed reservoir is intended to provide irrigation infrastructure for a Culturable Command Area (CCA) of 2,910 ha in Tirunelveli District.

The PP informed that the proposed project is located within the buffer zone of Kalakkad Wildlife Sanctuary. The EAC observed that the applicable statutory notifications do not explicitly permit irrigation project activities within the designated buffer zone. Accordingly, the Committee emphasized that specific comments/clearance from the Chief Wildlife Warden shall be obtained to establish the permissibility of the project under the applicable environmental and wildlife protection provisions.

The PP further informed that the NBWL clearance proposal was submitted on 27.03.2026 and that the Deputy Director/Wildlife Warden, Kalakkad Sanctuary, along with his team, visited the project site on 07.08.2026. The EAC further observed that, since the project falls within the Kalakkad-Mundanthurai Tiger Reserve (KMTR), the requisite statutory approval/clearance from the National Tiger Conservation Authority (NTCA) shall also be obtained, as applicable.

The PP informed that the project involves inter-basin transfer of water between river systems. The EAC, therefore, emphasized that the EIA study shall include a comprehensive assessment of the environmental and hydrological impacts of the proposed water transfer on the Tamiraparani, Karumeniyar and Nambiyar river systems, with particular emphasis on long-term sustainability and ecological flow requirements of the affected river basins.

**3.4.5. Recommendation of EAC**

Recommended

### 3.4.6. Details of Terms of Reference

#### 3.4.6.1. Specific

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| **[D] Miscellaneous.** | |
| 1. | Pre-DPR Chapters viz. Hydrology, Layout Map Studies duly approved by CWC shall be submitted. |
| 2. | PP shall obtain clearance from the inter-State aspect from the designated authorities as per the procedure. |
| 3. | Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose. |
| 4. | Both capital and recurring expenditure under EMP shall be submitted. |
| 5. | The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyse the samples. |
| 6. | Arial view video of project site shall be recorded and to be submitted. |
| 7. | As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before. |
| **[C] Muck Management/Disaster Management:** | |
| 1. | The Project Proponent shall prepare and implement a Muck Disposal and Management Plan identifying designated muck disposal sites with adequate retaining and stabilization measures. |
| 2. | Transportation and disposal of muck shall be carried out only at the approved disposal locations, and the movement of muck-laden vehicles shall be monitored through GPS-enabled/geotagged tracking to ensure compliance. |
| 3. | The Project Proponent shall maintain digital records of muck generation, transportation, and disposal, including geotagged photographs and location details of the disposal sites, and shall submit the same as part of the six-monthly compliance reports to the Regional Office of the Ministry. |
| 4. | Details of Muck Management plan prepared along with estimated cost incorporated in EIA/EMP report. |

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|---|---|
| **[B] Socio-economic Study.** | |
| 1. | Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local population. |
| 2. | Declaration by the Project Proponent by way of affidavit that "No" Inter-state issue/ policy issue is involved with any State in the project. |
| 3. | All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/ EMP report in the relevant chapter. |
| 4. | Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F. No. 22- 65/2017- IA.III dated 30th September, 2020 shall be submitted. |
| 5. | Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared. |
| 6. | Details of settlement in 10 km area shall be submitted. |
| 7. | Techno-economic viability of the project must be recommended from CWC. |
| **[A] Environmental Management and Biodiversity Conservation:** | |
| 1. | The Project Proponent shall submit the Stage-I Forest Clearance proposal for diversion of 263.155 ha of forest land to MoEF&CC within the stipulated timeline. |
| 2. | A detailed assessment shall be undertaken to optimize and minimize the diversion of 263.155 ha of forest land required for various project components, and the findings shall be incorporated in the EIA/EMP report. |
| 3. | The EIA/EMP study shall include a comprehensive cumulative environmental impact assessment of the proposed project and other existing/proposed interventions to assess the long-term sustainability of the Tamiraparani, Karumeniyar and Nambiyar river systems, including their hydrological and ecological regimes. |
| 4. | The Project Proponent shall formulate and implement a site-specific Aquatic Ecology Management and Conservation Plan for protection of native fish species, macro-invertebrates and aquatic biodiversity from construction and operational impacts. |
| 5. | The Project Proponent shall obtain the requisite statutory clearance/permission from the National Tiger Conservation Authority (NTCA), as applicable, before commencement of any project activity within the Kalakkad-Mundanthurai Tiger Reserve (KMTR). |

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| 6. | The Project Proponent shall incorporate a suitably designed fish ladder/fish pass as an integral component of the barrage to maintain riverine ecological connectivity and facilitate upstream and downstream migration of native fish species. |
| 7. | The Project Proponent shall obtain and submit formal consent of the Government of Tamil Nadu for the construction and operational phases of the project, as applicable.Prepare Environmental Cost Benefit Analysis in terms of ecological damage due to diversion of Forest land/ loss of biodiversity and its impacts on ecosystem. |
| 8. | A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted and thermal stratification. Accordingly, Environment Management plan shall be prepared. |
| 9. | Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/EMP report. |
| 10. | Source of construction material and its distance from the project site along with detailed transportation plan for construction material be elaborated in the EIA EMP report. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report. |
| 11. | A detailed wildlife conservation plan for Schedule –I species, duly approved by the Chief Wildlife Warden, be submitted. |
| 12. | In case any wildlife corridor is located within 10 km radius of the project site a detailed study shall be conducted to assess the impact of project on safe movement of wild animals. |
| 13. | Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP. |
| 14. | Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area. |
| 15. | PP shall prepare detailed plan for Plantation of saplings under the tree plantation campaign "Ek Ped Ma Ke Naam. |

**3.4.6.2. Standard**

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|---|---|
| 1(c) | **River Valley/Irrigation projects** |
| **Scope of EIA Study** | |
| 1. | The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and Winter seasons), the status of the existing environment in the |

| | |
|---|---|
| | area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study. |
| **Details of the Project and Site** | |
| 1. | General introduction about the proposed project. |
| 2. | Details of Project and site giving L-Sections of all U/S and D/S Projects with all relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of Dam/Barrage into the main river. |
| 3. | A map of boundary of the project site giving details of protected areas in the vicinity of 25 km of project location. |
| 4. | Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz. location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map. |
| 5. | Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least 1:50,000 scale and printed at least on A3 scale for clarity. |
| 6. | Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components. |
| 7. | Drainage pattern and map of the river catchment up to the proposed project site. |
| 8. | Delineation of critically degraded areas in the directly draining catchment on the basis of Silt Yield Index as per the methodology of Soil and Land use Survey of India. |
| 9. | Soil characteristics and map of the project area. |
| 10. | Geological and Seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal sites. |
| 11. | Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color Composite (FCC) generated from satellite data of project area. |
| 12. | Land details including forests, private and other land. |
| 13. | Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability |
| **Description of Environment and Baseline Data** | |
| 1. | To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socioeconomic status etc. should be collected within 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline studies should be collected for 1 season (Preferably Monsoon season). Flora-Fauna in the catchment |

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|---|---|
| | and command area should be documented. The study area should comprise of the following: |
| 2. | (i) Catchment area up to the dam/barrage site. |
| 3. | (ii) Submergence Area. |
| 4. | (iii) Project area or the direct impact area should comprise of area within 10 km radius of the main project components like dam, canals etc. |
| 5. | (iv) Downstream upto 10 km from the tip of the reservoir. |
| **Details of the Methology** | |
| 1. | The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included. Study area should be demarcated properly on the appropriate scale map. Sampling sites should be depicted on map for each parameter with proper legends. For Forest Classification, Champion and Seth (1968) methodology should be followed. |
| **Methodology for Collection of Biodiversity Data** | |
| 1. | The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity). |
| 2. | The entire area should be divided in grids of 5kmX5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, dam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrates in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However, these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a decimal number (i.e. it has an integral and a fractional part) which should be rounded to the next whole number. |
| 3. | The conventional sampling is likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports.The conventional sampling is |

| | |
|---|---|
| | likely to miss the presence of rare, endangered and threatened (r.e.t.) species since they often occur in low densities and in case of faunal species are usually secretive in behaviour. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must be referred to, since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state can be referred to. Once a listing of possible r.e.t. species form the said area is developed, species specific methodologies should be adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need be, modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of r.e.t. species should be provided in the EIA reports. |
| 4. | The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1972 and those listed in the red data books (BSI, ZSI and IUCN). |
| **Components of the EIA Study: Various aspects to be studied and provided in the EIA/EMP report are as fo llows:** | |
| 1. | null |
| 2. | null |
| 3. | null |
| 4. | Physical geography, Topography, Regional Geological aspects and structure of the Catchment. |
| 5. | Tectonics, seismicity and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National Committee of Seismic Design Parameters, Central water Commission, New Delhi for large dams. |
| 6. | Landslide zone or area prone to landslide existing in the study area should be examined. |
| 7. | Presence of important economic mineral deposit, if any. |
| 8. | Justification for location & execution of the project in relation to structural components (dam /barrage height). |
| 9. | Impact of project on geological environment. |
| 10. | null |
| 11. | Meteorology (viz. Temperature, Relative humidity, wind speed/direction etc.) to be collected from nearest IMD station. |
| 12. | Ambient Air Quality with parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM) i.e. suspended particulate materials < 10 microns, Sulphur dioxide (SO2) and Oxides of Nitrogen (NOX) in the study area at 5-6 Locations. |

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|---|---|
| 13. | Existing Noise Levels and traffic density in the study area at 5-6 Locations. |
| 14. | null |
| 15. | Soil classification, physical parameters (viz., texture, Porosity, Bulk Density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) at @ one sample/ha of command area. |
| 16. | null |
| 17. | Generation of thematic maps viz, slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared. |
| 18. | New configuration map to be given in the EIA Report |
| 19. | null |
| 20. | History of the ground water table fluctuation in the study area. |
| 21. | Water Quality for both surface water and ground water for [i] Physical parameters (pH, Temperature, Electrical Conductivity, TSS); [ii] Chemical parameters (Alkalinity, Hardness, BOD, COD, NO3, PO4, Cl, So4, Na, K, Ca, Mg, Silica, Oil & grease, phenolic compounds, residual sodium carbonate);[iii] Bacteriological parameter (MPN, Total coliform); and [iv] Heavy Metals (Pb, As, Hg, Cd, Cr6,Total Cr, Cu, Zn, Fe) at minimum10 Locations, however, the sampling numbers should be increased depending on the command area. |
| 22. | Delineation of sub and micro watersheds, their locations and extent based on the Soil and Land Use Survey of India (SLUSOI), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through Silt Yield Index (SYI) method of SLUSOI. |
| 23. | Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring. |
| 24. | Run off, discharge, water availability for the project, sedimentation rate, etc. |
| 25. | Basin characteristics |
| 26. | Catastrophic events like cloud bursts and flash floods, if any, should be documented. |
| 27. | For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum one year. Actual silt flow rate to be expressed in ha-m km2 year-1. |
| 28. | Set up a G&D monitoring station and a few rain gauge stations in the catchment area for collecting data during the investigation. |
| 29. | Flow series, 10 daily with 90%, 75% and 50% dependable years discharges. |
| 30. | Environmental flow release should be 20% of the average of the 4 lean months of 90% dependable year during the lean season and 30% of Monsoon flow during monsoon season. For remaining months, the |

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| | flow shall be decided by the Committee based on the hydrology and available discharge. |
| 31. | A site specific study on minimum environment flow should be carried |
| 32. | null |
| 33. | null |
| 34. | Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan. |
| 35. | General vegetation profile and floral diversity covering all groups of flora including Bryophytes, Pteridophytes, Lichens and Orchids. A species wise list may be provided. |
| 36. | Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index [IVI], Shannon Weiner Index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrats, size of quadrats etc. to be reported within the study area in different ecosystems. |
| 37. | Existence of National Park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed. |
| 38. | Economically important species like medicinal plants, timber, fuel wood etc. |
| 39. | Details of endemic species found in the project area. |
| 40. | Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along with economic significance. Species diversity curve for RET species should be given. |
| 41. | Fauna study and inventorisation should be carried out for all groups of animals including reptiles and nocturnal animals in the study area. Their present status along with Schedule of the species. |
| 42. | Information (authenticated) on Avi-fauna and wild life in the study area. |
| 43. | Status of avifauna their resident/migratory/ passage migrants etc. |
| 44. | Documentation of butterflies, if any, found in the area. |
| 45. | Details of endemic species found in the project area. |
| 46. | RET species- voucher specimens should be collected along with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972. |
| 47. | Existence of barriers and corridors, if any, for wild animals. |
| 48. | Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity. |
| 49. | For categorization of sub-catchments into various erosion classes and for the consequent CAT plan, the |

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| | entire catchment (Indian Portion) is to be considered and not only the directly the draining catc |
| 50. | Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplanktons, benthos etc. |
| 51. | Fish and fisheries, their migration and breeding grounds. |
| 52. | Fish diversity, composition and maximum length & weight of the measured populations to be studied for estimation of environmental flow. |
| 53. | Conservation status of aquatic fauna. |
| 54. | Cropping pattern and Horticultural practices in the study area. |
| 55. | Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities component. |
| 56. | Component of pressurized/drip irrigation and micro irrigation. |
| 57. | Details of Conjunctive use of water for irrigation |
| 58. | Collection of Baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety and security of workers and surrounding population. |
| 59. | Collection of information with respect to social awareness about the developmental activity in the area and social welfare measures existing and proposed by project proponent. |
| 60. | Collection of information on sensitive habitat of historical, cultural and religious and ecological importance. |
| 61. | The Socio-economic survey/profile within 10 Km of the study area for Demographic profile; Economic Structure; Development Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc. |
| 62. | Documentation of Demographic, Ethnographic, Economic structure and development profile of the area |
| 63. | Information on Agricultural practices, Cultural and aesthetic sites, Infrastructure facilities etc |
| 64. | Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land. |
| 65. | List of all the Project Affected Families with their names, education, land holdings, other properties, occupation, source of income, land and other properties to be acquired, etc. |
| 66. | In addition to Socio-economic aspects of the study area, a separate chapter on socio-cultural aspects based upon study on Ethnography of the area should be provided. |
| **Impact Prediction and Mitigation Measures** | |
| 1. | The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described. |

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| 2. | Changes in ambient and ground level concentrations due to total emissions from point, line and area sources |
| 3. | Effect on soils, material, vegetation and human health |
| 4. | Impact of emissions from DG sets used for power during the construction, if any, on air environment. |
| 5. | Pollution due to fuel combustions in equipments & vehicles |
| 6. | Fugitive emissions from various sources. |
| 7. | Impact on micro climate |
| 8. | Changes in surface & ground water quality. Steps to develop pisci-culture and recreational facilities. |
| 9. | Changes in hydraulic regime and down stream flow. |
| 10. | Water pollution due to disposal of sewage. |
| 11. | Water pollution from labour colony/camps and washing equipment. |
| 12. | Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) [a] due to considerable road construction/widening activity [b] interference of reservoir with the inflowing streams [c] blasting for excavation of canals and some other structures |
| 13. | Changes in land use/land cover and drainage pattern. |
| 14. | Immigration of labour population. |
| 15. | Quarrying operation and muck disposal. |
| 16. | Changes in land quality including effects of waste disposal |
| 17. | River bank and their stability |
| 18. | Impact due to submergence |
| 19. | Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc. |
| 20. | Pressure on existing natural resources |
| 21. | Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors |
| 22. | Compensatory afforestation-Identification of suitable native tree species for compensatory afforestation & green belt. |
| 23. | Impact on fish migration and habitat degradation due to decreased flow of water |
| 24. | Impact on breeding and nesting grounds of animal |

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| 25. | Impact on local community including demographic profile. |
| 26. | Impact on socio-economic status. |
| 27. | Impact on economic status. |
| 28. | Impact on human health due to water / vector borne disease. |
| 29. | Impact on increases traffic. |
| 30. | Impact on Holy Places and Tourism. |
| 31. | Impacts of blasting activity during project construction which generally destabilize the land mass and lead to landslides, damage to properties and drying up of natural springs and cause noise pollution, will be studied. Proper record shall be maintained of the base line information in the post project period. |
| 32. | Positive as well as negative impacts likely to be accrued due to the project are to be listed. |
| **Environment Impact Analysis** | |
| 1. | Environmental Impact Analysis due to the project on the above mentioned components should be carried out for construction and operation phases using qualitative or quantitative methods. |
| **Environmental Management Plan** | |
| 1. | Environmental Management Plan aimed at minimizing the negative impacts of the project should be given in detail. The mitigation measures are to be presented for all the likely adverse impacts on the environment. The following suggestive mitigating plans should be included |
| 2. | Biodiversity and Wild Life Conservation & Management Plan for conservation and preservation of endemic, rare and endangered species of flora and fauna to be prepared in consultation with State Forest Department. |
| 3. | Compensatory Afforestation in lieu of the forest land required for the project needs to be proposed.Choice of plants should be made in consultation with State Forest Department including native and RET species, if any. |
| 4. | Fisheries Conservation & Management Plan-Fish fauna inhabiting the affected stretch of river, a specific fisheries management plan should be prepared for river and reservoir. |
| 5. | Plan for Green Belt Development along the periphery of reservoir, colonies, approach road, canals etc. to be prepared in consultation with the State Forest Department. Local plant species suitable for greenbelt development should be selected. |
| 6. | Environmental Monitoring Programme with physical & financial details covering all the aspects of EMP. A summary of cost estimate for all the plans, cost for implementing all Environmental Management Plans including the cost for implementing environmental monitoring programme should be given. Provision for an Environmental Management Cell should be made. |
| 7. | Catchment Area Treatment (CAT) Plan should be prepared micro-watershed wise. Identification of area for treatment based upon Remote Sensing & GIS methodology and Silt Yield Index (SYI) method of SLUSOI coupled with ground survey. Areas/watersheds falling under 'very severe' and `severe' erosion |

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| | categories are required to be treated. Both biological and engineering measures should be proposed in consultation with State Forest Department. Year-wise schedule of work and monetary allocation should be provided. CAT plan is to be completed prior to reservoir impoundment. Mitigations measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be include. |
| 8. | Study of Design Earthquake Parameters: A site specific study of earthquake parameters should be done. The results of the site specific earth quake design parameters should be approval by National Committee of Seismic Design Parameters, Central Water Commission (NCSDP), New Delhi. |
| 9. | Dam Break Analysis and Disaster Management Plan: The outputs of Dam Break Model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam break scenario. Provision for early warning systems should be provided. |
| 10. | Reservoir Rim Treatment Plan for stabilization of land slide/land slip zones if any, around the reservoir periphery to be prepared. Suitable engineering and biological measures for treatment of the identified slip zones to be provided with physical and financial schedule. |
| 11. | Muck Disposal Plan- suitable sites for dumping of excavated material should be identified in consultation with the State Pollution Control Board and Forest Department. All Muck disposal sites should be minimum 30 m away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L- section/ cross section of muck disposal sites and approach roads to be given. Financial out lay for this may be given separately. Deatailed muck transportation plan delinating the path ways, number of trucks, quantity of muck to be transportated along with monitoring mechanism using latest technology, shall be prepared. |
| 12. | Plan for Restoration of quarry sites and landscaping of colony areas, working areas, roads, etc. |
| 13. | Command Area Development (CAD) Plan giving details of implementation schedule with a sample CAD plan. |
| 14. | In the EMP, also include a sample CAD plan for a distributary outlet command. Such a plan is to show the alignment of irrigation and drainage channels. The components of the OFD works to be undertaken may be clearly mentioned along with a time schedule for their completion vis-à-vis the progress of irrigation development. |
| 15. | Mitigating measures for impacts due to Blasting on the structures in the vicinity. |
| 16. | Resettlement and Rehabilitation (R&R) Plan need to be prepared with due consultation with Project Affected Families (PAFs). The provision of the d R&R plan should be according to the National Resettlement and Rehabilitation Policy (NRRP-2007) as well as State Resettlement and Rehabilitation Policy. Detailed budgetary estimates are to be provided. Resettlements sites should be identified. |
| 17. | Public Health Delivery Plan including the provisions for drinking water facility for the local community. |
| 18. | Local Area Development Plan to be formulated in consultation with the Revenue Officials and Village Panchayats. Local skill development schemes should be given. Details of various activities to be undertaken along with its financial out lay should be provided. |
| 19. | Labour Management Plan for their Health and Safety. |
| 20. | Sanitation and Solid Waste Management Plan for domestic waste from colonies and labour camps etc. |

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| 21. | Plan for Land Restoration and Landscaping of project sites. |
| 22. | Energy Conservation Measures. |
| 23. | Environmental safeguards during construction activities including Road Construction. |
| 24. | Ground Water Management Plan. |
| 25. | Water and Air Quality & Noise Management Plans to be implemented during construction and post-construction periods. |

**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 | Absent |
| 3 | Shri Kartik Sapre | Member (EAC) | kar********@gmail.com | |
| 4 | Shri Ajay Kumar Lal | Member (EAC) | akl****@gmail.com | |
| 5 | Shri Sharvan Kumar | Member (EAC) | krs******@nic.in | Shri Rakesh Goyal from CEA attended the meeting. |
| 6 | Shri Alok Paul Kalsi | Member (EAC) | emo***@nic.in | Shri Balram Kumar from CWC attended the meeting. |
| 7 | Dr A K Sahoo | Member (EAC) | ami***@gmail.com | |
| 8 | Dr Uday Kumar R Y | Member (EAC) | uda********@yahoo.com | |
| 9 | Shri Sharvan Kumar | Member (EAC) | Dir****@gmail.com | Shri Rakesh Goyal from CEA attended the meeting. |
| 10 | Dr J A Johnson | Member (EAC) | jaj@wii.gov.in | |
| 11 | Dr Mukesh Sharma | Member (EAC) | muk***@iitk.ac.in | Resigned from EAC |
| 12 | Yogendra Pal Singh | Scientist - F | yog*******@nic.in | |

**MINUTES OF THE 60TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 13th AUGUST 2026 THROUGH VIDEO CONFERENCE**

The 60th 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 **13th August 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 59th EAC meeting:**

The Minutes of the Meeting held on 59th EAC meeting on 30 July 2026 confirmed.

**Agenda Item No. 60.1**

**Attunli Hydroelectric Project (680 MW) in District Dibang Valley, Arunachal Pradesh by M/s Satluj Jal Vidyut Nigam Limited (SJVN) Limited – Environment Clearance (EC) - reg.**

**[Proposal No. IA/AR/RIV/582227/2026; F. No. J-12011/61/2006-IA.I (R)]**

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

i. The proposal is for seeking Environmental Clearance to the proposed project for Attunli Hydroelectric Project (680 MW) located in District Dibang Valley, Arunachal Pradesh by M/s Satluj Jal Vidyut Nigam Limited (SJVN) Limited.

ii. The project proposal was considered by the Expert Appraisal Committee (Hydro River Valley Sector) in its 7th meeting held on 09.02.2024 and recommended for grant of Terms of Reference (ToRs) for the project. The ToR was issued by Ministry vide letter No. J-12011/61/2006-IA.I (R) dated 05.03.2024.

iii. The project is listed at S. No. **1 (c)** of the Schedule to the Environment Impact Assessment (EIA) Notification, 2006 under Category 'A' and is appraised at Central Level by Expert Appraisal Committee (EAC).

iv. The geographical co-ordinate of the project are Dam site on the river Tangon (Talo) Limb: 28°40'01" N, 96°07'01" E; Powerhouse: 28°39'48" N, 96°01'55" E.

v. **Project description**: The Attunli Hydroelectric Project (680 MW) envisages construction of:

- A 85.0 m high (from Deepest Foundation Level) concrete gravity dam across the River Tangon (Talo) to provide a Live Storage of 2.76 MCM with FRL at El. 1360.0 m and MDDL at El. 1349.0 m
- A 7.955 km long and 9.4 m dia. head race tunnel terminating in a surge shaft
- A 93.0 m high, 21.0 m dia. surge shaft
- Two pressure shafts of length 318.0 m each and 5.2 m dia.
- An underground powerhouse having an installation of 4 Francis Turbine

driven generating units of 170 MW each operating under a rated head of 267.13 m; and

- A D-shaped, 570 m long, 10 m wide and height varying from 9.5 m to 17.5 m tailrace tunnel with normal tail water level at an elevation of 1073.70 m to release water back to the river.

vi. **Land requirement:** 261.53 ha of Forest Land.

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

The study area comprises 18 villages, all located within the Etalin Circle of Dibang Valley district, Arunachal Pradesh. As per Mission Antyodaya (2020), the total population of the study area is 541, residing in 116 households with an average family size of 4–5 members. Females constitute 55.27% of the population, resulting in a favourable sex ratio of 1,235 females per 1,000 males. Children (0–6 years) account for 15.43% of the total population. Scheduled Tribes constitute 81.03% of the population, while there is no Scheduled Caste population in the study area. The majority of the inhabitants belong to the Idu Mishmi community. The overall literacy rate is 48.01%, with only a marginal gender difference in literacy levels. The workforce participation rate is 40.07% of the total population, with males accounting for 56.19% of workers and females for 43.81%. About 51.33% of the workers are main workers, while 48.67% are engaged as marginal workers, indicating a considerable dependence on seasonal employment. Agriculture remains an important livelihood, with cultivators constituting 31.86% of the workforce. However, the majority of workers (65.04%) are engaged in non-agricultural occupations such as government services, trade, transport, construction, and other service-related activities.

viii. **Water requirement:** Total requirement is 278.8 $m^3/s$.

ix. **Project Cost:** The estimated project cost is Rs. 7505.24 Crores (Case-1 i.e. without SGST reimbursement) and Rs. 7096.27 Crores (Case-2 i.e. with SGST reimbursement) at completion level. Total capital cost earmarked towards Environment Management Plan/environmental pollution control measures is **Rs. 17315.00 lakh** and the Recurring cost (operation and maintenance) will be about **Rs. 902.00 lakh**

x. **Project Benefit:** Total 4050 persons will be engaged during construction phase. The project proposes to allocate Rs. 1000.00 Lakh towards CER (as per Ministry's OM dated 30th Sep 2020).

xi. **Environmental Sensitive area:** Dibang Wildlife Sanctuary and Dihang-Dibang Biosphere Reserve are within 10 km distance from the project site. River is flowing at a distance of 0 m in western direction.

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 7 villages shall be affected due to acquisition of land for various components of proposed project. Total 92 Project Affected Families (PAFs) and 366 Project Affected Persons (PAPs) have been identified, out of which 37 PAFs have been identified as coming under Involuntary Displacement due to loss of their houses. A budgetary provision of Rs. 2432.00 lakh has been kept towards implementation of R&R plan.

xiv. **Scheduled – I species:** As per Wildlife Protection Amendment Act, 2022, 27 mammals (Himalayan Serow, Himalayan Goral, Sambar, Gongshan muntjac, Red Panda, Indian fox, Jackal, Wild Dog, Asiatic golden cat, Leopard, Leopard cat, Jungle Cat, Fishing Cat, Indian Mongoose, Small Indian Mongoose, Smooth Coated Otter, Yellow-throated Marten, Asiatic black Bear, Large Indian Civet, Small Indian Civet, Himalayan palm civet, Chinese pangolin, Indian pangolin, Assam Macaque, Brush-tailed porcupine, Indian Crested Porcupine and Black Giant Squirrel); 1 bird (Great Hornbill); and 2 herpetofauna (Rat Snake and King Cobra) species are listed as Schedule I species.

xv. **Alternative Studies:**

The project scheme proposed has been arrived at through a detailed field and desk assessment of several alternative layouts, including the one proposed by NHPC in the PFR. Three different locations for diversion dam upstream and downstream of Apanli village within a stretch of about 2.5 km were studied before finalizing the proposed location based on a techno-economic evaluation. The powerhouse location was selected considering 1 km free flowing river stretch upstream of the tip of reservoir of the downstream project as well as topographic and geological features.

Based on the study of merits and demerits, Alternative-II site is found suitable as optimized diversion site for the project. Alternative II diversion site envisages a 85 m high dam (from deepest bed rock level) located about 130 m downstream of the Kachi nallah confluence with Tangon (Talo) river. The river bed level at this location is El. 1289.0 m.

xvi. **Baseline Environmental Scenario:**

| **Period** | **From March 2024 to February 2025** | | | | | |
|---|---|---|---|---|---|---|
| **AAQ parameters at 06 locations (Min. & Max.)** | **Core Zone** | | | | | |
| | **Parameter** | **Unit** | **Min** | **Max** | **Mean Value** | **Stand** |
| | $PM_{2.5}$ | $\mu g/m^3$ | 6.20 | 19.00 | 12.60 | 6( |
| | $PM_{10}$ | $\mu g/m^3$ | 16.80 | 50.50 | 33.65 | 10 |
| | $SO_2$ | $\mu g/m^3$ | 4.70 | 8.10 | 6.40 | 8( |
| | $NO_2$ | $\mu g/m^3$ | 5.20 | 15.10 | 10.15 | 8( |

**Buffer Zone**

| Parameter | Unit | Min | Max | Mean Value | Standa |
|---|---|---|---|---|---|
| PM 2.5 | µg/m$^3$ | 6.80 | 17.0 | 11.90 | 60 |
| PM 10 | µg/m$^3$ | 16.70 | 50.50 | 33.60 | 100 |
| $SO_2$ | µg/m$^3$ | 5.10 | 6.10 | 5.60 | 80 |
| $NO_2$ | µg/m$^3$ | 6.20 | 11.90 | 9.05 | 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] | Standa |
|---|---|---|---|---|---|
| $PM_{10}$ | µg/m$^3$ | 50.50 | 30.3 | 80.8 | 100 |
| $PM_{2.5}$ | µg/m$^3$ | 17 | 10.2 | 27.2 | 60 |
| $SO_2$ | µg/m$^3$ | 6.10 | 9.15 | 15.25 | 80 |
| $NO_2$ | µg/m$^3$ | 8.30 | 12.45 | 20.75 | 80 |

**Buffer Zone**

| Criteria Pollutant | Unit | Baseline Concentration [A] | Predicted incremental value considering worst case stability class [B] | Total GLC [A]+[B] | Standa |
|---|---|---|---|---|---|
| $PM_{10}$ | µg/m$^3$ | 50.50 | 0 | 50.50 | 100 |
| $PM_{2.5}$ | µg/m$^3$ | 19.00 | 0 | 19.00 | 60 |
| $SO_2$ | µg/m$^3$ | 8.10 | 0 | 8.10 | 80 |
| $NO_2$ | µg/m$^3$ | 15.10 | 0 | 15.10 | 80 |

**River water samples (06 samples)**

**Core Zone**

| S. No. | Parameters | Min | Max | Standards | Class |
|---|---|---|---|---|---|
| 1 | pH | 6.03 | 8.17 | 8.5 | A |
| 2 | Total Dissolved Solids, mg/L | 17 | 46 | 0 | NA |
| 3 | Dissolved Oxygen (mg/l) | 8.5 | 11.5 | 6 | A |
| 4 | Chloride (as Cl), mg/L | 9.1 | 15.2 | 0 | NA |
| 5 | Total Hardness (as CaCO3), mg/L | 58.7 | 73.5 | 0 | NA |
| 6 | Biological Oxygen Demand (mg/l) | 0 | 0 | 2 | A |
| 7 | Chemical Oxygen Demand (mg/l) | 0 | 0 | 0 | NA |

| | | | | | |
|---|---|---|---|---|---|
| 8 | Total Coliform (MPN/100 ml) | 0 | 0 | 50 | A |

**Buffer Zone**

| S. No. | Parameters | Min | Max | Standards | Class |
|---|---|---|---|---|---|
| 1 | pH | 6.72 | 7.9 | 8.5 | A |
| 2 | Total Dissolved Solids, mg/L | 17 | 31 | 0 | NA |
| 3 | Dissolved Oxygen (mg/l) | 8.7 | 10.7 | 6 | A |
| 4 | Chloride (as Cl), mg/L | 9.4 | 14.3 | 0 | NA |
| 5 | Total Hardness (as CaCO3), mg/L | 64.4 | 73.5 | 0 | NA |
| 6 | Biological Oxygen Demand (mg/l) | 0 | 0 | 2 | A |
| 7 | Chemical Oxygen Demand (mg/l) | 0 | 0 | 0 | NA |
| 8 | Total Coliform (MPN/100 ml) | 0 | 0 | 50 | A |

**Pond water samples quality at -- locations**

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**Ground Water samples at 06 locations**

**Core Zone**

| S. No. | Parameters | Min | Max | Desired Limits | Permissible Limits |
|---|---|---|---|---|---|
| 1 | pH | 7.64 | 8.3 | 6.5 | 8.5 |
| 2 | Total Dissolved Solids, mg/L | 42 | 156 | 500 | 2000 |
| 3 | Chloride (as Cl), mg/L | 34.1 | 39.62 | 250 | 1000 |
| 4 | Total Hardness (as CaCO3), mg/L | 141.03 | 176.86 | 200 | 600 |
| 5 | Fluoride (as F), mg/L | 0.09 | 0.12 | 1.0 | 1.5 |

**Buffer Zone**

| S. No. | Parameters | Min | Max | Desired Limits | Permissible Limits |
|---|---|---|---|---|---|
| 1 | pH | 7.2 | 8.19 | 6.5 | 8.5 |
| 2 | Total Dissolved Solids, mg/L | 35 | 256 | 500 | 2000 |
| 3 | Chloride (as Cl), mg/L | 35.7 | 40.22 | 250 | 1000 |
| 4 | Total Hardness (as CaCO3), mg/L | 154.93 | 183.28 | 200 | 600 |
| 5 | Fluoride (as F), mg/L | 0.09 | 0.14 | 1.0 | 1.5 |

**Noise levels Leq (Day & Night) at 07 locations**

| Zone | Category | Leq Day dB(A) | | Leq Night dB(A) | | Prescribed Limits | |
|---|---|---|---|---|---|---|---|
| | | From | To | From | To | Day | Night |
| Core | Residential | 52.1 | 54.2 | 37 | 42.1 | 55 | 45 |
| Buffer | Residential | 49.2 | 56.3 | 31.4 | 43.9 | 55 | 45 |

**Soil Quality at 07 Locations**

**Core Zone**

| S. No. | Parameters | Min | Max | Prescribed Limits |
|---|---|---|---|---|
| 1 | Calcium (mg/kg) | 216 | 312 | 500 |
| 2 | Magnesium (mg/kg) | 96 | 117 | 500 |
| 3 | Nitrogen (kg/ha) | 360 | 450 | 500 |
| 4 | Phosphorus (kg/ha) | 12.8 | 16.8 | 50 |
| 5 | Potassium (kg/ha) | 85.4 | 99.2 | 500 |
| 6 | Carbon (%) | 0.96 | 1.5 | 1 |
| 7 | Sodium Absorption Ratio | 2.4 | 4.1 | 10 |
| 8 | Salinity (ppt) | 0 | 0 | 0 |

**Buffer Zone**

| S. No. | Parameters | Min | Max | Prescribed Limits |
|---|---|---|---|---|
| 1 | Calcium (mg/kg) | 245 | 318 | 500 |
| 2 | Magnesium (mg/kg) | 85 | 113 | 500 |
| 3 | Nitrogen (kg/ha) | 310 | 397 | 500 |
| 4 | Phosphorus (kg/ha) | 14.3 | 16.8 | 50 |
| 5 | Potassium (kg/ha) | 70.5 | 96.5 | 500 |
| 6 | Carbon (%) | 0.92 | 1.3 | 1 |
| 7 | Sodium Absorption Ratio | 2.1 | 2.93 | 10 |
| 8 | Salinity (ppt) | 0 | 0 | 0 |

**Flora & Fauna**

**Schedule-I species observed in the study area:**

As per Wildlife Protection Amendment Act, 2022, 27 mammals (Himalayan Serow, Himalayan Goral, Sambar, Gongshan muntjac, Red Panda, Indian fox, Jackal, Wild Dog, Asiatic golden cat, Leopard, Leopard cat, Jungle Cat, Fishing Cat, Indian Mongoose, Small Indian Mongoose, Smooth Coated Otter, Yellow-throated Marten, Asiatic black Bear, Large Indian Civet, Small Indian Civet, Himalayan palm civet, Chinese pangolin, Indian pangolin, Assam Macaque, Brush-tailed porcupine, Indian Crested Porcupine and Black Giant Squirrel); 1 bird (Great Hornbill); and 2 herpetofauna (Rat Snake and King Cobra) species are listed as Schedule I species.

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

- 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.
- 9 muck disposal yards has been identified with a total area of 80.84 ha and capacity has been worked as 50.20 lakh cum which is more than the total quantity of muck to be disposed i.e. 45.27 lakh cum. All the sites 30m away from HFL.

xviii. **Public Hearing** for the proposed project has been conducted by the State Pollution Control Committee on 01.04.2026 at Government Middle School, Athunli village in Dibang Valley District. The main issues raised and replies by the user agency during the public hearing are as under:

**Suggestions/ Comments Given by Stakeholders**

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| 1 | Shri Nadim Lombo, Apanli Village, Chairman, Etalin Hydroelectric Project Affected People (EHEPAP)<br>• We welcome the Project and our seniors also accepted the project earlier<br>• We understand the degree of advantages from the establishment and operation of this project<br>• We look for an opportunity from this project, like unemployment issues, road and other necessary issues will be resolved<br>• We also know that the Talo river is in V-Shape pattern and it is very difficult for us to do agriculture and horticulture activities<br>• It is requested to project proponent to provide employment to the project affected people. | SJVN Ltd. is fully committed to comply with all the applicable acts, rules, regulations, and guidelines issued by both the Central and State Governments for development of hydropower projects, as well as the provisions outlined in the MoU signed with the State Government on 12.08.2023.<br><br>All mitigation measures proposed in the EIA/EMP report will be implemented during both the construction and operation phases of the project.<br><br>Suitable provisions have been incorporated in the EMP under CER, with focus areas including education, healthcare, skill development, infrastructure, livelihood enhancement, and sports. These initiatives will be |
| 2 | • Shri Keprunda Mena, Legal Advisor for Attunli Project Affected Peoples Committee (Submitted Memorandum attached in-I)<br>• Mandatory Job Reservation for Project Affected Families in the categories as prescribed in the Memorandum of Agreement signed on 12th August 2023 between the Government of Arunachal Pradesh and the SJVN Limited, which are as follows: | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | a) Managerial/Professional post (Group A & B) = 25%<br>b) Ministerial/Clerical post (Group C & D post) = 50%<br>c) Skilled Jobs = 25%<br>d) Unskilled Jobs = 75%<br>• As mentioned in the Article 6.9 of the MOA, the project affected eligible candidates shall be given preference over others against the above-mentioned reservation in various categories of posts. Further, the recruitment drive of the same shall be held within the state (preferably within the district) as mentioned in the Article 6.2 of the MOA.<br>• The State Government and the Corporation (SJVN) shall ensure allocation of Local Area Development Fund (LADF) as per the Hydro Power Policy, 2008. The funds shall be provided as per the Clause 9.14 of the Hydro Power Policy, 2008 or as per the Article 14 Sub-Clause (1) of the Memorandum of Agreement signed Between Government of Arunachal Pradesh and SJVN.<br>• The Local Area Development Fund (LADF) shall be allocated 100% (one hundred percent) to the Project Affected Area (PAA) as per Clause 5 of Sub-Clause (1) of "Local Area Development Fund Guidelines for Hydro Electric Projects in Arunachal Pradesh 2022" notified vide Government of Arunachal Pradesh Notification bearing no. SHPD/E-74/2019/2789-97 dated 15.06.2022 and shall be utilised strictly for development works within the project affected villages.<br>• That the two representatives of the APAPC/PAFs i.e. the then incumbent Chairman and General Secretary, shall be mandatorily included in the Local Area Development Committee as its members as and when the Committee is constituted for the implementation of LADF.<br>• The Permanent Office Colony of SJVN has not been set up in the project affected area till now. It is therefore demanded that the permanent Colony of SJVN shall be set up at the designated Project affected area/site before the initiation of construction of the project. | finalized in consultation with the local public and district administration to ensure meaningful improvement in the project area.<br><br>Mobile Medical Van, equipped with basic diagnostic facilities and staffed by an MBBS doctor, is providing free doorstep healthcare services across all project-affected areas since April 2025 under SJVN's CSR initiative. Additional CSR measures will be implemented in the project area in line with the Corporation's CSR policy and status of project development.<br><br>It was further clarified that setting up of Office at project site shall be done in due course of time considering requirement for the project. It was further clarified that representations received from public that are falling within the purview of project work, including corrections suggested in the names of rivers and nallahs, will be duly incorporated into the EIA/EMP reports and addressed in accordance with applicable Acts, rules, regulations, and guidelines. |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | • That before initiation of construction, boundary of the earmarked/acquired land of the project proponent and village or community land should be clearly demarcated so as to avoid land dispute and conflicts in between project proponent and PAFs in future.<br>• Indemnification for loss of Life and property: That the Government of Arunachal Pradesh and SJVN must assume full responsibility for any losses- including human lives, livestock's, agricultural land, infrastructure or homes- caused by Attunli HEP construction, operation or failure as agreed in MoA.<br>• APAPC demands for allocation of contract work up to 5 (five) crores on non-tender basis to the Project Affected Families (PAFS).<br>• Strict adherence to formalities with regards to issue of Inner Line Permit (ILP) to large number of labourers who will be hired by the project developer and contractors during construction period of Athunli Hydro Electric Project (680 MW). Hence, the Project Proponent i.e. SJVN and especially the District Administration is hereby requested to maintain strict procedure for issue of ILP to hired labourers for the security, safety and safeguard of the PAFs and the region.<br>• That, if the project proponent requires additional land for the purpose of construction activities of the dam, the project proponent shall acquire the land as per provisions of LARR Act, 2013.<br>• The Government and the SJVN shall design and implement livelihood restoration and enhancement programs for the PAFS whose traditional agriculture, fishing and river-based economies may be disrupted by the project. These programs should include skill development, micro-finance support and access to alternative employment opportunities linked to local resources as prescribed in the Environment Management Plan of the Draft EIA Report.<br>• The periodic review of Memorandum of Agreement (MoA) and performance-based compliance should be reviewed at every Five (5) years. A joint compliance Review | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | Committee comprising State Govt., SJVN and representative of APAPC/PAFs must be constituted to ensure that all MoA terms are adhered to.<br>• The local contractors (PAFs) shall be given opportunities in supply and locally available materials, machines and work force to the Project developer more particularly during the construction phase of the project.<br>• Proper and timely implementation/utilisation of Corporate Social Responsibility (CSR) funds for the Local Area Development Plan of the Project affected areas. In as much as, the CSR is concerned, it is clearly mentioned in the MoA that the Corporation must earmark certain amount for the social work under CSR fund. The operative part of the MoA is reproduced herein as Quote "The Corporation shall earmark a reasonable amount for the social works in and around its operational area in accordance with Corporation's Policy on CSR (Corporate Social Responsibility) and the National Policy on Rehabilitation and Resettlement-2007(NPRR-2007). The Corporation shall also adhere/conform to the local laws of the State as well as law made by the Parliament" Unquote.<br>• Therefore, it is demanded that the CSR funds must be implemented in the project affected areas in sectors such as health, education, or other social welfare sectors, properly and in timely manner.<br>• The Corporate Environment Responsibility Fund of Rs. 10 Crore (Rupees Ten Crore) shall be implemented/allocated 100% (One Hundred Percent) in the Project Affected Areas and for the benefit of Project Affected Families (PAFs) in letter and spirit. The focus area for activities and implementation of CER fund shall be decided after taking consultation from the APAPC/PAFs.<br>• The Environment Management Plan which outlines the administrative framework to reduce negative impacts of the project during the construction and operational phase and minimize environmental degradation shall be implemented in letter and spirit as per | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | Environmental Management Plan prescribed under section 10 of the EIA Draft.<br>• The involvement of affected families in planning and implementation of Environment Management Plan is vital; therefore, it is demanded that the representative of PAFS/APAPC shall be appointed as one of the members of the Environmental Monitoring Cell (EMC) for effective implementation of all Environmental safeguard measures.<br>• The entire land required for the various project activities is mentioned as Unclassified State Forest (USF) land, under section 7 sub clause-1.1 of the Draft EIA Report. However, it is to be state that there is no state/gadget notified USF land in the project area. The whole area is Community (Clan Wise) preserved land. Therefore, it is demanded that the entire land required for the various project activities shall be mentioned/described as the Community (Clan Wise) preserved land.<br>• The potential health issues and impact on the local communities or project affected families due to the influx of large number of workers is very high, hence the project proponent and the State Government shall establish Public Health Delivery System as mentioned under Section 10.11 of the Draft EIA in toto in order to mitigate the health-related issues in the project affected areas and to its communities.<br>• The profile of Project Affected villages and Families under Rehabilitation and Resettlement mentioned in Section 7.1 of the EIA/EMP Draft Report has been prepared basing upon the data of the Social Impact Assessment (SIA) Report. The SIA date prepared 7 to 8 years ago has several discrepancies and gaps in its data, which were previously made known to the concerned authorities by the affected families through several correspondences. However, no concrete actions were initiated to resolve the issue. It is therefore, demanded that the same SIA Report data shall not be based upon to prepare the Resettlement and Rehabilitation (R&R) Plan. The new data should be collected through fresh survey for R&R Plan and every | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | person who have attained 18 years of age and above should be identified and given R&R benefits as per RFCTLARR Act 2013.<br>• The Concerned State authorities shall ensure that the Project Affected Families (PAFs) receive Annual Annuity for the entire life of Hydropower Project paid directly via Direct Benefit Transfer (DBT) through the Local Area Development Fund (LADF) in addition to Compensation and R&R Packages as approved by the State Cabinet recently.<br>• The regular sanitation programme under CSR scheme shall be undertaken involving the APAPC executive members and the PRI functionaries at R & R villages/colony to maintain the health and hygiene of the Project Affected Families (PAFs).<br>• No Muck dumping at River side or near road. Muck which includes excavated earth, rock and debris from construction activities possess serious threat to River's fragile ecosystem and to the communities rely on it. Therefore, it is demanded that all construction related waste must be (a) deposited at designated, approved disposal sites, (b) Stabilize with vegetation or cover to prevent erosion.<br>• Further, it is demanded that the muck dumping plan and appropriate mitigation measures of EMP shall be implemented properly and the monitoring of Ambient Air Quality and water quality during the construction period as proposed under Air and Water Monitoring Plan of EMP in the Draft EIA shall be implemented in letter and spirit.<br>• The charter of demands are the genuine grievances of the Project Affected Families keeping in view the long-term impact of the project and the extinguishment of access to Rights and Privileges of the affected families. It is therefore, demanded that the aforesaid demands be complied and be implemented by the Project Proponent i.e. SJVN and the State Authorities. | |
| 3. | Shri. Sadhu Mihu, Zilla Parishad Chairperson<br>• Almost all the points were presented by the Project affected families. | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | • Welcome the project for the betterment of the area<br>• The Attunli HEP and Etalin HEP have been continuing since 2008, whereas Public hearing for Etalin HEP was conducted in 2014, but the Attunli HEP could not proceed.<br>• We support the project proponents in getting the necessary clearances from concerned authorities. | |
| 4 | Shri Mohina Pulu, Akulin Village<br>• Welcome the project for the sake of development of the area.<br>• Hope the project will benefits all the project affected families. | |
| 5 | Shri Janta Umpey, Apanli Village (Submitted Memorandum attached in-2)<br>• At least 75% of employment opportunities in the project, both skilled and unskilled, be reserved and provided to the local and project-affected population strictly in accordance with the provisions of the MOUs executed for the said project.<br>• Priority in Technical Posts: That first priority in technical and skilled posts be given to eligible local candidates, provided they possess the requisite qualifications and competence, so as to ensure meaningful participation of the affected population in the project.<br>• Allocation of Local Contracts: That all project-related works and contracts up to the value of Rs. 1 crore be exclusively allotted to the local populace i.e contractors and entrepreneurs, thereby promoting local economic development and rehabilitation.<br>• Implementation of R&R (Rehabilitation and Resettlement): That the Rehabilitation and Resettlement (R&R) measures be implemented at the earliest in strict compliance with the provisions of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, ensuring just and fair compensation along with sustainable rehabilitation of affected families.<br>• Future Safeguards and Relief Measures: That appropriate mechanisms be put in place to | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | provide additional relief, safeguards, and compensation in the event of any unforeseen adverse impact arising from the project in future, including environmental, social, or livelihood-related consequences.<br>• All the demands should be addressed in a time-bound manner, safeguarding the rights and interests of the affected families. | |
| 6 | Smt Tina Mena, Echanli Village<br>• Happy to know that the project is going to establish.<br>• This project will bring many opportunities to the project affected people.<br>• We welcome the project | |
| 7 | Shri Dipoji Mili, Attunli Village<br>• Welcome the project for the benefits of the project affected families. | |
| 8 | Shri Ngasi Mena, Echanli Village (Submitted Memorandum attached in-3)<br>• The project overview such as detailed description of project location, purpose, and total area, especially highlighting compliance with 2006 EIA notification guidelines should be proper.<br>• Identification of potential negative impacts on air, water, land, and local biodiversity be clear.<br>• Specific, actionable steps outline in the Environmental Management Plan (EMP), such as pollution control, water Recycling and waste management etc should be mentioned properly.<br>• Focus on employment opportunities for local, corporate social responsibilities (CSR) initiative, and community Development plan with outmost transparency is required.<br>• Project Proponent must address feedback from stakeholders regarding Environmental Damage, health risks or rehabilitation and resettlement issues.<br>• Property and baseline survey had been already conducted by involving Officers of the line department which is still pending for computation of compensation and awards. Stakeholders would urge the district administration to initiate as early as possible to make award. PAFs would also appeal to Jurisdictional Deputy Commissioner to take | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | into possession of land acquisition award after the expiry of 60 (sixty) days mandatory period of the claim & objections.<br>• Project Proponent must establish a health care system with state of art healthcare facilities integrate advance technology, sustainable green design, and therapeutic Art to create safe, efficiency, and healing environment. These modern institute prioritized intensive care units. Health infrastructure - comprising hospitals, clinics, Skilled personal and technology is essential for delivering quality medical care, preventing diseases, and economic growth. It enables early diagnosis, emergency response, and improved life expectancy. A robust system also boosts worker productivity and strengthening over all development.<br>• In collaboration with the district Administration the Project proponent need to work out for establishment of good quality educational institute within the vicinity of the Project affected areas (PAA) to provide a quality education to the Project affected families. Significant disparities exist in education quality between rural land urban areas, along high dropout rates and limited access for marginalized groups. The present scenario of literacy rates in the district is very low and having a high rate in drop out from middle, secondary and higher secondary including under graduate level which needs to initiative of vocational and skill development trainings through the sponsorship of the project proponents.<br>• On going through the EIA and EMP report of the proposed project, so many spelling mistakes has been found, which is required to be corrected. | |
| 9 | Smt Emi Umpey, Apanli Village<br>• We extend support to the project.<br>• The project is for the benefit of project affected people.<br>• We welcome the project. | |
| 10 | Shri Ote Mena, Echanli Village | |

| S. No. | Issues raised by PAFs/Public | Clarification given by the Project Proponent |
|---|---|---|
| | • We expect a lot from the establishment of the project, specially in the field of education and health care.<br>• We welcome the project whole heartedly. | |
| 11 | Shri Natu Mena, Echanli Village<br>• The district administration and project proponent should work together for the welfare of the project affected people.<br>• Welcome the project. | |
| 12 | Shri Miju Mena, Echanli Village<br>• We need development.<br>• Employment opportunities should be given to project affected families on priority.<br>• Scholarship should be given to the students pursuing higher studies. | |

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

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

| | | |
|---|---|---|
| **1.0 Location** | | |
| | State | Arunachal Pradesh |
| | District | Dibang Valley |
| | River | Tangon (Talo) |
| | Coordinates | |
| | • Dam Site | $28^0$ 40' 01"N, $96^0$ 07' 01"E |
| | • Powerhouse | $28^0$ 39' 48"N, $96^0$ 01' 55"E |
| **2.0 Hydrology** | | |
| | Catchment Area at diversion site | 2358 $km^2$ |
| | Design Flood (PMF) | 9,927 $m^3/s$ |
| | GLOF | 2,227 $m^3/s$ |
| | Diversion Flood | 2,678 $m^3/s$ (1 in 25 years non-monsoon flood) |
| | Annual Sediment Load | 0.1 Ha.m/sq.km/year |
| | Average Annual Rainfall | Varies from 2000 mm to 4000 mm |
| | Average Annual Yield and 90% Dependable Yield | 6028.29 MCM (2557 mm) and 4811 MCM 2040.3 mm |
| **3.0 Reservoir** | | |
| | FRL | El. 1360 m |
| | MDDL | El. 1349 m |
| | Gross Storage at FRL | 7.02 MCM |
| | Gross Storage at MDDL | 4.26 MCM |
| | Live Storage | 2.76 MCM |
| | Reservoir Area (at FRL) | 31.25 Ha |
| | Length of reservoir | 2.60 km |
| **4.0 Diversion Tunnels** | | |
| | Number | 2 nos. |
| | Diameter | 11.5 m Circular shape |
| | Inlet Invert / Outlet Invert | El. 1297.0 m / El. 1289.0m |
| | Length | 359.0 m & 487.0 m |

| | | |
|---|---|---|
| | Number and size of Gates in each tunnel | 2 Nos, 4.75 m (W) x 11.5 m (H) |
| | Hoist Arrangement and Capacity | Rope Drum Hoist, 65.0 MT |
| **5.0 Gravity Dam** | | |
| | River bed level | El. 1289.0 m |
| | Top elevation | El. 1362.0 m |
| | Height above deepest foundation | 85.0 m |
| | Height from river bed level | 73.0 m |
| | Length at top | 204.0 m |
| | No. of blocks | 13; 3-NOF (left), 5-Spillways, 1-Auxillary Spillway, 4-NOF (right) |
| **6.0 Main Spillway** | | |
| | Numbers | 5 |
| | Crest elevation | El. 1310.0 m |
| | Gate Type and Size | Radial Gates; 8.0 m (W) x 12.8 m (H) |
| | Hoist Type and Capacity | Twin Hydraulic Cylinders 2 x 170.0 MT |
| | Stop Log Gates | 1 No., 6 units, unit size 8.0 m (W) x 2.727 m (H) |
| | Hoist Type and Capacity | Gantry Crane, 45 MT |
| **7.0 Auxiliary Spillways** | | |
| | Numbers | 1 |
| | Crest elevation | El. 1356.0 m |
| | Size | 5.0 m x 4.0 m |
| | Number and size of Gates | 2 Nos, 5.0 m (W) x 4.2 m (H) |
| | Hoist Type and Capacity | Gantry Crane operating Stoplogs units |
| **8.0 Intake** | | |
| | Numbers | 3 |
| | Invert elevation | El. 1336.0m |
| | No. of Trash rack bays | 15 bays of 3.2 m each |
| | Gate opening size | 5.2 m (W) x 5.8 m (H) |
| | Number of Gates | 3 — Service Gates<br>3 — Emergency Gate (Bulk Head) |
| | Hoist Arrangement and Capacity | Rope Drum Hoist, 60 MT for Service Gates and 35 MT for Bulkhead gates |
| | Length of Inlet Tunnel | 271 m, 302 m, 333 m |
| | Nos., Diameter of Inlet Tunnel | 3 nos., 5.8m MHS |
| **9.0 Desilting Chamber** | | |
| | Number and Type | 3, Underground DuFour type |
| | Size | 17.0 m (W) x 24 m (H) |
| | Length | 350m |
| | Particle size removal | 0.2 mm |
| | Design discharge per basin | 102.23 $m^3/s$ |
| | Outlet gate, Number and size | 3 Nos, 4.5m (W) x 5.4m (H) |
| | Gate Invert level | El. 1335.4m |
| | Hoist arrangement and capacity | Rope Drum Hoist, 30 MT |
| | Design discharge per flushing duct | 18.58 $m^3/s$ |
| | Flushing duct (up to SFT Gate chamber) | |
| | • Number and size | 3 Nos - 2.0 m (W) x 2.4 m (H) |
| | • Length | 143m, 104m and 66m |
| | Flushing duct (SFT Gate chamber to Main SFT | |
| | • Number and size | 3 Nos - 2.0 m (W) x 3.5 m (H) |
| | • Length | 115m, 69m and 19m |

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| | Flushing Duct Gate, Number & Size | 6 Nos, 2.0m (W) X 2.4m (H) (2 Gates in each duct) |
| | Gate Invert level | El. 1312.65m |
| | Gate Hoist arrangement and capacity | Individual Hydraulic Hoist, 200 MT |
| | Silt Flushing Tunnel (SFT) size | 4.0 m (W) x 5.5 m (H) |
| | Length of flushing tunnel | 749 m |
| | Outlet level of flushing tunnel | El. 1309.25m |
| **10.0 Link Tunnel-I** | | |
| | Numbers | 3 |
| | Diameter & Shape | 5.4m, Modified horse shoe |
| | Length | 128.0 m, 84.0 m and 115.0 m |
| **11.0 Link Tunnel-2** | | |
| | Numbers | 1 |
| | Diameter & Shape | 7.6 m, Modified horse shoe |
| | Length | 83.0 m |
| **12.0 Headrace Tunnel** | | |
| | Numbers | 1 |
| | Diameter & Shape | 9.4 m, Circular |
| | Length | 7955 m |
| | Design discharge | 278.8 $m^3/s$ |
| | Flow velocity | 4.02 m/s |
| | Number of intermediate adits | 3 |
| | Length of Adits (Al, A2, A3) | 358 m, 297 m, 179 m |
| | Adit plug gate | 2.2 m (W) x 2.2 m (H) in Adit A2 |
| **13.0 Surge Shaft** | | |
| | Numbers & Type | 1, Restricted Orifice & Open to sky |
| | Diameter | 21.0 m |
| | Orifice Diameter | 4.25 m |
| | Height | 93.0 m |
| | HRT invert at Surge shaft | El. 1306.0 m |
| | Top of Surge shaft | El. 1399.0 m |
| | Maximum surge level | El. 1397.5 m |
| | Minimum surge level | El. 1319.9 m |
| **14.0 Pressure Shaft** | | |
| | Numbers & Type | 2, Underground |
| | Diameter | 5.2 m |
| | Length (each shaft) | 318.0m |
| **15.0 Unit Pressure Tunnel** | | |
| | Numbers & Type | 4, Underground |
| | Diameter | 3.7m |
| | Length (each shaft) | 30.0 m |
| **16.0 Butterfly Valve (BFV) Chamber** | | |
| | Dimension | 58.0 m (L) x 10.0 m (W) x 21.0 m (H) |
| | No. of BF Valves | 2 Nos |
| | BFV diameter | 5.2 m |
| | BFV Centerline elevation | El. 1308.6 m |
| | Floor Invert elevation | El. 1304.0 m |
| **17.0 Powerhouse** | | |
| | Type | Underground |
| | Dimensions | 135.0 m (L) x 23.5 m (W) x 52.0 m (H) |
| | Installed Capacity | 680 MW |
| | Overload capability | 10% of continuous rated capacity |

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| | No of Units | 4 X 170 MW |
| | Gross Head | 286.3 m |
| | Service bay level | El. 1074.0m |
| | Main Access Tunnel (MAT) | 465 m, 8.0(w) x 8.0m(h) |
| | Service Bay | 35 m long, El.1074.0 m |
| | Control Block | 20m long, 7 floors |
| | Turbine centerline elevation | El. 1061.0m |
| | Type of Turbine | Francis |
| | Turbine efficiency | 94.5% |
| | Rated Head including Maximum Net Head & Minimum Net Head | Maximum Net Head = 292.1m<br>Minimum Net Head = 259.80 m<br>Net Rated Head = 267.13 m |
| | Rated Synchronous Speed | 250 rpm |
| | Generator arrangement | Semi Umbrella |
| | Power Factor | 0.85 |
| | Generator Efficiency | 98.5% |
| | Generation voltage | 3P, 13.8kV ±10% |
| **18.0 Transformer Hall** | | |
| | Dimensions | 153.2m (L) x 16.5m (W) x 25m (H) |
| | Transformer Floor level | El. 1074.0 m |
| | GIS Floor level | El. 1086.0m |
| | No. of GIS bays | 9 |
| | GSU Transformer | 13 nos., Indoor, Single phase, 75 MVA, 13.8kV/400kV, 50Hz |
| | Switchyard | Indoor GIS,400kV,3150A,3P,50kA for 1sec,10 Bays |
| | Pothead Yard | Outdoor, 52.5m x 69.0m, El 1085m |
| | Transmission line | 880MVA, 400kV, Double circuit, ACSR Conductor |
| **19.0 Collection Gallery** | | |
| | Dimensions | 90 m (L) x 13.5 m (W) x 47 m (H) |
| | TWL; Normal | El. 1073.7 m |
| | TWL; Minimum | El. 1067.8 m |
| | MWL; Maximum water level | El. 1089.7 m |
| | Draft Tube Gate Number and Size | 4 Nos, 5.6 m (W) x 6.2 m (H) |
| | Gate Invert level | El. 1059.0 m |
| | Hoist Arrangement and Capacity | Rope Drum Hoist, 40MT |
| | Deck level | El. 1091.0 m |
| **20.0 Tailrace Tunnel** | | |
| | Numbers & Shape | 1, D-Shape |
| | Width | 10.0 m |
| | Height | Varies from 9.5 m to 17.5 m |
| | Length | 570 m |
| **21.0 TRT Outfall** | | |
| | Invert at Outfall gate | El. 1067.0 m |
| | Transition - size | 1 No – 10.0m D-shape to 2 No – 5.0m (W) x 9.5m (H) Rectangle |
| | Transition - length | 3.0 m |
| | Minimum TWL | El. 1067.8 m |
| | Normal TWL | El. 1073.7 m |
| | Maximum TWL | El. 1083.0m |
| | Gate Operating Platform | El. 1084.0 m |

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| | TRT Outfall Gates | 2 Nos, 5.0 m (W) x 9.5m (H) |
| | Hoist Arrangement and Capacity | Rope Drum Hoist, 55.0 MT |
| **22.0 Power Evacuation** | | |
| | Type of Switchyard (GIS / AIS, rating) No. of Bays Switching Scheme at different voltage level | Indoor and GIS, 400 kV, 1600A, 3Phase, 40 kA for 1 Sec, No. of Bays — 10 (at different voltage levels) 415V/13.8kV/400kV |
| | Bus-Bar Arrangement | Gas Insulated Double Bus Bar Arrangement |
| | Transmission Voltage | 400kV |
| **23.0 Energy Benefits** | | |
| | Annual Energy generation in 90% Dependable Year | 2781.08 MU |
| | Design Energy in 90% Dependable Year with 95% Plant availability | 2728.50 MU |
| | Corresponding Annual Load Factor | 46.69% |
| | Corresponding Daily Peaking Duration (Minimum) | 3 Hours |
| | Environmental Flow | Lean Season (Dec to Mar)-17.60 $m^3/s$ Monsoon Season (Jun to Sep)-23.60 $m^3/s$ Intermediate Period (Remaining)-19.80 $m^3/s$ |
| **24.0 Construction** | | |
| | Schedule | 30 months (Pre works) + 60 months (Main works including commissioning) |
| | Total Land requirement | 261.53 Ha |
| | Project roads & bridges | 22km, 5nos |
| | Construction power requirement | 12 MVA |

**Project details:**

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|---|---|
| Name of the Proposal | Attunli Hydroelectric Project (680 MW) |
| Proposal No. | IA/AR/RIV/582227/2026 |
| Location (Including Coordinates) | The dam site is located about 130 m downstream of Kachi nala and 1.2 km upstream of Apanli village, Etalin Circle, Dibang Valley District of Arunachal Pradesh with the geographical latitude of 28°40'01"N and longitude 96°07'01"E and the power house is located near Attunli village, Etalin Circle, Dibang Valley District of Arunachal Pradesh with the geographical latitude of 28°39'48"N and longitude 96°01'55"E. |
| Company's Name | M/s SJVN Limited |
| CIN no. of Company/user agency | L40101HP1988GOI008409 |
| 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) | • The dam site is located about 130 m downstream of Kachi nala and 1.2 km upstream of Apanli village, Etalin Circle, Dibang Valley District of Arunachal Pradesh with the geographical latitude of 28°40'01"N and longitude 96°07'01"E.<br>• Power house is located near Attunli village, Etalin Circle, Dibang Valley District of Arunachal Pradesh with the geographical latitude of 28°39'48"N and |

| | |
|---|---|
| | longitude 96º01'55"E. |
| Inter- state issue involved | No |
| Proposed on River/ Reservoir | Tangon (Talo) River |
| Type of Hydro-electric project | Run-of-river |
| Seismic zone | V |

**Category details:**

| | |
|---|---|
| Category of the project | A |
| Capacity / Cultural command area (CCA) | 680 MW |
| Attracts the General Conditions (Yes/No) | Yes |
| Additional information (if any) | - |

**ToR/EC Details:**

| | |
|---|---|
| ToR Proposal No. | IA/AR/RIV/455548/2023 |
| EAC meeting date | 09.02.2024 |
| ToR Letter No. | J-12011/61/2006-IA.I (R) |
| ToR grant Date | 05.03.2024 |
| Cost of project | • Rs. 7505.24 Crores (without SGST reimbursement)<br>• Rs. 7096.27 Crores (with SGST reimbursement) |
| Total area of Project | 261.53 ha |
| Height of Dam from River Bed (EL) | 73.0 m (85 m from deepest foundation level) |
| Details of submergence area | 31.25 ha |
| District to provide irrigation facility (if applicable) | NA |
| Details of tunnels on upper level & lower level and length of canal (if applicable) | • 7.955 km long Head Race Tunnel<br>• 0.57 km long Tail Race Tunnel |
| No. of affected Village | 07 |
| No. of Affected Families | 92 |
| Project Benefits | On completion of the Project the following benefits can be derived:<br>• The project is with diurnal peaking power benefits. The project has been found commercially viable and the generation from the project shall mitigate the miseries of power-starved industry and people particularly in the eastern and north eastern state.<br>• A number of marginal activities and jobs will be available to the locals during the construction phase.<br>• Local Area Development, facilities in Education, medical, transportation, road network and other infrastructure.<br>• An opportunity for small-scale and cottage industries to develop in the area. |
| R&R details | Total 7 villages shall be affected due to acquisition of land for various components of proposed |

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| | project. Total 92 project affected families and 366 project affected persons have been identified. Total 37 project affected families have been identified as coming under Involuntary Displacement due to loss of their houses. A budgetary provision of Rs. 2432.00 lakh has been kept towards implementation of R&R plan. |
| Catchment area | 2358 sq km |
| Types of Waste and quantity of generation during construction/Operation | • Muck during construction – 45.27 lakh cum (to be disposed)<br>• Municipal Solid Waste during construction - Degradable (1000.00 Tons), Non degradable (1360 Tons) |
| Material used for blasting and its composition as per DGMS standards. | Explosive is mainly required for open and underground rock excavation. About 1930 MT of explosives will be required over entire construction period of the project. It has been assessed that 2 magazines of 20 MT capacity each at dam site and power house site would be sufficient to meet the fortnightly demand from the project sites. |
| E-Flows for the Project | E-Fow during the leanest four months (Dec to March) has been recommended as 20% (17.60 $m^3/s$) of the average flow of 90% dependable year. For the monsoon months (June to September), it has been recommended as 10% (23.60 $m^3/s$). For non-monsoon, non-lean months (Apr-May and Oct-Nov) it has been recommended as 15% (19.80 $m^3/s$). |
| Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in which project located. If yes then<br>c) E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin.<br>d) If not the E-Flows maintain criteria for sustaining river ecosystem. | Yes<br><br>E-Fow during the leanest four months (Dec to March) has been recommended as 20% (17.60 $m^3/s$) of the average flow of 90% dependable year. For the monsoon months (June to September), it has been recommended as 10% (23.60 $m^3/s$). For non-monsoon, non-lean months (Apr-May and Oct-Nov) it has been recommended as 15% (19.80 $m^3/s$). |
| Details on provision of fish pass | As the diversion structure being a Gravity Dam of 85.0m height, construction of any fish passage or fish ladder is not feasible in the proposed dams. |
| Project benefit including employment details (no of employee) | During the peak construction phase, there will be a need to engage about 3750 labourers and 300 technical manpower. The majority of this labour force will be from the adjacent localities. Some other unskilled and skilled labourers will be brought from outside. These labourers will be settled near the construction site in the labour camps set up by |

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| | the project authorities through their labour contractors. |
| Area of Compensatory Afforestation (CA) with tentative no of plantation. | 523.06 ha; tentative no. of plantation - 5,75,366 |
| 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 | Approx. 20000 no. of trees proposed to be planted under Green Belt Development Plan will be marked under "Ek Ped Maa Ke Naam" Campaign. |

**Electricity generation capacity:**

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|---|---|
| Powerhouse Installed Capacity | 680 MW |
| Generation of Electricity Annually | 2728.50 MU |
| No. of Units | 4 (each of 170 MW) |

**Muck Management Details:**

| | |
|---|---|
| No. of proposed disposal area/ (type of land- Forest/Pvt land) | 9 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 | 80.84 ha |
| Estimate Muck to be generated | 46.40 lakh cum |
| Transportation | Excavated muck will be transported from construction sites to designated disposal areas using covered tipper trucks through dedicated haul roads. Loading, transportation, and unloading operations will be carried out in a controlled manner with regular water sprinkling, speed restrictions, and dust suppression measures to minimize environmental impacts. All transportation activities will be supervised to ensure compliance with safety, traffic management, and environmental management requirements. |
| Monitoring mechanism for Muck Disposal Transportation | Dedicated supervisory personnel will oversee muck handling, transportation, and disposal operations, ensuring compliance with statutory and environmental management requirements. In addition, it is proposed that a monitoring and supervision mechanism will be established to |

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| | ensure adherence to environmental, safety, and operational protocols. |

**Land Area Breakup:**

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| Private land | 0.00 |
| Government land | 0.00 |
| Forest Land | 261.53 |
| Total Land | 261.53 |
| Submergence area/Reservoir area | 31.25 |
| Additional information (if any) | Out of the total land required, 247.34 ha is surface area and 14.19 ha is notional underground area |

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

| Forest Land/ Protected Area/ Environmental Sensitivity Zone | Yes/ No | Details of Certificate/ letter/ Remarks |
|---|---|---|
| Reserve Forest/ Protected Forest Land | No | |
| National Park | No | |
| Wildlife Sanctuary | Yes | Reservoir tail end is at a distance of 3.7 km and 2.7 km from the Dibang WLS and its ESZ boundary respectively. |
| 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, 27 mammals (Himalayan Serow, Himalayan Goral, Sambar, Gongshan muntjac, Red Panda, Indian fox, Jackal, Wild Dog, Asiatic golden cat, Leopard, Leopard cat, Jungle Cat, Fishing Cat, Indian Mongoose, Small Indian Mongoose, Smooth Coated Otter, Yellow-throated Marten, Asiatic black Bear, Large Indian Civet, Small Indian Civet, Himalayan palm civet, Chinese pangolin, Indian pangolin, Assam Macaque, Brush-tailed porcupine, Indian Crested Porcupine and Black Giant Squirrel); 1 bird (Great Hornbill); and 2 herpetofauna (Rat Snake and King Cobra) species are listed as Schedule I species.

**Public Hearing (PH) Details**

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| Advertisement for PH with date | The Times of India and The Arunachal Times dated 18.02.2026 and Echo of Arunachal dated 23.02.2026 |
| Date of PH | 01/04/2026 |
| Venue | Government Middle School, Athunli, Dibang Valley District |
| Chaired by | Deputy Commissioner, Dibang Valley District |
| Main issues raised during PH | i. Environmental protection, proper muck disposal, pollution control, and implementation of EMP.<br>ii. Land acquisition issues, land demarcation, and |

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| | concerns regarding land ownership/status.<br>iii. Need for transparency, addressing stakeholder concerns, updating surveys, and correcting discrepancies in project documents.<br>iv. Effective utilization of LADF, CSR and CER funds for development of project-affected villages, with participation of local communities.<br>v. Improvement of healthcare, education, sanitation, and other social infrastructure in the project area.<br>vi. General expectation that the project should contribute to local development while safeguarding community interests and environment.<br>vii. Employment opportunities and preference for local people/PAFs, including reservation in jobs and opportunities for local contractors.<br>viii. Implementation of Rehabilitation & Resettlement (R&R), fair compensation, livelihood restoration, and protection of rights of affected families.<br>Complete issues raised during PH and clarification given by Project Proponent are attached as **Appendix II** |
| No. of people attended | 122 |

**Brief of base line Environment:**

| **Particulars** | **Details** | | |
|---|---|---|---|
| **Period of baseline data collection/Sampling period.** | **Pre-Monsoon/ Summer** | **Monsoon** | **Winter** |
| Soil | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Air Environment | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Noise & Traffic | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Vegetation | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Faunal | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Water and Aquatic Ecology | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Socio-economic survey of study area villages | March - May 2024 | June - September 2024 | December 2024 – February 2025 |
| Socio-economic survey of project affected families | May - December 2024 | | |
| Brief description on hydrology and water assessment as per the approved Pre-DPR: | Attunli HEP is a run-of-river scheme with diurnal pondage proposed on the Tangon (Talo) River, a major tributary of the Dibang River in the Brahmaputra Basin of Arunachal Pradesh. The Tangon River originates at an elevation above 5,000 m near Kaya Pass and flows approximately 58.5 km to | | |

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| | the proposed diversion site. The project intercepts a catchment area of 2,358 km², of which 176 km² is snow-fed. Water availability has been assessed using a 36-year (1986–87 to 2021–22) discharge series derived from Elopa and Munli G&D stations and approved by the CWC. The PMF at the dam site has been estimated as 9,927 m³/s based on hydrometeorological studies using IMD's PMP estimates and CWC methodologies. The diversion flood for construction has been estimated as 2,678 m³/s, while the peak GLOF has been assessed as 2,227 m³/s, both concurred by CWC. Reservoir elevation-area-capacity curves have been developed from detailed topographic surveys conducted at a scale of 1:5,000 with a 5 m contour interval. A sedimentation rate of 0.10 ham/km²/year, consistent with the downstream Dibang Multipurpose Project, has been adopted for reservoir sedimentation assessment and design. |
| Additional detail (If any) | - |

**Court case details: Nill**

**Status of other statutory clearances**

| Particulars | Letter no. and date |
|---|---|
| Status of Stage- I FC | Stage-I (in-principle) approval granted by MoEF&CC (Forest Conservation Division) on 09.06.2026. Online Proposal No. FP/AR/HYD/IRRIG/462108/2024 |
| Approval of Central Water Commission | • Revised water availability series approval vide letter T-11013/4/2024-HYD(NE) Dte dated 10.04.2024.<br>• FE&SA clearance vide letter 11/65/TE/2014/FE&SA/47-50 dated 02.02.2015.<br>• Interstate Aspects Clearance vide letter 7/2/12(NE)/2013-ISM/190-191 dated 27.03.2014<br>• General layout approval vide letter 20/36/2014-CMDD(E&NE)/269-270 dated 21.07.2017<br>• Dam design approvals vide letter No. 20/36/2014-CMDD(E&NE)/193-196 dated 20.04.2015.<br>• Hydel Civil Design approvals vide letter No. 3/5/2014/HCD(E&NE)/259 dated 10.06.2015.<br>• Gates/HM approval vide letter no. 26/4/92-GO(E&NE)/ 279-80 dated 08.09.2015.<br>• Instrumentation approval vide letter no. Inst/1-143/2014/379-80 dated 04.09.2015.<br>• Plant planning approval vide letter no. 21/AR/24/2016-CMC/294-296 dated 24.10.2016. |
| Approval of Central Electricity Authority | • CEA vide its Letter No. 2/ARP/27/CEA/10-PAC/1775-1819 dated 02.07.2018 accorded Concurrence to Attunli Hydro Electric Power Company Limited (AHEPCL), a joint venture company of Jindal Power Limited (JPL) and Hydro |

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| | Power Development Corporation of Arunachal Pradesh Limited (HPDCAPL).<br>• Subsequently, Concurrence was transferred in favour of M/s SJVN Ltd. vide CEA's Letter No. CEA-HY-12-13/3/2021-HPA Division dated 09-11-2023.<br>• CEA vide Letter No. CEA-HY-12-31/3/2021-HPA Division-I/42873/2024 dated 06.09.2024 issued revised Power Potential Study of the project.<br>• Further, CEA vide Letter dated 12.08.2025, Vetted the Total Project Cost at Completion level.<br>• Further, CEA vide Letter No. CEA-HY-12-13/3/2021-HPA Division/875-881 dated 09-02-2026 has extended the validity of concurrence further upto 30-06-2027. |
| Additional detail (If any) | - |
| **Is FRA (2006) done for FC-I** | Is under process with District Administration. An undertaking has been submitted regarding conducting FRA before Stage II Forest Clearance in accordance with the provisions made in Rule-10(10) of Van (Sanrakshan Evam Samvardhan) Rules, 20230. |

**Details of the EMP**

| S. No. | EMP COMPONENTS | 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 | |
| 1 | Catchment Area Treatment Plan | 3365.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3365.65 |
| 2 | Biodiversity Conservation & Wildlife Conservation Plan | 1500.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1500.82 |
| 3 | Fisheries Development Plan | 253.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 253.00 |
| 4 | Muck Dumping and Management Plan | 2073.15 | 1300.00 | 750.00 | 300.00 | 300.00 | 235.00 | 4958.15 |
| 5 | Landscaping, Restoration of Construction Sites | 552.20 | 54.50 | 45.13 | 65.50 | 75.50 | 20.50 | 813.33 |
| 6 | Reservoir Rim Treatment Plan | 413.10 | 25.10 | 20.00 | 20.10 | 25.00 | 20.13 | 523.43 |
| 7 | Green Belt Development Plan | 20.00 | 15.50 | 33.30 | 50.00 | 70.00 | 50.00 | 238.80 |
| 8 | Sanitation and Solid Waste Management Plan | 170.00 | 36.04 | 36.02 | 36.02 | 36.02 | 35.02 | 349.12 |
| 9 | Public Health Delivery System | 110.00 | 38.45 | 38.44 | 38.45 | 38.44 | 38.44 | 302.22 |
| 10 | Energy Conservation Measures | 46.00 | 57.00 | 57.00 | 57.00 | 57.00 | 57.00 | 331.00 |
| 11 | Labour Management Plan | 35.00 | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 90.00 |
| 12 | Disaster Management Plan | 275.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 400.00 |
| 13 | Pollution Control and Mitigation Measures | 0.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 125.00 |
| 14 | Environmental Monitoring Program | 0.00 | 15.67 | 15.67 | 15.67 | 15.67 | 15.66 | 78.34 |
| | **Total Cost** | **8813.92** | **1603.26** | **1056.56** | **643.74** | **678.63** | **532.75** | **13328.86** |

| S. No. | R&R and CER Cost | Cost (Rs. In lakh) |
|---|---|---|
| 1 | Rehabilitation and Resettlement (R&R) Plan | **2432.00** |
| 3 | Corporate Environmental Responsibility (Local Area Development Plan) | **1000.00** |

| S. No | Forest Components | Capital Cost (Rs. In lakh) |
|---|---|---|
| 1 | Compensatory Afforestation | 2454.34 |
| 2 | Net Present Value (NPV) | 3615.52 |
| | **Total** | **6069.86** |

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

The EAC deliberated upon the information furnished by the Project Proponent (PP) and the details presented during the meeting. The PP informed the Committee that the proposal is for grant of Environmental Clearance (EC) to the Attunli Hydroelectric Project (680 MW), involving a total project area of 261.53 ha, located in Dibang Valley District, Arunachal Pradesh, and proposed by M/s SJVN Limited.

The PP informed that the project falls under Item 1(c) of the Schedule to the EIA Notification, 2006, and is categorized as a Category 'A' project, requiring appraisal at the Central level by the Expert Appraisal Committee (EAC).

The PP further informed that the EIA/EMP reports and other requisite documents have been prepared and submitted through a consultant accredited by QCI/NABET. The PP also confirmed that an undertaking has been furnished affirming that the data and information provided in the application and accompanying documents are true and accurate to the best of its knowledge and that no material information has been suppressed in the EIA/EMP reports.

The PP further acknowledged that, in the event any data or information submitted by it is found to be false or misleading at any stage, the proposal may be rejected and any Environmental Clearance granted may be revoked, at the risk and cost of the Project Proponent.

The EAC deliberated upon the project history and statutory clearances as presented by the PP. The PP informed that the Attunli Hydroelectric Project was originally conceived by Attunli Hydro Electric Power Company Limited (AHEPCL), a joint venture between Jindal Power Limited and Hydro Power Development Corporation of Arunachal Pradesh Limited. The PP informed that the Techno-Economic Clearance (TEC) for the Detailed Project Report (DPR) was accorded by the Central Electricity Authority (CEA) on 02.07.2018. Subsequently, the project was allotted to SJVN Limited, and the DPR concurrence was transferred and extended up to June 2027. The PP further informed that MoEF&CC granted the Terms of Reference (ToR) on 05.03.2024 for undertaking the EIA study.

The PP informed that the project involves diversion of 261.53 ha of Unclassified State Forest (USF) land, for which Stage-I Forest Clearance was accorded by MoEF&CC on 09.06.2026.

The PP further informed that the CEA, vide Letter No. CEA-HY-12-31/3/2021-HPA Division-I/42873/2024 dated 06.09.2024, issued the revised Power Potential Study for the project. The CEA subsequently vetted the total project cost at completion level vide letter dated 12.08.2025. The PP also informed that the validity of the CEA concurrence was further extended up to 30.06.2027 vide CEA Letter No. CEA-HY-12-13/3/2021-HPA Division/875-881 dated 09.02.2026.

The PP informed that the baseline environmental studies were carried out from March–May 2024 to February 2025, during which the monitored environmental parameters were reported to be within the prescribed standards/norms. The PP further informed that the total land requirement of the project is 261.53 ha, comprising entirely of forest land.

The Committee noted that the Dibang Wildlife Sanctuary (WLS) and Dihang-Dibang Biosphere Reserve are located within 10 km of the project site. The tail end of the project reservoir is located at approximately 3.7 km from the Dibang WLS and 2.7 km from the boundary of its Eco-Sensitive Zone (ESZ). During EIA various Schedule-I species were reported but the PP denied the presence of Tiger and Bengal Florican Bird in the study area .

The EAC deliberated upon the Rehabilitation & Resettlement (R&R) aspects of the project. It was noted that seven villages would be affected due to acquisition of land for various project components. A total of 92 Project Affected Families (PAFs) comprising 366 Project Affected Persons (PAPs) have been identified. Out of these, 37 PAFs have been identified as subject to involuntary displacement due to loss of their houses. The PP informed that a budgetary provision of ₹24.32 crore has been earmarked towards implementation of the R&R Plan.

The EAC further noted that the Public Hearing (PH) for the project was conducted on 01.04.2026 at Government Middle School, Athunli, Dibang Valley District, under the chairmanship of the Deputy Commissioner, Dibang Valley District. The PP further informed that the Public Hearing notice was duly published in The Times of India and The Arunachal Times on 18.02.2026, and in Echo of Arunachal on 23.02.2026, in accordance with the prescribed procedure.

The EAC deliberated upon the issues and concerns raised by the stakeholders during the Public Hearing and examined the Action Plan submitted by the PP for addressing the same. The EAC deliberated upon the issues and concerns raised by the local stakeholders during the Public Hearing and examined the action plan submitted by the Project Proponent to address the same. After detailed deliberations, the Committee found the proposed action plan and mitigation measures to be satisfactory and adequate for addressing the concerns raised during the Public Hearing. The EAC recommended that the concerns and commitments arising out of the Public Hearing shall be fully implemented by the Project Proponent in a stipulated and time-bound manner.

During deliberations on environmental flow, the representative of CIFRI informed the EAC that the environmental flow study of the Attunli River was undertaken by CIFRI and has recommended minimum release requirements based on site-specific considerations. The EAC also noted that after CIFRI e-flow study a Cumulative Impact Assessment & Carrying Capacity (CIA&CC) study of the Dibang River Basin was conducted by the Ministry. The Project proponent and the consultant explained that the TOR prescribed by the EAC/MoEF&CC mandated that the EIA study should be undertaken in accordance with recommendations of the Dibang River basin study and the project parameters/salient features of the project such as Dam height, FRL, Submergence area, total land requirement, e-flow etc. as recommended in the Dibang River basin study should remain unchanged. Accordingly, based on the final approved Dibang Basin study report, e-flow adopted for Attunli HEP is 17.60 m3/s for lean season (Dec-Mar), 23.60 m3/s for monsoon season (June-Sept) and 19.80 m3/s for remaining months (Apr, May, Oct and Nov). No reference to adoption of CIFRI's earlier site-specific study was made in the ToR, although CIFRI was a member during ToR finalization. Considering CIFRI values at this stage would go beyond the ToR framework. The matter was deliberated in detail and it was discussed that most of the river basins with large number of hydropower projects in cascade have been studied cumulatively and such CIA and CCS study reports, after review and recommendation by EAC have been approved by the Ministry. These are comprehensive studies accounting for cumulative impacts of

hydropower development on terrestrial and aquatic biodiversity, physical and social environment providing broad framework of environmental action plan to mitigate the adverse impacts on that particular river basin. Attunli HEP has been studied as part of Dibang basin study, for which CIA&CCS study was appraised and recommended by EAC in 95th EAC meeting, held on 11–12 July 2016. The Ministry thereafter communicated the approved study recommendations in September 2016 to the State Government, including project-specific e-flow recommendations to be implemented by each project. The SJVNL submitted that as directed by the State Government and as mandated by MoEF&CC in ToR issued to Attunli HEP, the e-flow for Attunli HEP have been adopted from the approved Dibang basin study. EAC discussed the matter in detail and recommended that e-flow for Attunli HEP should be adopted based on the e-flow recommendations made in the Dibang basin study.

The PP informed that the estimated project cost is ₹7,505.24 crore without SGST reimbursement and ₹7,096.27 crore with SGST reimbursement. The PP further informed that a total capital cost of ₹133.2886 crore has been earmarked towards implementation of the Environmental Management Plan (EMP).

**60.1.3:** The EAC after examining the information submitted and detailed deliberations **recommended** the proposal for grant of prior Environmental Clearance by the Ministry to the project for Attunli Hydroelectric Project (680 MW) an area of 261.53 hectares, located in District Dibang Valley, Arunachal Pradesh by M/s SJVN Limited under the provisions of EIA Notification, 2006 and as amended subject to compliance of applicable Standard EC conditions with the following specific environmental safeguard conditions:

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

i. The Project Proponent shall strictly implement the Environmental Flow (E-flow) regime in the downstream stretches of the river, as recommended in the CIA&CCS study conducted for Dibang river basin, throughout the operational life of the project. The other recommendations of the CIA&CCS, as applicable shall also be complied with in letter and spirit.

ii. The Project Proponent shall install and maintain continuous online flow monitoring systems, including calibrated flow meters and telemetry/data transmission facilities, at all designated E-flow release points. The real-time discharge data shall be continuously recorded and transmitted to the Regional Office of MoEF&CC and the State Pollution Control Board and shall be made available for inspection and monitoring.

iii. The spillway capacity and associated flood-mitigation and safety structures shall be designed to safely accommodate the maximum design flood/discharge, duly factoring in the potential peak discharge associated with Glacial Lake Outburst Flood (GLOF) events. The final design, hydrological assessment, layouts and requisite safety

certifications shall be duly vetted/approved by the Central Electricity Authority (CEA) and Central Water Commission (CWC), as applicable, prior to commencement of construction of the main dam.

iv. The Environmental Management Plan (EMP) shall be strictly adhered to as submitted in the EIA/EMP reports. The budgetary provisions for implementation of EMP, shall be fully utilized and not to be diverted to any other purpose. In case of revision of the project cost or due to price level change, the cost of EMP shall also be updated proportionately.

v. The contract clause limiting the No. of vehicles used during excavation and transportation shall followed scrupulously and the same shall informed to the ministry.

vi. Ambient Air Quality Monitoring Stations for real time data to be installed at project site before commencement of the construction, shall be displayed at project site and its report to be submitted to IRO, MoEF&CC.

vii. No vehicle purchase shall be allowed from funds earmarked for implementation of Wildlife Conservation plan. Measures for minimizing the human–animal conflict specially for black bear and leopard be suitably incorporated in the wildlife conservation plan in consultation with State Forest Department.

viii. Plantation of saplings shall be carried out as a part of the tree plantation campaign "Ek Ped Ma Ke Naam" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in). 10000 plants shall be planted around the muck disposal area and the survival of plants shall be submitted with the 6 monthly compliance report.

ix. Biodiversity hotspots in the 10 km radius of the project site shall be identified and listed for their conservation and preservation through time bound action plan in consultation with WII/Expert Government Institute.

x. The Project Proponent shall formulate and implement a site-specific Aquatic Ecology Management and Conservation Plan for protection of native fish species, macro-invertebrates and the downstream aquatic ecosystem.

**[B]. Disaster Management:**

xi. Disposal of the excavated muck and its filling on the low-lying area with proper measures for the stabilization and greenery to minimize the impacts of the generated construction muck shall be taken up pari passu with construction work.

xii. Stabilization of muck disposal sites using biological and engineering measures shall be taken up immediately to ensure that muck does not roll down the slopes and does not pollute the natural streams and water bodies in surrounding area. The plantation on muck disposal site with local species for restoration of ecology and environment of the project site area shall be done as per instructions of the Forest Department.

xiii. Necessary control measures such as water sprinkling arrangements, and construction of paved roads leading to muck disposal sites etc. shall be taken up on priority to arrest fugitive dust at all the construction sites.

xiv. Solid waste generated, especially plastic waste, etc. should not be disposed of as landfill material. It should be treated with scientific approach and recycled. Use of single-use plastics may be discouraged.

xv. Sensor based/AI driven Early Warning System (EWS) shall be established.

xvi. Disaster prone places/villages in 10 km upstream and downstream of the project shall be identified and proper disaster management practices shall be applied in such places

to mitigate/minimize the impact of any unprecedented event.

xvii. GLOF and related flash flood risk management plan shall be prepared and implemented under guidance of expert government research institute.

**[C] Socio-economic:**

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

xix. Solar panel be provided to the families living in rural areas within 10 km radius of project with annual maintenance.

xx. Bio-Gas plant shall be installed in the Project affected area for Utilizing Cattle waste (Cow Dung) into renewable source of fuel.

xxi. School up to $12^{th}$ Standard with smart classes shall be established and managed to provide free quality education for children from project affected villages/Tribal villages.

xxii. 50 bed multi-speciality hospital shall be established to cater the need of tribal population/locals. The tribal population within 10 km radius of the project shall be given free of cost medical facility.

xxiii. Skill development Centre shall be established within 10 km radius of the project and regular training programmes for development and promotion of traditional art/products of tribal/local population.

xxiv. Preference in employment opportunities and admission to ITI institutions shall be given to Project Affected Families (PAFs).

xxv. An institutional mechanism to be developed to ensure the preference of jobs to PAFs and also a policy for preferential treatment for award of sundry works to the PAFs and their dependents.

xxvi. The compliance of above conditions shall be monitored by IRO, MoEF&CC and regularly site visit once in year. The compliance report of IRO shall be regularly submitted to MoEF&CC.

**[D] Miscellaneous:**

xxvii. After 5 years of the commissioning of the project, a study shall be undertaken regarding impact of the project on the environment. The study shall be undertaken by an independent agency.

xxviii. A dedicated team to oversee environmental management activities (at project site) shall be set up comprising Environment Manager having Post Graduate qualification in Environmental Sciences/ Environment Engineering along with other supporting staff. The Environment Manager shall report to Project Head directly.

xxix. PP shall procure construction material only from those Organizations having all valid legal/statutory clearances/permissions or necessary permission to be obtained for quarrying construction materials

**Item No. 60.2:**

**Patalkot Pumped Storage Project for 1500 MW (6 x 250MW) Patalkot Off-stream Closed Loop Pumped Storage Project located near Patalkot village in Tamia taluka of Chhindwara district, Madhya Pradesh – Terms of References (TOR) - reg.**

**[Proposal No. IA/MP/RIV/587636/2026; F. No. J-12011/43/2026-IA.I(R)**

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

i. The proposal is for ToR to the project Patalkot Off-Stream Closed Loop Pumped Storage Project, Madhya Pradesh by M/s Torrent Energy Storage Solutions Private Limited

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

**iii. The geographical co-ordinates of the project are:**

*Upper Reservoir: 22°24'6.23"N, 78°48'48.35"E*
*Lower Reservoir: 22°25'43.74"N, 78°48'0.65"E*

iv. The Patalkot Pumped Storage Project envisages construction of two artificial reservoirs at village Kathotiya, Patalkot and Chimtipur Sub-District Tamia in Chhindwara district, Madhya Pradesh.

**v. Land requirement**

| | |
|---|---|
| *Forest Land* | *: 140.00 ha* |
| *Non-forest Land* | *: 200.00 ha* |
| *Total Land* | *: 340.00 ha* |

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

- Villages within the study area are predominantly rural, moderately populated, and primarily dependent on agriculture, horticulture, livestock rearing, minor forest produce (MFP), and allied activities.
- Population density in the area is moderate, reflecting the predominantly rural character of Chhindwara district, with a few semi-urban centres such as Chhindwara, Parasia, and Pandhurna.
- Scheduled Tribes (ST) constitute about 35.5% of the district population, while Scheduled Castes (SC) account for about 13.1% of the total population.
- The tribal population mainly comprises communities such as Gond, Bharia (Bhumia), Korku, Pardhan, and Mawasi, inhabiting the forest, hilly, and plateau regions of the district.
- Local communities celebrate the festivals such as Diwali, Holi, Dussehra, Navratri, Makar Sankranti, Hareli, Pola, Bhagoria (in tribal areas), and village temple puja/festival.
- Agriculture remains the principal source of livelihood, supported by horticulture, livestock rearing, collection of minor forest produce (MFP), wage labour, and small-scale businesses.
- Major agricultural crops include soybean, wheat, paddy, maize, gram (chickpea), pigeon

pea (tur/arhar), and other pulses, while horticultural crops such as orange, banana, mango, guava, papaya, lemon, and various vegetables are extensively cultivated by local communities.

| Parameters | Villages | | | | |
|---|---|---|---|---|---|
| | Chimtipur | Kathotiya | Dongra | Chhindi | Dhana Kheda |
| Households | 49 | 84 | 176 | 485 | 113 |
| Total Population | 250 | 348 | 937 | 2232 | 618 |
| Male Population | 120 | 168 | 449 | 1131 | 307 |
| Female Population | 130 | 180 | 488 | 1101 | 311 |
| Scheduled Caste (SC) | 0 | 0 | 0 | 31 | 7 |
| Scheduled Tribe (ST) | 250 | 331 | 896 | 1288 | 609 |

Source: Census of India, 2011

- The demographic profile of the villages surrounding the project area indicates that Chhindi village has the highest total population (2232) with 485 households.
- Chimtipur village is the smallest settlement with a population of 250 with 49 households.
- All villages show a near-even split between male and female populations, with one location (Chhindi village) having a slightly higher number of males compared to females.
- Scheduled Tribe (ST) communities constitute the dominant population group in Chhindi village, followed by Dongra village, Dhana Kheda village, Kathotiya village and Chimtipur village, respectively. Scheduled Caste (SC) communities are also represented in a few villages, with the highest numbers in Chhindi village (31).

vii. **Water requirement:** 1500MW Patalkot Pumped Storage Project will require ~ 21.43 MCM for one time filling and thereafter ~ 3.50 MCM per year will be required.

viii. **Project Cost:** The estimated project cost is Rs 8060.32 crore including IDC. Total capital cost earmarked towards environmental pollution control measures will be worked out during EIA study as well as the Recurring cost (operation and maintenance).

ix. **Project Benefit**: The project will generate employment for approximately 1,000 people during the construction phase and 55 people during the O&M phase, both through direct and indirect employment opportunities.

x. **Environmental Sensitive area:** Satpura Tiger Reserve is the nearest protected area which is about 17.0km from project components. River/ water body, Water will be pumped from Dudhi River, a tributary of Narmada River, 13km from the Lower Reservoir.

xi. The initial allotment for the proposed 1,500MW Pumped Hydro Storage (PHS) Project in Chhindwara District, Madhya Pradesh issued by the Office of the Commissioner, New and Renewable Energy, Bhopal, vide Letter No. F/NRE/PHS/2026/22746 dated 17.07.2026.

xii. **Resettlement and rehabilitation:** R&R issue will be studied during EIA/ EMP studies.

xiii. **Alternative Studies:** The following criteria were used to evaluate and compare alternate schemes:

- Minimal area of land acquisition to accommodate various project components.
- Minimal impact on local populace by way of lower need for R & R.
- Topography of the area and other factors like location, length of water conductor system and impact on the vegetation in acquired land.
- Utilization of available head at project site and to the maximum extent feasible.
- Development of economical and optimized layout.
- Ease of Construction and access to shafts, powerhouse, and related structures.
- Conceiving a layout without interference to the avoidable existing infrastructure features such as high voltage transmission lines, underground gas pipelines, roads, temples etc.

**TABLE-1: LAND DETAILS OF ALTERNATIVE LAYOUTS**

| S. no | Activities | Alternative-1 (Selected) 1500MW | | | Alternative-2 1500MW | | | Alternative-3 660MW | | | Alternative-4 1500MW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Forest | Non-Forest | Total | Forest | Non-Forest | Total | Forest | Non-Forest | Total | Forest | Non-Forest | Total |
| 1a | Site office at Upper Reservoir | 0.00 | 1.00 | **1.00** | 0.00 | 0.50 | **0.50** | 0.0 | 0.5 | **0.5** | 0.00 | 0.50 | **0.50** |
| 1b | Site office at Lower Reservoir | 0.00 | 0.00 | **0.00** | 0.00 | 0.50 | **0.50** | 0.0 | 0.5 | **0.5** | 0.00 | 0.50 | **0.50** |
| 2a | Concrete Batching g Plant, Crusher Plant, RMC Plant at Upper Reservoir | 0.00 | 4.50 | **4.50** | 0.00 | 4.50 | **4.50** | 0.0 | 4.5 | **4.5** | 0.00 | 4.50 | **4.50** |
| 2b | Concrete Batching g Plant, Crusher Plant, RMC Plant at Lower Reservoir | 0.00 | 4.50 | **4.50** | 0.00 | 4.50 | **4.50** | 0.0 | 4.5 | **4.5** | 0.00 | 6.00 | **6.00** |
| 3a | Stacking Area at Upper Reservoir | 0.00 | 4.00 | **4.00** | 0.00 | 4.00 | **4.00** | 0.0 | 4.0 | **4.0** | 0.00 | 5.00 | **5.00** |
| 3b | Stacking Area at Lower Reservoir | 0.00 | 4.00 | **4.00** | 0.00 | 4.00 | **4.00** | 0.0 | 4.0 | **4.0** | 0.00 | 4.00 | **4.00** |
| 4a | Magzine Area at Upper | 0.00 | 0.50 | **0.50** | 0.00 | 0.50 | **0.50** | 0.0 | 0.5 | **0.5** | 0.00 | 0.50 | **0.50** |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Reservoir | | | | | | | | | | | | |
| 4b | Magzine Area at Lower Reservoir | 0.00 | 0.50 | **0.50** | 0.00 | 0.50 | **0.50** | 0.0 | 0.5 | **0.5** | 0.00 | 0.50 | **0.50** |
| 5a | Labour Camp at Upper Reservoir | 0.00 | 2.00 | **2.00** | 0.00 | 2.00 | **2.00** | 0.0 | 2.0 | **2.0** | 0.00 | 2.00 | **2.00** |
| 5b | Labour Camp at Lower Reservoir | 0.00 | 2.00 | **2.00** | 0.00 | 2.00 | **2.00** | 0.0 | 2.0 | **2.0** | 0.00 | 2.00 | **2.00** |
| 6a | Colony Area at Upper Reservoir | 0.00 | 2.00 | **2.00** | 0.00 | 2.00 | **2.00** | 0.0 | 2.0 | **2.0** | 0.00 | 2.00 | **2.00** |
| 6b | Colony Area at Lower Reservoir | 0.00 | 2.00 | **2.00** | 0.00 | 2.00 | **2.00** | 0.0 | 2.0 | **2.0** | 0.00 | 2.00 | **2.00** |
| 7 | HM and EM Workshop | 0.00 | 4.00 | **4.00** | 0.00 | 4.00 | **4.00** | 0.0 | 4.0 | **4.0** | 0.00 | 4.00 | **4.00** |
| 8a | Muck Disposal at Upper Reservoir | 0.00 | 16.54 | **16.54** | 0.00 | 13.00 | **13.00** | 0.0 | 10.5 | **10.5** | 0.00 | 27.00 | **27.00** |
| 8b | Muck Disposal at Lower Reservoir | 0.00 | 34.35 | **34.35** | 0.00 | 11.30 | **11.30** | 0.0 | 10.5 | **10.5** | 0.00 | 25.00 | **25.00** |
| 9a | Upper Reservoir and Dam | 1.16 | 106.10 | **107.26** | 190.50 | 0.00 | **190.50** | 62.5 | 13.1 | **75.6** | 79.00 | 18.00 | **97.00** |
| 9b | Lower Reservoir and Dam | 75.24 | 0.00 | **75.24** | 172.66 | 22.77 | **195.43** | 75.2 | 0.0 | **75.2** | 83.00 | 0.00 | **83.00** |
| 10 | WCS, PH, ADIT, MAT, | 34.47 | 3.23 | **37.70** | 35.00 | 0.00 | **35.00** | 36.5 | 0.0 | **36.5** | 40.00 | 0.00 | **40.00** |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pothead yard | | | | | | | | | | | | |
| 11 | Diversion of Stream | 0.00 | 1.40 | **1.40** | 0.00 | 0.00 | **0.00** | 0.0 | 0.0 | **0.0** | 0.00 | 0.00 | **0.00** |
| 12 | Water filling Pipeline | 18.04 | 0.91 | **18.95** | 3.17 | 4.34 | **7.51** | 6.4 | 1.4 | **7.8** | 14.43 | 0.72 | **15.15** |
| 13 | Proposed Road | 7.65 | 4.85 | **12.50** | 4.65 | 0.20 | **4.85** | 7.3 | 0.0 | **7.3** | 10.00 | 6.70 | **16.70** |
| 14 | Village Road strengthing & upgradation | 3.44 | 1.62 | **5.06** | 2.24 | 2.40 | **4.64** | 3.4 | 1.8 | **5.2** | 2.50 | 1.00 | **3.50** |
| **TOTAL AREA IN HECTARE** | | **140.00** | **200.00** | **340.00** | **408.22** | **85.01** | **493.23** | **191.26** | **68.26** | **259.52** | **228.93** | **111.92** | **340.85** |

Source: Project Feasibility Report, PATALKOT Project, Maharashtra

**TABLE-2: COMPARISON OF PROJECT PARAMETERS**

| S. No. | Parameters | | Units | Alt-1 | Alt-2 | Alt-3 | Alt-4 |
|---|---|---|---|---|---|---|---|
| **1** | **Project Capacity** | | **MW** | **1500** | **1500** | **660** | **1500** |
| 2 | Upper Reservoir | FRL/MDDL | El in m | 1105/1086 | 712/686 | 836/803 | 870/833 |
| 3 | | Dam Type | - | Geo-Membrane Faced Rockfilled Dam (GFRD) | | | |
| 4 | | Dam Crest Length | m | 5019 | 1083 | 2696 | 3379 |
| 5 | | Max Height of Dam from ground level | m | 37 | 38 | 40 | *45* |
| 6 | | Live Storage | MCM | 13.59 | 16.42 | 6.00 | 14.96 |
| 7 | | Dead Storage | MCM | 0.95 | 0.81 | 0.10 | 0.9 |
| 8 | | Gross Storage | MCM | 14.54 | 17.23 | 6.10 | 15.84 |
| 9 | Lower Reservoir | FRL / MDDL | El in m | 694/671 | 477/455 | 534/517 | 539/508 |
| 10 | | Dam Type | - | Concrete Gravity Dam | | | |
| 11 | | Dam Crest Length | m | 334 | 2126 | 272 | 481 |
| 12 | | Max height of Dam from ground level | m | 45 | 35 | 44 | *31* |
| 13 | | Live Storage | MCM | 12.64 | 16.42 | 5.62 | 15.30 |
| 14 | | Dead Storage | MCM | 4.91 | 1.91 | 4.055 | 1.85 |
| 15 | | Gross Storage | MCM | 17.55 | 18.33 | 9.675 | 17.15 |
| 16 | WCS | Total Length of WCS (L) | m | 2030 | 3330 | 2780 | 2515 |
| 17 | Head | | m | 420 | 225.75 | 289 | 362 |
| 18 | **L / H** | | - | **4.83** | **14.75** | **9.62** | **6.94** |
| 19 | MAT Length | | m | 1517 | 1153 | 1387 | 1584 |
| 20 | Shortest Tunnelling Length to reach Powerhouse | | m | 904 (266 m from Adit to MAT + 638 m in MAT) | 1153 (from MAT) | 87 (from MAT) | 1584 (from MAT) |

**TABLE 3: MERITS AND DEMERITS OF ALTERNATIVE LAYOUTS**

| S. No. | Layout | Merits | Demerits |
|---|---|---|---|
| 1 | Alt-02 | Alt-2 has higher capacity (1500 MW) than Alt-3 (660 MW)<br>Upper Reservoir crest length is less | Length of water conductor system is highest and unfavorable 14.75 m. Therefore, higher L/H ratio indicating higher cycle efficiency Construction time will be longer Total land requirement and Forest land requirement is the highest among the Alternatives |
| 2 | Alt-03 | Compared to Alt-2 Alt-3 has less L/H ratio | Project capacity is least Length of water conductor system is high compared to Alternate-1. Therefore, higher L/H ratio indicating higher cycle efficiency MAT length is high, consequently the construction time will |

| S. No. | Layout | Merits | Demerits |
|---|---|---|---|
| | | | be longer. The total land requirement and Forest land requirement is higher than Alt-1 |
| *4* | *Alt-04* | *L/H ration,MAT & adit lengths, Access to site,* | L/H is 6.94 which is higher compared to alt 1 Due lack of connectivity to lower reservoir long tunneling is required for MAT & adits which in turn delays project schedule.<br>In Alternative 4, state highway no 22 from project location is at 32km which is not practical for the construction schedule of pumped storage projects, therefore due to lack of road connectivity Alternative 4 is not considered further |

**Conclusion**

- While selecting the layout of a PSP plant, the objective is to maximize the available head between the upper and lower reservoirs while minimizing the length of the water conductor system to achieve an economical and hydraulically efficient design. A lower ratio of the water conductor system length (L) to gross head (H), i.e., L/H ratio, is desirable as it indicates lower head losses, higher cycle efficiency, and reduced overall project cost. Typically, an L/H ratio in the range of 4–6 is considered favorable for PSP development.

- The Alt-1 has the least L/H ratio of 4.83 in contrast to other alternatives having considerably high L/H ratios (14.75 in Alt-2, 9.62 in Alt-3) enabling better hydraulic efficiency and reduced conveyance losses.

- The forest land requirement is significantly less in Alt-1compared to Alt-2 and Alt-3.

- Hence, considering overall technical feasibility, hydraulic efficiency, and economic viability, Alternative 1 is recommended as the most suitable option for development.

xiv. Details of Solid waste/ Hazardous waste generation/ Muck and its management will be covered in EIA/EMP report.

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

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

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| **1** | **Location** | | |
| 1.1 | Country | - | India |
| 1.2 | State | - | Madya Pradesh |
| 1.3 | District | - | Chhindwara |
| 1.4 | Taluka | - | Tamia |
| 1.5 | Village near Upper Reservoir | - | Kathotiya |
| 1.6 | Village near Lower Reservoir | - | Chimtipur |
| **2** | **Type of Project** | | |
| 2.1 | Type | - | Off-Stream Closed Loop PSP |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| 2.2 | Installed Capacity | MW | 1500 |
| 2.3 | Peak operation Generation | hr | 6.25 |
| 2.4 | Peak operation Pumping | hr | 7.15 |
| 2.5 | Daily Energy Generation | GWh | 9.375 |
| 2.6 | Annual Energy Generation (100% machine availability) | GWh | 3421.88 |
| 2.7 | Annual Energy Generation (95% machine availability) | GWh | 3250.78 |
| 2.8 | Estimated Daily Pumping Energy | GWh | 10.73 |
| 2.9 | Estimated Annual Pumping energy (100% machine availability) | GWh | 3914.63 |
| 2.10 | Annual Pumping energy required (95% machine availability) | GWh | 3718.89 |
| 2.11 | Storage Utilized for generation | MCM | 11.37 |
| 2.12 | Cycle Efficiency | % | 79.46 |
| **3** | **Upper Reservoir** | | |
| 3.1 | Live Storage | MCM | 13.59 |
| 3.2 | Dead Storage | MCM | 0.95 |
| 3.3 | Gross Storage | MCM | 14.54 |
| **4** | **Upper Dam** | | |
| 4.1 | Type of Dam | - | GFRD |
| 4.2 | Top of Dam | EL (m) | 1109 |
| 4.3 | Full Reservoir Level (FRL) | EL (m) | 1105 |
| 4.4 | Minimum Draw Down Level (MDDL) | EL (m) | 1086 |
| 4.5 | Maximum Water Level (MWL) | EL (m) | 1107 |
| 4.6 | Lowest Riverbed Level | m | 1072 |
| 4.7 | Length of Dam | m | 5019 |
| 4.8 | Max Height of Dam | m | ≈37 (above deepest bed level) |
| 4.9 | Type of Spillway | - | Side Channel Spillway |
| 4.1 | Spillway Capacity | m3/s | ≈ 75 |
| 4.11 | Spillway Crest Length | m | 20 |
| 4.12 | Spillway Crest Level | EL (m) | 1105.3 |
| **5** | **Lower Reservoir** | | |
| 5.1 | Live Storage | MCM | 12.64 |
| 5.2 | Dead Storage | MCM | 4.91 |
| 5.3 | Gross Storage | MCM | 17.55 |
| **6** | **Lower Dam** | | |
| 6.1 | Type of Dam | - | Concrete Gravity Dam |
| 6.2 | Top of Dam | EL (m) | 697 |
| 6.3 | Maximum Water Level (MWL) | EL (m) | 695 |
| 6.4 | Full Reservoir level (FRL) | EL (m) | 694 |
| 6.5 | Minimum Draw Down Level (MDDL) | EL (m) | 671 |
| 6.6 | Length of Dam | m | 334 |
| 6.7 | Max Height of Dam | m | ≈45 (above deepest bed level) |
| 6.8 | Type of Spillway | - | Gated (9 m W x 7 m H) |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| 6.9 | No of bays | Nos | 3 |
| 6.1 | Length of Each Bay | m | 9 |
| 6.11 | Width of Pier | m | 3 |
| 6.12 | Total Length of Spillway | m | 39 |
| 6.13 | Crest Level of Spillway | EL (m) | 687 |
| 6.14 | Spillway Capacity | m3/s | ≈ 664 |
| **7** | **Upper Intake** | | |
| 7.1 | Number of Intakes | Nos | 3 |
| 7.2 | Type | - | Horizontal Diffuser Type |
| 7.3 | Sill Level | EL (m) | 1066 |
| **8** | **Head Race Tunnel** | | |
| 8.1 | Head Race Tunnels | No's | 3 |
| 8.2 | Shape / Lining | - | Circular Concrete Lined |
| 8.3 | Diameter | m | 8.5 |
| 8.4 | Length | m | 175 |
| **9** | **Pressure Shaft/ Tunnel** | | |
| 9.1 | Type | - | Circular Steel Lined |
| 9.2 | Number of Pr. Shaft | Nos. | 3 |
| 9.3 | Diameter | m | 6 |
| 9.4 | Length | m | ~580 |
| **10** | **Unit Pressure Shaft/ Tunnel** | | |
| 10.1 | Type | - | Circular Steel Lined |
| 10.2 | Number of Unit Pr. Shaft | Nos. | 6 |
| 10.3 | Diameter | m | 4.3 |
| 10.4 | Length | m | ~400 |
| **11** | **MIV (Main Inlet Valve)** | | |
| 11.1 | Type | - | Spherical Valve |
| 11.2 | Diameter | m | 3 |
| **12** | **Powerhouse Cavern** | | |
| 12.1 | Type | - | Underground |
| 12.2 | Size (L) X (W) X (H) | mxmxm | 226.40 x 24 x 46 |
| 12.3 | Pump-turbine Centre line | EL (m) | 619 |
| **13** | **Transformer Cavern** | | |
| 13.1 | Type | - | Underground |
| 13.2 | Size (L) X (W) X (H) | m xmxm | 203.30 x 16 x 26.50 |
| **14** | **Tail Race Tunnel** | | |
| 14.1 | Type | - | Concrete Lined |
| 14.2 | Finished Shape | - | Circular |
| 14.3 | No. of Main TRTs | Nos. | 3 |
| 14.4 | No. of Unit TRTs | Nos. | 6 |
| 14.5 | No. of Draft Tube Tunnels | Nos. | 6 |
| 14.6 | Diameter of Main TRT | m | 8.5 |
| 14.7 | Diameter of Unit TRT | m | 6 |
| 14.8 | Diameter of Draft tube Tunnel | m | 6.6 |

| S. No. | Description | Unit | Parameter |
|---|---|---|---|
| 14.9 | Length of Main TRT | m | ~488 |
| 14.1 | Length of Unit TRT | m | ~50 |
| 14.11 | Length of Draft Tube Tunnel | m | ~110 |
| **15** | **D/s Surge Chamber** | | |
| 15.1 | Type | - | Restricted Orifice |
| 15.2 | Dimensions | m | 10 (W) x 140 (L) |
| **16** | **Lower Intake** | | |
| 16.1 | Number | - | 3 |
| 16.2 | Type | - | Horizontal Diffuser Type |
| 16.3 | Sill Level | EL (m) | 654 |
| **17** | **Access Tunnels** | | |
| 17.1 | Length of Main Access Tunnel (MAT) | m | 1321 |
| 17.2 | Construction adit to MAT | m | 207 |
| 17.3 | Cable Cum Ventilation Tunnel | m | 412 |
| 17.4 | Branch Adit to Powerhouse cavern top | m | 107 |
| 17.5 | Branch Adit to D/S Surge | m | 440 |
| 17.6 | Adit to Erection Chamber | m | 603 |
| 17.7 | Branch Adit to PS Bottom | m | 293 |
| 17.8 | Access Tunnel to Lower Intake gate Shaft | m | 206 |
| **18** | **Electro-Mechanical Equipment** | | |
| 18.1 | Type | - | Fixed speed, Reversible Francis |
| 18.2 | Units | Nos. | 6 |
| 18.3 | Total Installed Capacity | MW | 1500 |
| 18.4 | Turbine Capacity | MW | 250 |
| 18.5 | Synchronous Speed | RPM | 277.77 |
| 18.6 | Rated Net Head (Generation mode) | m | 404.98 |
| 18.7 | Rated Discharge (Generation mode) | $m^3/s$ | 83.78 |
| 18.8 | Pump Capacity | MW | 275 |
| 18.9 | Rated Net Head (Pump Mode) | m | 418.28 |
| 18.10 | Rated Discharge (Pump Mode) | $m^3/s$ | 73.27 |
| **19** | **Project Cost** | | |
| 19.1 | Civil Works | ₹ Cr | 3065.63 |
| 19.2 | Electro-Mechanical Works | ₹ Cr | 2977.2 |
| 19.3 | Escalation | ₹ Cr | 860.26 |
| 19.4 | IDC & FC | ₹ Cr | 1157.23 |
| 19.5 | Project Capital (Completion) Cost | ₹ Cr | 8060.32 |
| **20** | **Project Benefits** | | |
| 20.1 | Levelized tariff (without considering cost of pumping energy) | ₹/kWh | 4.14 |
| 20.2 | Levelized tariff (pumping energy rate of ₹2/Unit | ₹/kWh | 6.74 |
| 20.3 | Levelized tariff (pumping energy rate of ₹2/Unit | ₹/kWh | 8.03 |

| PROJECT DETAILS | |
|---|---|
| Name of the Proposal | Patalkot Off-stream Closed Loop Pumped Storage Project (1500MW) |
| Location including Coordinates | **LOWER RESERVOIR:**<br>Latitude: 22°25'43.74"N<br>Longitude: 78°48'0.65"E<br>**UPPER RESERVOIR:**<br>Latitude: 22°24'6.23"N<br>Longitude: 78°48'48.35"E |
| Inter-State Issue Involved | No |
| Seismic Zone | Zone-III |

| CATEGORY DETAILS | |
|---|---|
| Category of the Project | A |
| Provisions | - |
| Capacity / ~~Cultural command area (CCA)~~ | 1500MW |
| Attracts the General Conditions (Yes/No) | No |
| Additional information (if any) | Nil |

| ELECTRICITY GENERATION CAPACITY | |
|---|---|
| Powerhouse Installed Capacity | 1500MW |
| Generation of Electricity Annually | 3250.78MU |
| Number of units | 6 nos. (6x250MW) |
| ditional information (if any) | Nil |

| TOR/EC DETAILS | |
|---|---|
| Cost of the Project | INR. 8060.32 crores |
| Total Area of the Project | 340.0ha |
| Height of Dam from riverbed (EL) | Lower Dam-45.0m, Upper dam-37.0m |
| Length of the Tunnel/Channel | 2030m |
| Details of Submergence Area | 182.5ha |
| Types of Waste and quantity of generation during construction/ Operation | Muck from excavation, solid waste from labour colony and construction waste |
| Additional information (if any) | Nil |
| E-Flows for the Project | As the proposed scheme is a closed-loop pumped storage project, no consumptive use of water is envisaged for power generation, and the same water will be continuously recycled between the upper and lower reservoirs during operation. To maintain the natural drainage regime and downstream hydrological connectivity, runoff generated within the catchments intercepted by the reservoir will be |

| | |
|---|---|
| | released downstream. Appropriate spillway and low-level outlet arrangements will be provided at the embankment. |
| Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then | |
| a) E-flow with TOR /Recommendation by EAC as per CIA&CC study of River Basin. | No |
| b) If not the E-Flows maintain criteria for sustaining river ecosystem. | |
| No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign | 1000 |

| **MUCK DISPOSAL DETAILS** | |
|---|---|
| No. of proposed disposal area/ (type of land-Forest/Pvt. land) | 50.89ha (Non-Forest Land) |
| Muck Management Plan | Will be provided in EIA/EMP Report |
| Monitoring Mechanism for Muck Disposal | Will be provided in EIA/EMP Report |

| **LAND AREA BREAK-UP** | |
|---|---|
| Private Land | 200.0 ha |
| Government Land | - |
| Forest Land | 140.0 ha |
| **Total Land** | **340.0 ha** |
| Submergence Area/Reservoir Area | 182.5 ha |
| Additional Information if any | Nil |

| **PRESENCE OF ENVIRONMENTALLY SENSITIVE AREAS IN THE STUDY AREA** | | |
|---|---|---|
| **Forest Land/ Protected Area/ Environmental Sensitivity Zone** | **YES/NO** | **Details of Certificate / letter/Remarks** |
| Reserve Forest/Protected Forest Land | YES | 140.00ha is combination of PF/RF land. Application under Van Sanrakshan Evam Samvardhan Adhiniyam 1980 shall be made after the grant of ToR |
| National Park<br>Wildlife Sanctuary | NO | Satpura Tiger Reserve is the nearest protected area which is about 17.0km from project components. |

| **COURT CASES DETAILS** | |
|---|---|
| Court Case | Nil |
| Additional information (if any) | Nil |

| **AFFIDAVIT/UNDERTAKING DETAILS** | |
|---|---|
| Affidavit/Undertaking | Enclosed |

| AFFIDAVIT/UNDERTAKING DETAILS | |
|---|---|
| Additional information (if any) | Nil |

| PREVIOUS EC COMPLIANCE AND NECESSARY APPROVALS | |
|---|---|
| **Particulars** | **Letter no. and date** |
| Certified EC compliance report (if applicable) | Not Applicable |
| Status of Stage- I FC | Yet to Apply |
| Additional details (If any) | Nil |
| **Is FRA (2006) done for FC-I** | Yet to Apply |

| **Miscellaneous** | | |
|---|---|---|
| **Particulars** | **Details** | |
| Details of consultant | M/s. RS Envirolink Technologies Pvt. Ltd. (RSET) (*NABET* Accredited *Consultant Organization*) | |
| | Certificate No | : NABET/EIA/25-28/RA0415 |
| | Validity | : August 15, 2028 |
| | Contact Person | : Mr. Ravinder Bhatia |
| | Name of Sector | : River Valley & Hydroelectric Projects |
| | Category | : A |
| | MoEF&CC Schedule | : 1(C) |
| | Address | : 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Haryana - 122009 |
| | E-mail | : ravi@rstechnologies.co.in |
| | Landline | : (0124) 4295383 |
| | Cellular | : (+91) 9810136853 |
| Project Benefits | Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, compared favorably to other energy storage technologies and thermal technologies. This effectively shifts stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. | |

| | |
|---|---|
| | Further, pumped storage projects are critical to the national economy and overall energy reliability because it's:<br>• Least expensive source of electricity, not requiring fossil fuel for generation<br>• An emission-free renewable source<br>• Balancing grid for demand driven variations<br>• Balancing generation drives variations<br>• Voltage support and grid stability<br>Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions. |
| Status of other statutory clearances | **Forest Clearance-** Online application seeking forest diversion for around 140.0ha after receipt of ToR Approval. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report. |
| R&R details | Details shall be evaluated during EIA/EMP Studies |
| Additional detail (If any) | Nil |

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

The EAC deliberated upon the information submitted by the Project Proponent (PP), including Form-1, Pre-Feasibility Report, KML file and other relevant documents, and the presentation made during the meeting. The PP informed that the proposal is for grant of Terms of Reference (ToR) for undertaking EIA/EMP studies and conducting Public Hearing for the Patalkot Pumped Storage Project (1500 MW; 6 × 250 MW), a closed-loop off-stream pumped storage project located near Patalkot village, Tamia Taluka, Chhindwara District, Madhya Pradesh.

The PP informed that the project falls under Category 'A', Item 1(c) – River Valley Projects, of the Schedule to the EIA Notification, 2006, and therefore requires appraisal at the Central level by the EAC.

It was noted by the EAC that the total land requirement is 340.00 ha, comprising 140.00 ha of forest land and 200.00 ha of non-forest land. The forest land is proposed for diversion for various project components. The EAC noted that the Stage-I Forest Clearance proposal has not yet been submitted and advised the PP to initiate the same at the earliest in accordance with the applicable provisions.

The PP informed that the project envisages construction of upper and lower reservoirs and that the estimated water requirement of 21.43 MCM would be met by pumping water from a river source located approximately 13 km from the project site on the Dudhi River, a tributary of the Narmada River.

The PP further informed that no National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger/Elephant Reserve or Wildlife Corridor is located within 10 km of the project site. The Satpura Tiger Reserve, at approximately 17 km, is the nearest protected area.

The PP informed that the completed project cost is estimated at ₹8,060.32 crore, including IDC.

**60.2.3** The EAC after detailed deliberations on the information submitted and as presented during the meeting, **recommended** the proposal for grant of Specific ToR issued by the Ministry for Closed Loop Pumped Storage Projects vide OM dated 14.08.2023 for conducting EIA study for proposed construction of the project for Patalkot Pumped Storage Project for 1500 MW (6 x 250MW) Patalkot Off-stream Closed Loop Pumped Storage Project located near Patalkot village in Tamia taluka of Chhindwara district, Madhya Pradesh under the provisions of EIA Notification, 2006, as amended along with the following additional/specific ToR:

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

i. The Project Proponent shall submit the Stage-I Forest Clearance proposal for diversion of 140.00 ha of forest land within the stipulated timeline.

ii. The EIA/EMP report shall include a comprehensive assessment of the incremental impact of tree felling due to diversion of 140.00 ha of forest land.

iii. The PP shall submit a detailed water filling plan for the reservoir from the Dudhi River, along with requisite approval from the Water Resources Department/competent authority.

iv. The EIA/EMP study shall assess the cumulative impact of water abstraction by the proposed and other projects in the basin on the sustainability and flow regime of the Dudhi River.

v. The PP shall undertake a detailed assessment to optimize and minimize the diversion of forest land required for various project components.

vi. The PP will submit 10 years water availability data certified by the CWC/State Water Resource Department for quantity of water that is received annually by the small stream on which upper reservoir is proposed to be constructed.

vii. The PP will submit a monitoring mechanism for releasing the self -catchment water of small stream draining in to upper reservoir of the project along with action plan for conservation and protection of other streams/rivulets draining in to upper and lower reservoirs.

viii. Detailed action plan for large scale plantation of native species of plant sapling within 10 km radius of the project shall be prepared in consultation with State Forest Department. The monitoring mechanism to ensure the survival of saplings shall be finalised in consultation with ICFRE.

ix. Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.

x. Certificate and certified map from Chief Wildlife Warden shall be submitted mentioning that project boundary is not falling in any Ecological Sensitive Area, Wildlife Sanctuary/Tiger/elephant corridor/Critically polluted area within 10 km of Project site.

xi. Transportation Plan for transporting construction materials shall be submitted. Separate chapter for risk assessment of such transportation through/within proposed the Wildlife Sanctuary shall be included in the EIA report.

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

xiii. The baseline data collection will cover the changes in biological and ecological profile of the region after monsoon with worst-case scenario study and critical mineral assessment.

xiv. Calculation and values of GHGs ($CO_2$, $CH_4$ etc.) emissions during construction and during operation till the life of the project shall be estimated and submitted.

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

xvi. Quantitative impact modelling of environmental parameters shall be carried out for both the construction and operation phases. The corresponding mitigation measures for the identified impacts during each phase shall also be submitted.

xvii. Conducting site-specific ecological study emphasizing on riverine ecology viz. fishes diversity, fish migration, habitat and aquatic biota due to construction PSP. Impact assessment on the fish diversity based on the hydrological alteration at the water drawing sources shall be studied.

xviii. Action plan for survival or diversion of the rivulets/stream, if any, leading to join river shall be submitted.

xix. Impact zone decided prior to base line data generation and accordingly, sampling location shall be finalized. Baseline data as mentioned in Specific ToR shall be collected for preparation of EIA/ EMP report along with soil characteristics which shall be studied at minimum 10 locations. The ground water level at 10 locations shall be measured in project area in all three seasons.

xx. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted for power generation and thermal stratification. Accordingly, Environment Management plan shall be prepared.

xxi. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.

xxii. Scope of watershed development in the 10 km radius of the project shall be studied in consultation with Indian Council of Agriculture Research (ICAR) Institutes/ Expert Govt. institutions and accordingly a detailed Water Shed Development Plan shall be prepared and incorporated in EIA/ EMP report.

xxiii. Aquifers mapping shall be done through expert government institute in project catchment area and accordingly Aquifers Conservation Action Plan be submitted.

xxiv. Details of mineral zone, if any, in the study area, certified by Geological Survey of India or any other concerned Government Organization shall be submitted. The project area should not come up on any critical mineral zone, the same shall to be verified by GSI/NMDC.

xxv. Any archaeological sites in the vicinity of the project, if any, then it shall be certified by ASI.

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

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

xxv. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. A comparative chart of issues raised by General Public during Public Hearing and commitments made by the Project Proponent will be prepared and submitted in the relevant chapter of EIA/EMP report.

xxvi. PP shall submit the credible documents to show the status of land acquisition w.r.t project site from/through the concerned State Government as required under Ministry's OM dated 7th October, 2014 for the project land to be acquired.

xxvii. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land (if any) shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Budget earmarked for R&R, CSR shall not be included in the cost of EMP.

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

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

xxix. Details of muck management such as dumping sites and its locations, transportation plan along with monitoring mechanism for muck transportation, detailing the road map of project construction site/ indicating the distances from HFL, river, project construction site along with types of road etc. to be provided.

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

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

**[D] Disaster Management:**

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

xxxiii. The muck dumping sites shall be located with a distance of 100 mts from HFL. The PP shall submit the detailed action plan for transportation of muck along with monitoring mechanism of movement of muck carrying trucks.

**[E] Miscellaneous**

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

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

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

xxxvii. Drone video of project site shall be recorded and to be submitted.

xxxviii. Undertaking need to be submitted on affidavit stating that no activities has been started on the project site after the abandonment of project by Water Resources Department (WRD), Government of Maharashtra.

xxxix. Detailed plan to restore wider roads and convert them into narrow up to 10m after construction of the project.

xl. Specific Terms of Reference (ToRs) issued by the Ministry vide Office Memorandum No. F. No. IA3-22/33/2022-IA.III dated 14.08.2023 for Pumped storage projects shall be used for preparation of EIA/ EMP reports.

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

xlii. The conditions mentioned in the Western Ghats notification (draft notification no. S.O.3060(E) dated 31.07.2024) for development of hydro-power projects issued by the MOEF&CC shall be complied with while preparing EIA/EMP report

**Agenda item No. 60.3:**

**Formation of reservoir across Vallimalai Odai near Therkku Veeravanallur Village of Cheranmahadevi Taluk in Tirunelveli District of Tamil Nadu - ToR - Reg.**

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

i. The proposal is for ToR to the project for Formation of reservoir across Vallimalai Odai near Therkku Veeravanallur Village of Cheranmahadevi Taluk in Tirunelveli District of Tamil Nadu by Water Resources Department (WRO), Government of Tamil Nadu

ii. Reason for appraisal at Central Level by Expert Appraisal Committee (EAC). The proposed project attracts the General Conditions as the project falls in the KMTR Protected area

iii. The geographical co-ordinate of the project are $8^0$ 37' 38.35" N, $77^0$ 29 '57.81'' E

iv. Formation of reservoir across Vallimalai Odai for Irrigation of 2910 Ha Cultural Command Area in Tirunelveli District of Tamil Nadu

v. **Land requirement:**

| Nature of Land involved | Area in Ha |
|---|---|
| Non-Forest Land (A) | 263.155 |
| Forest Land (B) | - |
| **Total Land (A+B)** | **263.155** |

vi. **Demographic details in 10 km radius of project area:** The proposed project is located in Cheranmahadevi Taluka in Tirunelveli District. As per Census 2011, the total population in the study area is 1,97,753. The male and Female population in study area blocks comprises about 49.13% and 50.86% respectively of the total population

vii. **Water requirement:**
Water requirement during Construction phase is estimated as 9.45 KLD

viii. **Project Cost:** The estimated project cost is Rs.550 Crores**.**

ix. **Project Benefit:** The proposed project shall irrigate cultural Command of 2910 Ha. The implementation of proposed project will enhance the food production in the region and shall benefit the local population and Flood in the area.

x. **Environmental Sensitive Area:** The proposed project falls under Kallakkad Mundanthurai Tiger Reserve (KMTR).

xi. **Resettlement and rehabilitation:** To be prepared as part of EIA Study

xii. **Scheduled–I species:** To be determined as part of EIA study after approval of ToR

xiii. **Alternative Studies:** No.

xiv. **Details of Solid waste/ Hazardous waste generation/ Muck and its management:** Solid Waste – 4.75 TPA (Construction Phase) ; Management Plans to be prepared as part of EMP of EIA study after approval of ToR

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

xvi. **The salient features** of the project are enclosed as under:

**Project details**

| | |
|---|---|
| Name of the Proposal | Formation of reservoir across Vallimalai Odai near Therkku Veeravanallur Village of Cheranmahadevi Taluk in Tirunelveli District of Tamil Nadu |
| Location (Including coordinates) | Village: Therkku Veeravanallur Village of Cheranmahadevi Taluk in Tirunelveli District of Tamil Nadu<br>**Coordinates:**<br>Latitude : $08^0$ 37' 38.35" N<br>Longitude : $77^0$ 29 '57.81'' E |
| Inter- state issue involved | Nil |
| Seismic zone | III |

**Category details**

| | |
|---|---|
| Category of the project | Category A |
| Provisions | -- |
| Capacity / Cultural command area (CCA) | 2910 Ha |
| Attracts the General Conditions (Yes/No) | Yes |
| Additional information (if any) | -- |

**Electricity generation capacity**

| | |
|---|---|
| Powerhouse Installed Capacity | -- |
| Generation of Electricity Annually | -- |
| No. of Units | -- |
| Additional information (if any) | -- |

**ToR/ EC Details**

| | |
|---|---|
| Cost of project | Rs. 550 Crores |
| Total area of Project | 263.155 Ha |
| Height of Dam from River Bed (EL) | 18 m |
| Length of Tunnel/Channel | - |
| Details of Submergence area | 177 Ha |
| Types of Waste and quantity of generation during construction/ Operation | Solid Waste – 4.75 TPA (Construction Phase) |
| E-Flows for the Project | As Applicable |

| | |
|---|---|
| Is Projects earlier studies in Cumulative Impact assessment & Carrying Capacity studies (CIA&CC) for River in which project located. If yes, then<br>a) E-flow with TOR/ Recommendation by EAC as per CIA&CC study of River Basin.<br>b) If not the E-Flows maintain criteria for sustaining river ecosystem. | No |
| No. of trees/ saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign | Shall be proposed during EIA study |

**Muck Management Details**

| | |
|---|---|
| No. of proposed disposal area/(type of land-Forest/Pvt. land) | All the Muck generated shall be utilized for Bund formation of the Reservoir |
| Muck Management Plan | -- |
| Monitoring mechanism for Muck Disposal | -- |

**Land Area Breakup**

| | |
|---|---|
| Private land /Non-Forest Land | 211.738 Ha |
| Government land | 51.417 Ha |
| Forest Land | - |
| Total Land | 263.155 Ha |
| Submergence area/Reservoir area | 177.00 Ha |
| Additional information (if any) | -- |

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

| **Forest Land/ Protected Area/ Environmental Sensitivity Zone** | Yes/No | **Details of Certificate/ letter/Remarks** |
|---|---|---|
| Reserve Forest/Protected Forest Land | No | Kallakkad Mundanthurai Tiger Reserve (KMTR) |
| National Park | No | |
| Wildlife Sanctuary | Yes | |

**Court case detail: Nil**

**Affidavit/Undertaking details:**

| | |
|---|---|
| Affidavit/Undertaking | NA |
| Additional information (if any) | - |

**Previous EC compliance and necessary approvals**

| **Particulars** | **Letter no. and date** |
|---|---|
| Certified EC compliance report (if applicable) | NA |

| | |
|---|---|
| Status of Stage-I FC | Yet to be submitted |
| Additional detail (If any) | - |
| Is FRA (2006) done for FC-I | No |

**Miscellaneous**

| **Particulars** | **Details** |
|---|---|
| Details of consultant | WAPCOS Limited |
| Project Benefits | • The implementation of proposed project will enhance the food production in the region and shall benefit the local population<br>• Mitigation of the Flood in the area |
| Status of other statutory clearances | Application for NBWL clearance has been submitted |
| R&R details | To be prepared as part of EIA Studies |
| Additional detail (If any) | - |

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

The EAC deliberated on the information submitted by the Project Proponent (PP), including Form-1, Pre-Feasibility Report, KML file and other relevant documents, along with the presentation made during the meeting. The PP informed that the proposal is for grant of Terms of Reference (ToR) for undertaking EIA/EMP studies and conducting Public Hearing for the proposed formation of a reservoir across Vallimalai Odai near Therkku Veeravanallur Village, Cheranmahadevi Taluk, Tirunelveli District, Tamil Nadu, by the Water Resources Department (WRD), Government of Tamil Nadu.

The PP informed that the proposed project attracts the General Conditions under the EIA Notification, 2006, as amended, due to its location within the Kalakkad Mundanthurai Tiger Reserve (KMTR). Accordingly, the proposal falls under the appraisal jurisdiction of the Ministry and requires appraisal and review at the Central level by the EAC.

The PP informed that the Thamiraparani is the primary river basin in Tirunelveli District and that Vallimalai Odai is a minor tributary of the Koppuraiyar River, which is one of the three main tributaries of the Koraiyar River. The PP further informed that another major tributary of the Koppuraiyar flows adjacent to Vallimalai Odai and that the project proposes to divert the water of this tributary into the proposed reservoir. The primary objective of the scheme is to harvest and store seasonal flood flows during the monsoon, thereby facilitating conversion of single-crop agricultural lands into double-crop areas, conversion of drylands into wetlands, stabilization of existing irrigation systems and creation of additional ayacuts through systemic groundwater recharge of local wells.

The PP informed that 2,765 Mcft of water is utilized under the Tamiraparani-Karumeniyar-Nambiyar River Linking Scheme and that, even after implementation of all newly proposed schemes, a substantial surplus quantity of 7,860 Mcft would remain available downstream of the Srivaikundam Anicut.

The PP informed that a total of 263.155 ha of combined private and Government land is required for construction and formation of the proposed reservoir across Vallimalai Odai. The proposed reservoir is

intended to provide irrigation infrastructure for a Culturable Command Area (CCA) of 2,910 ha in Tirunelveli District.

The PP informed that the proposed project is located within the buffer zone of Kalakkad Wildlife Sanctuary. The EAC observed that the applicable statutory notifications do not explicitly permit irrigation project activities within the designated buffer zone. Accordingly, the Committee emphasized that specific comments/clearance from the Chief Wildlife Warden shall be obtained to establish the permissibility of the project under the applicable environmental and wildlife protection provisions.

The PP further informed that the NBWL clearance proposal was submitted on 27.03.2026 and that the Deputy Director/Wildlife Warden, Kalakkad Sanctuary, along with his team, visited the project site on 07.08.2026. The EAC further observed that, since the project falls within the Kalakkad-Mundanthurai Tiger Reserve (KMTR), the requisite statutory approval/clearance from the National Tiger Conservation Authority (NTCA) shall also be obtained, as applicable.

The PP informed that the project involves inter-basin transfer of water between river systems. The EAC, therefore, emphasized that the EIA study shall include a comprehensive assessment of the environmental and hydrological impacts of the proposed water transfer on the Tamiraparani, Karumeniyar and Nambiyar river systems, with particular emphasis on long-term sustainability and ecological flow requirements of the affected river basins.

**60.3.3**: The EAC after detailed deliberations on the information submitted and detailed deliberations **recommended** the proposal for grant of Standard Terms of Reference (ToR) to Proposed Formation of reservoir across Vallimalai Odai near Therkku Veeravanallur Village of Cheranmahadevi Taluk in Tirunelveli District of Tamil Nadu by Water Resources Department (WRO), Government of Tamil Nadu. under the provisions of EIA Notification, as amended along with the following additional/specific ToR.

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

i. The Project Proponent shall submit the Stage-I Forest Clearance proposal for diversion of 263.155 ha of forest land to MoEF&CC within the stipulated timeline.

ii. A detailed assessment shall be undertaken to optimize and minimize the diversion of 263.155 ha of forest land required for various project components, and the findings shall be incorporated in the EIA/EMP report.

iii. The EIA/EMP study shall include a comprehensive cumulative environmental impact assessment of the proposed project and other existing/proposed interventions to assess the long-term sustainability of the Tamiraparani, Karumeniyar and Nambiyar river systems, including their hydrological and ecological regimes.

iv. The Project Proponent shall formulate and implement a site-specific Aquatic Ecology Management and Conservation Plan for protection of native fish species, macro-invertebrates and aquatic biodiversity from construction and operational impacts.

v. The Project Proponent shall obtain the requisite statutory clearance/permission from the National Tiger Conservation Authority (NTCA), as applicable, before commencement of any project activity within the Kalakkad-Mundanthurai Tiger Reserve (KMTR).

vi. The Project Proponent shall incorporate a suitably designed fish ladder/fish pass as an integral component of the barrage to maintain riverine ecological connectivity and facilitate upstream and downstream migration of native fish species.

vii. The Project Proponent shall obtain and submit formal consent of the Government of Tamil Nadu for the construction and operational phases of the project, as applicable.Prepare Environmental Cost Benefit Analysis in terms of ecological damage due to diversion of Forest land/ loss of biodiversity and its impacts on ecosystem.

viii. A study shall be carried out on impact of project activity on the aquatic and terrestrial ecosystem, within project area classifying the impact zones (highly impact/low impact zone) based on seasonal variations and covering the aspects related to impacts on aquatic ecosystem/ primary productivity due to quantity of water to be lifted and thermal stratification. Accordingly, Environment Management plan shall be prepared.

ix. Sampling locations be located to cover villages situated near the reservoir and around boundary of forest area for collection of baseline data and data to be incorporated in EIA/EMP report.

x. Source of construction material and its distance from the project site along with detailed transportation plan for construction material be elaborated in the EIA EMP report. A detailed reclamation/ restoration plan of quarrying site/sites be incorporated in the EIA/EMP report.

xi. A detailed wildlife conservation plan for Schedule –I species, duly approved by the Chief Wildlife Warden, be submitted.

xii. In case any wildlife corridor is located within 10 km radius of the project site a detailed study shall be conducted to assess the impact of project on safe movement of wild animals.

xiii. Reservoir/ River banks protection plan all along the submergence need to be prepared and incorporated in EIA/ EMP.

xiv. Muck disposal site and other components such as Township, site office, Stacking area and batching plant shall be located outside the forest area.

xv. PP shall prepare detailed plan for Plantation of saplings under the tree plantation campaign "Ek Ped Ma Ke Naam".

**[B] Socio-economic Study**

xvi. Public Health Delivery Plan including the provisions of drinking water supply for local population shall be in the EIA/EMP Report. Status of the existing medical facilities in the project area shall be discussed. Possibilities of strengthening of existing medical facilities, construction of new medical infrastructure etc. will be explored after assessing the need of the labour force and local population.

xvii. Declaration by the Project Proponent by way of affidavit that "No" Inter-state issue/ policy issue

is involved with any State in the project.

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

xix. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the Ministry's OM F. No. 22- 65/2017- IA.III dated 30th September, 2020 shall be submitted.

xx. Tentative no. of project affected families shall be identified and accordingly appropriate Rehabilitation & Resettlement plan shall be prepared.

xxi. Details of settlement in 10 km area shall be submitted.

xxii. Techno-economic viability of the project must be recommended from CWC.

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

xxiii. The Project Proponent shall prepare and implement a Muck Disposal and Management Plan identifying designated muck disposal sites with adequate retaining and stabilization measures.

xxiv. Transportation and disposal of muck shall be carried out only at the approved disposal locations, and the movement of muck-laden vehicles shall be monitored through GPS-enabled/geotagged tracking to ensure compliance.

xxv. The Project Proponent shall maintain digital records of muck generation, transportation, and disposal, including geotagged photographs and location details of the disposal sites, and shall submit the same as part of the six-monthly compliance reports to the Regional Office of the Ministry.

xxvi. Details of Muck Management plan prepared along with estimated cost incorporated in EIA/EMP report.

**[D] Miscellaneous.**

xxvii. Pre-DPR Chapters viz. Hydrology, Layout Map Studies duly approved by CWC shall be submitted.

xxviii. PP shall obtain clearance from the inter-State aspect from the designated authorities as per the procedure.

xxix. Undertaking need to submitted on affidavit that regarding no activities has been yet started on the project site and water allocated to this scheme shall not be diverted to other purpose.

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

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

xxxii. Arial view video of project site shall be recorded and to be submitted.

xxxiii. As per Ministry's OM dated 1st August, 2013, PP shall submit application to obtain prior approval of Central Government under the Forest Conservation Act, 1980 for diversion of forest land required for such projects will be submitted as soon as the actual extent of forest land required for the project is known to the project proponent, and in any case, within 6 months of issuance of ToR. However, no proposal will be put up before.

**Agenda item No.-60.4**

**93 MW New Ganderbal Hydro Electric Project to Gandervbal District of Jammu Kashmir by M/s Jammu & Kashmir State Power Development Corporation Ltd- Validity extension of EC reg.**
**[Proposal No. IA/JK/RIV/587549/2026; F. No. J-12011/7/2008-IA. I**

**60.4.1**: The Project Proponent made a detailed presentation on the salient features of the project and informed that:

i. New Ganderbal Hydro Electric Project (NGHEP) is a Run-of-the-river scheme with peaking storage capacity, proposed on Sindh Nallah, a tributary of River Jhelum with installed capacity of 93 MW.

ii. Originally the project was contemplated, because the existing Ganderbal HEP, commissioned in 1955 to 1962, with an installed capacity of 15 MW (2x3MW) & (2x4.5MW). Now the project has outlived its normal life. Renovation & modernization has been restricted to only one unit of 4.5MW. The headworks can be approached by National Highway (Srinagar-Leh National Highway – NH 1D) and is at a distance of 40 Km from Srinagar. The powerhouse site is also to be approached through NH-1D and is about 20 km from Srinagar.

iii. Significant Salient features are as under:
Barrage 58m long and 11.5m high from OGL, live poundage of 0.03MCM.
Underground desilting basin 145m (L) x 54.8m (W) x 9.5m (H)
Headrace tunnel of 5.9m dia,11.663 km long & Surge shaft 13.5m dia & 72.6 m height.
Surface powerhouse 69.60 m (L) X 16.55 m (W) X 34.85 m (H)
Tail race channel 1.4km long.
Three Vertical Francis Turbine-driven Generating Units, each of 31 MW capacity and operating under a **Rated Head of 142.37 m** and rated discharge of **72.38 Cumecs.**
The power generated at NGHEP would be evacuated through 4Km, two nos. of 132 kV double circuit line connecting through LILO arrangement to the 132 kV D/C line from Alesteng Grid Station to Badampora Grid Sub-Station.
Diversion Barrage 340 16’ 21.89” N , 740 52’ 34.98” E
Power House Site 340 13’ 14.69” N , 740 46’ 47.03” E

iv. Total 245 families belonging to four villages losing their land due to acquisition. All the affected families have already been partially compensated for the land that has been acquired from them.

v. The Environmental Clearance (EC) was originally granted by the Ministry of Environment and Forests (MoEF) vide letter No. J-12011/7/2008-IA.I dated 27.09.2013. In accordance with the subsequent MoEF&CC Office Memorandum (OM) dated 13.12.2022, the validity of the EC has been extended to 13 years from the initial date of issuance. Consequently, the Environmental Clearance remains valid until 26.09.2026.

vi. The project site has been maintained in full conformity with applicable environmental safeguards and also the Project Authority remains fully committed to the timely and complete implementation of the Environmental Management Plan (EMP) as approved in the EC, including Catchment Area Treatment, Compensatory Afforestation, Biodiversity Conservation and Wildlife Management, Fisheries Development, Greenbelt Creation, and obligation of social upliftment measures.

vii. Further no unauthorized construction or activity detrimental to the environment has taken place till date. JKSPDC has submitted the latest monitoring report to MoEF on 21-08-2025.

viii. The proposal for award of main project works to L1 bidder M/S HCC-CPPPL (JV), resulting from the third round of tendering, has been submitted to the UT of J&K for approval.

ix. The EC is valid till 14-09-2026 and is thus required to be extended as the process of award of works is expected to take some more time

x. The Project shall be completed in 48 months from the date of start of work.

**Project Details**

| | | |
|---|---|---|
| Name of the Proposal | VALIDITY EXTENSION OF EC OF 93MW NGHEP GANDERBAL | |
| Proposal No. | IA/JK/RIV/587549/2026 | |
| Location (Including Coordinates) | Diversion Barrage | $34^0$ 16' 21.89" N , $74^0$ 52' 34.98" E |
| | Power House Site | $34^0$ 13' 14.69" N , $74^0$ 46' 47.03" E |
| Company's Name | JAMMU & KASHMIR STATE POWER DEVELOPMENT CORPORATION LIMITED | |
| CIN no. of Company/user agency | U40101JK1995SGC001418 | |
| Accredited Consultant and certificate no. | M/S EQMS INDIA Pvt. Ltd. NABET/EIA/2225/RA 0303 | |
| Project location (Coordinates /River/ Reservoir) | GANDERBAL DISTRICT UT OF J&K (RIVER SINDH WITH CORDINATES: $34^0$ 16' 21.89" N , $74^0$ 52' 34.98" E ) | |
| Inter- state issue involved | NA | |
| Proposed on River/ Reservoir | SINDH RIVER | |
| Type of Hydro-electric project | RUN OF THE RIVER SCHEME | |
| Seismic zone | V | |

**Category Details**

| | |
|---|---|
| Category of the project | A CATEGORY |
| Capacity / Cultural command area (CCA) | 0.0010 TMC/1578 Ha THROUGH SINDH POWER CANAL |
| Attracts the General Conditions (Yes/No) | No |
| Additional information (if any) | |

**ToR/EC details**

| | |
|---|---|
| ToR Proposal No. | |
| EAC meeting date | $26^{TH}$ TO $27^{TH}$ DEC 2012 & $22^{ND}$ $23^{RD}$ MARCH 2013 |
| ToR Letter No. | |
| ToR grant Date | |
| Cost of project | 965.87 Cr ON PRICE LEVEL JANUARY 2014 SUBSEQUENTLY REVISED 1610.55Cr ON PRICE LEVEL JANUARY 2021 |

| | |
|---|---|
| Total area of Project | 63.70 Ha |
| Height of Dam from River Bed (EL) | 11.5 M |
| Details of submergence area | 7.5 Ha |
| District to provide irrigation facility (if applicable) | GANDERBAL |
| Details of tunnels on upper level & lower level and length of canal (if applicable) | HRT(11.663Km) INCLUDING ADIT-I(686m) & ADIT-II (609m) |
| No. of affected Village. | 3 |
| No. of Affected Families | 245(9 FULLY+236 PARTIALLY) |

| | |
|---|---|
| Project Benefits | HYDRO POWER GENERATION,IRRIGATION ,DRINKING WATER SUPPLY AND SOCIO ECONOMICAL BENEFITS |
| R&R details | DRAFT R&R POLICY FRMED AT A COST OF Rs 906 40 Lakh AS PER NRRP 2007 |
| Catchment area/ Command area | 1352 Sq Km/1578 Ha |
| Types of Waste and quantity of generation during construction/Operation | MUCK/DEBRIS QTY OF 1256960cum +42% SWELL FACTOR |
| Material used for blasting and its Composition as per DGMS standards. | CONVENTIONAL DRILLING & BLASTING AS PER THE NORM |
| E-Flows for the Project | 2.42 cumecs |
| Is Projects earlier studied in Cumulative Impact assessment & Carrying Capacity studies(CIA&CC) for River in which project located. If yes then<br>c) E-flow with TOR/Recommendation by EAC as per CIA&CC study of River Basin.<br>d) If not the E-Flows maintain criteria for sustaining river ecosystem. | NO |
| Details on provision of fish pass | YES. AS PROPOSED IN THE EMP WIDTH OF FISH LADDER=1.2m |
| Project benefit including employment details (no of employee) | 189 |
| Area of Compensatory Afforestation (CA) with tentative no of plantation. | 54.4 Ha USING 18 DIFFERENT PLANT SPECIES |
| Previous EC details | EC is valid till sept 2026 already issued Vide J-12011/7/2008-IA. I Dated: -27-09-2013 & F.No. 1A3-22/28/2022-1A.111 (E 181584) dated 13-12-2022. |
| EC Compliance Report by R.O, MOEF&CC | COMPILANCE REPORT HAS BEEN SUBMITTED ON 21/08/2025 |

| | |
|---|---|
| No. of trees/saplings proposed in view of 'Ek Ped Maa Ke Naam' campaign | NA |

**Electricity generation capacity:**

1.

| | |
|---|---|
| Powerhouse Installed Capacity | 3*31 MW=93MW |
| Generation of Electricity Annually | 383.09 Gwh |
| No. of Units | 3 UNITS |

**Muck Management Details:**

2.

| | |
|---|---|
| No. of proposed disposal area/ (type of land- Forest/Pvt land) | 4 No.OF DUMPING SITES (UNDER FOREST LAND USE CLASS).LAND AREA HAS BEEN DIVERTED TO DUMPING SITE IN 10Ha |
| Cross section of proposed muck area, Height of muck with slope. | ATLEAST 30M HORIZONTAL AWAY FROM THE EDGE OF RIVER CORRESPONDING TO HFL.THE SITES SHALL BE SUPPORTED BY ADEQUATE HEIGHT AT BASE WITH GABION STRUCTURE AT DIFFERENT ELEVATIONS OR BY RCC RETAINING WALLS. |
| Distance of muck disposal area(location), from muck generation sources (project area)/River, HFL of proposed muck disposal area. | AS PER THE EIA/EMP REPORT |
| Total Muck Disposal Area | 10Ha |
| Estimate Muck to be generated | 15.43 LAKH Cum |
| Transportation | BY MECHANICAL MEANS |
| Monitoring mechanism for Muck Disposal Transportation | AS PER THE GUIDELINES |

**Land Area Breakup:**

| | |
|---|---|
| Private land | 24 Ha |
| Government land | 12.5 Ha |
| Forest Land | 27.2 Ha |
| Total Land | 63.70 Ha |
| Submergence area/Reservoir area | 7.5Ha |
| Additional information (if any) | - |

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

| **Forest Land/ Protected Area/ Environmental Sensitivity Zone** | **Yes/No** | **Details of Certificate/ letter/Remarks** |
|---|---|---|

| | | |
|---|---|---|
| Reserve Forest/Protected Forest Land | YES | DIVERETD IN THE NAME OF PROJECT |
| 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**

**Public Hearing (PH) Details**

| | |
|---|---|
| Advertisement for PH with date | 2ND APRIL 2011 |
| Date of PH | 4th May 2011 |
| Venue | PRENG, DISTRICT GANDERBAL |
| Chaired by | DEPUTY COMMISIONER GANDERBAL |
| Main issues raised during PH | 1. EMPLOYMENT TO THE LOCALS, PREFERABLY TO THOSE WHOSE LAND HAS BEEN PROPOSED FOR ACQUISITION.<br>2. PROTECTION WALL SHOULD BE ERECTED TO AVOID FLOODING OF HABITATION.<br>3. TIMELY AND FULL COMPENSATION OF THE LAND TO THE LAND OWNERS WHOSE LAND IS PROPOSED TO BE ACQUIRED. |
| No. of people attended | ALL INTERESTED PERSON/ORGANISATION /GROUPS WERE INVITED TO PARTICIPATE IN PUBLIC HEARING |

Brief of base line Environment:

| **Particulars** | **Details** | |
|---|---|---|
| Period of baseline data collection/Sampling period.<br>(Air, noise, water, land)<br>flora and fauna of the project area,<br>aquatic ecology, etc. | AS PER THE EIA/EMP REPORT | |
| Brief description on hydrology and water assessment as per the approved Pre-DPR: | **HYDROLOGY** | |
| | Catchment Area At Intake Site | 1352 km2 |
| | Snow Catchment | 208 km2 |
| | Design Discharge | 72.38 m3/s |
| | Design flood (1 in 100 yrs) | 1800 m3/s |
| | Standard Project Flood | 2600 m3/s |
| | Diversion Flood | 820 m3/s |

| | |
|---|---|
| Additional detail (If any) | |

**Court case details:**

| | |
|---|---|
| Court Case | NA |
| Additional information (if any) | |

**Status of other statutory clearances**

| **Particulars** | **Letter no. and date** |
|---|---|
| Status of Stage- I FC | 175-FST OF 2012 DATED:-02-04-2012 & 232-FST OF 2017 DATED:-22-09-2017 |
| Approval of Central Water Commission | CEA HAS ACCORDED APPROVAL TEC TO THE PROJECT VID ELTTER NO:-2/J&K/12/95-PAC/1615-44 DATED:-10/06/2014 . |
| Approval of Central Electricity Authority | |
| Additional detail (If any) | |
| **Is FRA (2006) done for FC-I** | NA |

**Details of the EMP**

| | | |
|---|---|---|
| 1. | Catchment Area Treatment Plan | 14.05 |
| 2. | Resettlement & Rehabilitation Plan (including community development works and R & R Grants) | 9.064 |
| 3. | Compensatory Afforestation Scheme | 2.455 |
| 4. | Green Belt Development Plan | 0.13 |
| 5. | Bio-diversity plan | 1.982 |
| 6. | Muck Disposal Plan | 7.04 |
| 7. | Restoration Plan for Quarries | 0.20 |
| 8. | Landscape and Restoration Plan | 0.125 |
| 9. | Public Health Delivery System | 0.64 |
| 10. | Energy Conservation Measures | 1.9420 |
| 11. | Solid Waste Management Plan | 3.28 |
| 12. | Fisheries Development and Management Plan | 0.65 |
| 13. | Environment Monitoring Plan | 1.07 |
| **TOTAL** | | **42.62 Cr** |

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

The EAC during deliberations noted that the proposal is for extension in validity of EC dated 27.09.2013 of 93 MW New Ganderbal Hydro Electric Project to Gandervbal District of Jammu Kashmir by M/s Jammu & Kashmir State Power Development Corporation Ltd

The EAC noted that Environmental Clearance (EC) was originally granted by the Ministry of Environment and Forests (MoEF) vide letter No. J-12011/7/2008-IA.I dated 27.09.2013. In accordance with the MoEF&CC Notification S.O. 1886 (E) dated 20.04.2022, the EC validity of River valley and Hydro-electric project is 13 years which can be extended to 2 years from the initial date of issuance. Consequently, the Environmental Clearance remains valid until 26.09.2026.

The EAC noted that no construction activity has commenced at the project site to date and that implementation of the Environmental Management Plan (EMP) has also not yet been initiated. The Committee further observed that, once commenced, implementation of the EMP would require approximately 4 years (48 months) for completion. Similarly, as per project implementation schedule mentioned in the DPR the construction and completion of the main project works would also require approximately 48 months.

In view of the above parallel timelines, the Committee expressed concern that the project is unlikely to be completed within the existing Environmental Clearance (EC) validity period, which will expire on 26.09.2026**.** Even if a further extension of two years, up to 26.09.2028, is considered, the project construction works as well as implementation of the EMP would still not be completed within the extended validity period.

**60.4.3:** After detailed deliberation on the information and documents submitted by the Project Proponent, the EAC observed that on-site physical construction work has not yet commenced. The Committee further noted that significant financial changes and price escalations have occurred since the project was originally formulated**.**

In view of the above, the Committee recommended that M/s Jammu & Kashmir State Power Development Corporation Ltd. to submit a fresh and updated proposal for grant of prior Environmental Clearance for the 93 MW New Ganderbal Hydro Electric Project, located in Ganderbal District, Jammu & Kashmir, incorporating updated project details and other relevant information in the present context.

*****

**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 | A |
| 4. | Shri Ajay Kumar Lal | Member | P |
| 5. | Shri Balram Kumar | Member<br>Representative of Central Water Commission (CWC) | P |
| 6. | Dr. Kartik Sapre | Member | P |
| 7. | Shri Rakesh Goyal | Member<br>Representative of Central Electricity Authority (CEA) | P |
| 8. | Dr. J.A. Johnson | Representative of Wildlife Institute of India (WII) | P |
| 9. | Dr. A. K. Sahoo | Representative of Central Inland<br>Fisheries Research Institute (CIFRI), | P |
| 10. | Shri Yogendra Pal Singh | Member Secretary | P |

# APPROVAL OF THE CHAIRMAN

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========== Forwarded message ==========
From: chakrapani govind <chakrapani.govind@gmail.com>
To: "Yogendra Pal Singh"<yogendra78@nic.in>
Cc: "Chakrapani GovindaJoseph"<govind.chakrapani@es.iitr.ac.in>
Date: Fri, 28 Aug 2026 14:22:34 +0530
Subject: Re: Draft MoM of the 60th EAC (RVHEP) meeting held on 13.08.2026-reg.
========== Forwarded message ==========

Approved.
Chakrapani

On Fri, 28 Aug, 2026, 11:44 am Yogendra Pal Singh, <yogendra78@nic.in> wrote:

> Dear Sir,
>
> The draft MoM of the 60th EAC (RVHEP) meeting held on 13.08.2026 was circulated to all EAC members. The comments received so far have been incorporated suitably (highlighted in yellow). Accordingly, draft MOM is attached herewith for your approval please.
>
> With Regards,
>
> **Yogendra Pal Singh**
> **Scientist 'F'**
> **Government of India**
> **M/o Environment, Forest and Climate Change**
> **Room No. 236, 2nd Floor, Vayu Wing**
> **Indira Paryavaran Bhawan**
> **Jor Bagh, New Delhi-110003**
> **Tele-fax: 011-20819364**