

**Minutes of the 32<sup>nd</sup> Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 15<sup>th</sup> May, 2020 from 11 am- 01 pm through video conference.**

The 32<sup>nd</sup> meeting of the re-constituted EAC for River Valley & Hydroelectric Projects was held on 15.05.2020 with the Chairmanship of Dr. S.K. Jain in the Ministry of Environment, Forest & Climate Change through video conference (VC). The following members participated in the video conference:

- |                             |                                      |
|-----------------------------|--------------------------------------|
| 1. Dr. S.K. Jain            | - Chairman                           |
| 2. Shri Sharvan Kumar       | - Representative of CEA              |
| 3. Shri N.N. Rai            | - Representative of CWC              |
| 4. Dr. Vijay Kumar          | - Rep. of Ministry of Earth Sciences |
| 5. Dr. J.A. Johnson         | - Rep. of WII                        |
| 6. Dr. A.K. Sahoo           | - Representative of CIFRI            |
| 7. Dr. D.M. More            | - Member                             |
| 8. Prof. R.K. Kohli         | - Member                             |
| 9. Dr. S.R. Yadav           | - Member                             |
| 10. Dr. (Mrs.) Poonam Yadav | - Member                             |
| 11. Dr. S. Kerketta         | - Member Secretary                   |

Shri Chetan Pandit, Dr. J.P. Shukla and Dr. Govind Chakrapani could not attend the VC due to pre-occupation. The deliberations held and the decisions taken are as under:

**Item No. 31.0 Confirmation of the minutes of 31<sup>st</sup> EAC meeting.**

The minutes of the 31<sup>st</sup> EAC (River Valley Hydroelectric Project) meeting held on 05.03.2020 were confirmed.

**Item No. 32.1 Rammam Stage-III HEP (120 MW) West Bengal and Sikkim-Regarding Extension of validity of EC Proposal No. IA/WB/RIV/146211/2020, File No. J-12011/42/2007- IA-I (R)**

NTPC Ltd is constructing Rammam Hydro Electric Power Project (HEPP), Stage-III (3x40 MW) in Darjeeling district of West Bengal. The project is located on Rammam river, which flows along the border of West Bengal and Sikkim at about 50 km from Ghoom and 130 km from Siliguri on Siliguri-Darjeeling Road in district Darjeeling of West Bengal. The nearest rail head is New Jalpaiguri (at about 115 km) and the nearest airport is Bagdogra (at about 110 km.).

The site for diversion structure is located downstream at the confluence of Rammam with Lodhamakhola near Lodhama village just downstream of the power house of Rammam Stage-II hydroelectric project (51 MW under operation by West Bengal State Electricity Board). The site for power house is located near village Barbatia on the right bank of river Rammam. The Latitude and Longitudes of the Diversion Structure and Barrage are as follows:

<b>Project Component</b>	<b>Latitude</b>	<b>Longitude</b>
Diversion Structure (Barrage)	27°06'47" N	88°08'39"E
Township	27°07'47" N	88°12'55"E
Power House	27°07'25" N	88°13'20"E

All the major project components are located in the state of West Bengal except the right abutments of the Barrage structure and a portion of submergence area in Siktam Block of West Sikkim. The status of statutory clearances for the project is as follows:

- Techno Economic Clearance (TEC) was accorded by CEA on 12.09.2006 and re-validated on 01.08.2013.
- Inter State Agreement between West Bengal & Sikkim was signed on 26.06.2007.
- NOC obtained from Ministry of Defence on 20.01.2006.
- EC was accorded by MOEF&CC vide letter No. J-12011/42/2007-IA.I dated 17.08.2007 with a validity period of 10 years which was subsequently extended vide MoEF&CC letter dated 13.07.2017, for a further period of 3 years, i.e. up to 16.08.2020.
- Wildlife Clearance accorded by Directorate of Forest, GoWB on 01.02.2008.
- Final Forest Clearance accorded by MOEF&CC on 23.05.2008.
- Consent to Establish from West Bengal Pollution Control Board and SPCB, Sikkim.

EC was accorded by MOEF&CC vide letter No. J-12011/42/2007-IA.I dated 17.08.2007 with a validity period of 10 years. The validity of EC was subsequently extended vide MoEF&CC letter dated 13.07.2017, for a further period of 3 years, i.e. up to 16.08.2020. The project is in advanced stage of construction and its all three units (Unit 1, 2, & 3) are expected to be commissioned (on full load) by November, 2022. The present proposal is for extension in the validity of EC for a further period of 3 years i.e. up to 16.08.2023.

The project consists of 23 m high (above u/s apron level) 122.5m long Barrage near Lodhama Village and approximately 10.75 km of water conductor system (8.2 km long 3.5 m dia. horse shoe shape head race tunnel, 1.6 km long Penstock and 0.74 Km long tail race channel etc.). It has also a 14.5 m dia. 53.75 m high surge shaft and a deep seated surface power house near Barbatia village on right bank of the Rammam River.

The project is envisaged to use water from catchment area of 247 km<sup>2</sup>. The Full Reservoir Level (FRL) of the pondage behind the Barrage structure has been fixed at EL 903 m with a view to provide sufficient storage capacity above Minimum Draw Down Level to provide optimum peaking operation of more than 2 hours at a time. The Minimum Draw Down Level (MDDL) is fixed at EL 892 m. The storage at FRL is 0.27 MCM and at MDDL is 0.05 MCM. Storages between FRL and MDDL is 0.22 MCM. About 474.36 MU will be generated using 28.31 cumec of discharge excluding a 4.69 cumec of water to flush silt and 1 cumec of water as environmental flow.

The reasons for delay in implementation of the project within the validity period of Environmental Clearance are as follows which are beyond the control of NTPC:

- Delay in award of the main plant packages due to Techno Commercial issues.
- Delay in obtaining Tree felling permission in project area by State Govt./ District Administration.
- Delay in obtaining the permission for inter-state River crossing from Govt. of Sikkim.
- Delay in Physical possession/acquisition of additional Land required for road work, minor patches in some areas & damaged land below dumping yard (due to natural calamity).
- Delay in construction of access road from Township to Surge Shaft due issue related to Forest Land.
- Disruptions in work due to Natural calamities/ adverse weather conditions.
- Delay occurred due to Poor Geological conditions of rocks which slows down the progress of Head Race Tunnel (HRT) and Power House.
- Frequent interruption/bundhs by the Villagers/ PAPs at project area.

- Stoppage of construction works at the project site due to Gorkhaland agitation.
- Delay occurred in handling other issue, i.e. Shifting of House/Homestead oustee.
- Shifting of graveyard, Re-survey of acquired land.
- Poor performance of vendors.

The project is in advanced stage of construction and it's all three units (Units 1, 2, & 3) are expected to be commissioned (on full load) by November, 2022. In view of the above and considering the complexity involved in the project so far, the validity of the Environment Clearance of the Rammam Hydro Power Project, Stage-III (3X40 MW), may be extended for further period of 3 years, i.e. up to 16.08.2023.

EAC after detailed presentation by the PP observed the EC to the instant proposal was granted on 17.08.2007. As per the extant regulatory provision, the validity of EC for commissioning of the project is ten years which can be further extended up to further three years thus the outer limit for the validity of the environmental clearance for the river valley projects is 13 years. Validity of EC to the present proposal as per the extant regulatory provision already extended up to 13 years, i.e. till 16.08.2020. *Therefore, EAC recommended to return the proposal in the present form and suggested the PP to apply de novo for processing of fresh Environmental Clearance.*

**Item No. 32.2      Bodwad Parisar Sinchan Yojana (42420 ha CCA), in Jalgaon and Buldana district in Maharashtra by M/s Tapi Irrigation Development Corporation- Regarding Extension of validity of EC.**

**Proposal No. IA/MH/RIV/152034/2020, File No. J-12011/3/2009-IA.I (R)**

Project Proponent along with the Consultant made the detailed presentation on the project and inter alia provided the following information:

Tapi Irrigation Development Corporation (TIDC) Jalgaon has proposed to lift, store and utilize the backwater of flood from Hatnur dam for irrigation purpose under Bodwad Parisar Lift Irrigation Scheme. The project is designed to help meet irrigation water requirement in two districts namely Jalgaon and Buldhana which are drought prone and backward areas.

The proposed scheme consists of construction of two storage reservoirs near Junone and Jamathi villages with a cumulative gross storage capacity of 193.42 MCM. The allocation of water for Junone and Jamathi reservoirs are 120.78 MCM and 72.64 MCM, respectively. It is proposed to pump the flood water of Tapi & Puma Rivers from the back water of Hatnur Dam which overflows from the spillway of the Dam during monsoon and to provide irrigation to different crops like kharif, rabi and in dry season only. The irrigation water will be distributed mostly by gravity as well as lift system through closed conduit, i.e. pipeline.

The 198.54 MCM floodwater of Tapi & Puma Rivers will be lifted from Puma River near Khamkhere bridge under Hatnur dam submergence during June-Oct through a system consisting of jack well, pumping machinery and rising mains.

The objective of the project is to irrigate five talukas of which three talukas, i.e. Bodwad, Jamner, Muktainagar are in Jalgaon District and two talukas, Motala and Malkapur, are in Buldhana District. Irrigable command area is 42420 ha, against CCA of 53025 ha. Hence, in these two districts a total of 42420 ha from 100 villages will be benefited. The project includes construction of jackwell on Puma river Khamkhere bridge to Pump the water for storing in reservoir.

The major part of the command area is almost a gentle undulating landscape. The drainage pattern is parallel to sub-parallel draining into Tapi River. This area forms a part of Puma sub-catchment in main Tapi above the confluence of Puma catchment of Tapi basin. It is observed that the highly resistant rocks confined in the catchment have the higher drainage density than that of the flat areas. The general slope of the study area is from south to north due to undulating, hilly and sloping nature of landscape.

The total area required for Bodwad Parisar Sinchan Yojana is about 1428.64 ha, whereas the self-catchment of the two reservoirs at Junone and Jamathi is 1250 ha and 50 ha, respectively. Out of the total 1250 ha land, 581 ha area is going in the submergence at the Full Reservoir Level 308 m. About 507.31 ha (508 ha) area is under the submergence of forest. Forestland having sparse and poor trees growth is identified as degraded area.

The project was accorded Environmental Clearance vide letter No. J-12011/3/2009-IAI dated 19/04/2010. Online application for amendment in EC regarding extension of validity of EC was submitted on 24/04/2020. The land accusation process has been completed and five clearances were obtained including compliance of forest clearance 507.31 ha. Physical work commenced on 23/05/2017. The project is ongoing and due to paucity of funds, the works couldn't be taken-up fully. An amount of Rs. 323.24 Cr. has been incurred for project expenditure so far.

EAC after detailed presentation by the PP observed that the EC to the instant proposal was granted on 19.04.2010. Present application submitted by the PP is for extension of validity of the existing EC. EAC noted that the project work of Junone dam has been initiated. However, work of Jamathi dam is yet to be started. Further, EAC also observed changes in the project configuration (dam height, extension of CCA from both the dams, land requirement, etc.) mentioned in the EC letter dated 19.04.2010 and information presented in the present meeting. As the present application is for the extension of validity of EC, EAC advised PP to submit the separate application seeking amendment in EC with respect to project configuration. Subsequently, vide dated 20.05.2020, the PP clarified that there is changes in the project configuration (dam height, extend of CCA from both the dams, land requirement etc.) mentioned in the EC letter. Both the EC letter and the letter of clarification have been reconciled and found to be the same project configuration. In fact, it has also been informed that the project is going to be commissioned soon.

EAC deliberated on the extant regulatory provision related to the validity of EC and noted that validity of EC for commissioning of the river valley project, as per the EIA, Notification 2006 and as amended thereof, is ten years which can be further extended up to three years thus the outer limit for the validity of the environmental clearance for the river valley projects is 13 years. EAC therefore after detailed deliberations, on the extant regulatory provisions, information submitted by the PP (Form 6) and as presented during the meeting, **recommended the proposal for grant of extension of validity of EC dated 19.04.2010 for further period of 03 years, i.e. up to 18.04.2023.** Further, as per the extant regulatory provisions, it is also recommended that if the project is not commissioned by 18.04.2023, then application regarding process of obtaining Environmental Clearance *denovo* be submitted to the Ministry.

\*\*\*\*

**Item No. 32.3 Veeraballi Pumped Storage Project (2720 MW) in district Kadapa, Andhra Pradesh by M/s Astha Green Energy Ventures India Pvt. Ltd.- Regarding Fresh ToR Proposal No. IA/AP/RIV/152122/2020; File No. J-12011/07/2020-IA-1 (R)**

Project Proponent along with the Consultant M/s. R S Envirolink Technologies Pvt. Ltd. (RSET) made the detailed presentation on the project and *inter alia* provided the following information:

Astha Green Energy Ventures India Pvt Ltd. proposes to develop Pumped Storage Project (PSP) in Veeraballi (T) of Kadapa (D) in the state of Andhra Pradesh. Total capacity of the proposed PSP is 2720 MW and it envisages non-consumptive utilisation of 1.36 TMC of water from Mandavi river by re-circulation. Project involves creation of new upper reservoir and lower reservoirs consisting of rock fill embankment with central clay core. The geographical co-ordinates of the proposed upper reservoir are at Latitude 14°13'3.91" North and Longitude is 78°52'24.13"East and that of lower reservoir are at 14°11'19.80" North and 78°52'34.96"East.

The upper reservoir is proposed to be located on natural depression which is suitable for creating the desired gross storage capacity of 1.36 TMC. Out of 1.36 TMC, the live storage capacity is 1.17 TMC and the dead storage capacity is 0.19 TMC by keeping FRL & MDDL at EL 689.00m & EL 660.00m respectively. For creating this storage, it is proposed to construct rockfill embankment of the average height of about 27 m (with maximum height of 52m) for the length of 2307m. The lower reservoir is proposed to be located in the flat / gradually sloping land which is suitable for creating the desired gross storage capacity of 1.23 TMC in which the live storage capacity is 1.16 TMC and dead storage capacity is 0.07 TMC by keeping FRL and MDDL at EL 324.00m & EL 291.00m respectively. For creating this storage, it is proposed to construct rockfill embankment of the average height of 27m (with maximum height of 47m) for the length of 2934m.

Water conductor system consists of 4 numbers of independent penstocks or pressure shafts will be taking off from Power block of Veeraballi PSP (Off-Stream Closed Loop Project) upper reservoir and each penstock will get bifurcated into two numbers near to powerhouse to feed water for 8 units of turbine. A Surface Powerhouse will be located on the downstream of the power block and shall be equipped with eight vertical-axis reversible Francis type units composed each of a generator/motor and a turbine/pump having generating/pumping capacity of 340MW. As such, the proposed project will generate 2720 MW by utilizing design discharge of 865.38 Cumec with rated head of 360.00 m. Astha Green Energy Ventures India Pvt Ltd. envisages to complete the construction of project within a period of 4 years at an estimated cost of INR 12787.91 Crores. At the time of peak construction work in the project, around 7000 persons may be engaged. Out of 7000 nos. the majority of about 2300 nos. will be from the local population/surrounding Villages and balance persons of about 4700 nos. will be skilled /semiskilled from other area.

Total land required for construction of various components, including infrastructure facilities and muck disposal area is estimated to be around 838.82 Ha, involving 539.37 Ha of forest land (Palkonda & Vangimalle Reserved Forest) and 299.45 Ha of non-forest land. The details are tabulated below.

**Table 1: Area Statement of Proposed Standalone PSP**

<b>Sr. No.</b>	<b>Project Components</b>	<b>Forest (Ha)</b>	<b>Non-Forest (Ha)</b>
1.	Upper Reservoir	308.66	0.00
2.	Lower Reservoir (Including TRC)	73.68	200.97
3.	Approach Road to Project Components	13.71	4.48

Sr. No.	Project Components	Forest (Ha)	Non-Forest (Ha)
4.	Adit	0.00	0.32
5.	WCS, PH	143.32	18.58
6.	Job Facilities Area	0.00	25.00
7.	Muck Disposal area	0.00	50.00
8.	Magazine	0.00	0.10
	<b>Sub-total</b>	<b>539.37</b>	<b>299.45</b>
	<b>Total Area</b>	<b>838.82</b>	

### Hydrology:

The Veeraballi PSP (Off-Stream Closed Loop Project) is proposed between two reservoirs, i.e. Veeraballi PSP (Off-Stream Closed Loop Project) upper and Veeraballi PSP (Off-Stream Closed Loop Project) lower reservoir (both are to be constructed newly) and one-time water will be pumped from existing nearby Mandavi river to fill up the proposed lower reservoir. Secondly since these two reservoirs are not located across any stream, no specific hydrological studies are required to be carried out. The upper and lower reservoirs do not have any significant catchment area and hence the inflow from rainfall is negligible.

### Project benefit:

Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favourably 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 they are:

- Least expensive source of electricity, not requiring fossil fuel for generation
- An emission-free renewable source
- Able to shift loads to provide peaking power without requiring ramp-up time like combustion technologies
- Often designated as a “black start” source, able to restore network interconnections if a power blackout occurs
- Balancing grid for demand driven variations
- Balancing generation driven variations
- Voltage support and grid stability

### Status of other statutory clearances:

Forest Clearance: Online application will be submitted subsequently thereby seeking forest diversion for around 539.37 Ha. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.

### Details of court case, if any: Nil

EAC in the present meeting (32<sup>nd</sup>) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that in the instant project upper and lower reservoirs are located away from all existing natural water systems and have no/negligible catchment area. Therefore, CAT Plan, RIM treatment, L-section of river and Environmental flow study for the upper and lower reservoirs will not be required under EMP. EAC also observed that as per DSS analysis of kml file, the instant project is located at a distance of 9.87 km from the NSTR-Tirupati Tiger corridor. EAC after detailed deliberation on the information submitted and as presented, **recommended** for grant of Standard ToR to the proposed project with the following Additional ToR conditions:

1. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
2. The project involves diversion of about **539.37** ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980.
3. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forest land required should be submitted as soon as the actual extent of forest land required for the project is known, and in any case, within six months of issuance of this letter.
4. 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.
5. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports.
6. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per O.M. No. 22-65/2017-IA.III dated 01.05.2018 for various activities therein.
7. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.
8. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.
9. Conservation plan for the Scheduled I species, if any, in the project study area shall be prepared and submitted to the Competent Authority for approval.
10. Pre-DPR Chapters viz., Hydrology and Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
11. Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared and submitted in the EIA/EMP report.
12. Environmental matrix during construction and operational phase needs to be submitted.
13. Both capital and recurring expenditure under EMP shall be submitted.

14. As the project site is located at a distance of 9.87 km from the NSTR-Tirupati Tiger corridor “No Objection Certificate” shall be obtained from Nation Tiger Conservation Authority (NTCA).
15. Impact of developmental activity/project on the wildlife habitat, if any, within 10 km of the project boundary shall be studied.

**Item No. 32.4 Ippagudem Pumped Storage Project (3960 MW) in district Mulugu, Telangana by M/s Greenko Energies Private Limited- Regarding Fresh ToR  
Proposal No. IA/TG/RIV/152083/2020; File No. J-12011/06/2020-IA-1 (R)**

Project Proponent along with the Consultant M/s. R S Envirolink Technologies Pvt. Ltd. (RSET) made the detailed presentation on the project and *inter alia* provided the following information:

Greenko Energies Pvt. Ltd. proposes to develop Pumped Storage Project (PSP) in Venkatapuram (T) of Mulugu (D) in the state of Telangana. Total capacity of the proposed PSP is 3960 MW and envisages non-consumptive utilisation of 1.65 TMC of water from Godavari river by re-circulation. Project involves creation of new upper reservoir and lower reservoirs consisting of rock fill embankment with central clay core. The geographical coordinates of the proposed upper reservoir are at Latitude 18°17'0.81" North and Longitude is 80°39'54.97" East and that of lower reservoir are at 18°15'17.36" North and 80°40'12.88" East.

The Ippagudem PSP (Off Stream Closed Loop Project) will comprise of two reservoirs which are to be constructed newly. The upper reservoir is proposed to be located on flat / gradually sloping land which is suitable for creating the desired gross storage capacity of 1.62 TMC. Out of 1.62 TMC, the live storage capacity is 1.55 TMC and the dead storage capacity is 0.07 TMC by keeping FRL & MDDL at EL 507.00m & EL 475.00m respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of around 25 m (with maximum height of 45m) for the length of 5635m. Similarly, the lower reservoir is proposed to be located in the natural depression which is suitable for creating the desired gross storage capacity of 1.65 TMC in which the live storage capacity is 1.55 TMC and dead storage capacity is 0.10 TMC by keeping FRL and MDDL at EL 135.00m & EL 107.00m respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of 23m (with maximum height of 38m) for the length of 2231m.

This Project is envisaged as Off-Stream Closed Loop Project in nature and both the reservoirs are located away from all existing river systems and have no/very small catchment area. Water will be lifted one time from existing nearby Godavari river to the proposed Ippagudem PSP (Off-Stream Closed Loop Project) lower reservoir which is about 3.5 Km away from the lower reservoir to be constructed and used cyclically for energy storage and discharge. Evaporation losses, if any will be recouped periodically from Godavari river. This Project envisages non-consumptive re-utilization of 1.55 TMC of water for recirculation among two proposed reservoirs

Water conductor system consists of 6 number of independent penstocks or pressure shafts will be taking off from Power block of Ippagudem PSP (Off-Stream Closed Loop Project) upper reservoir and each penstock will get bifurcated into two numbers near to power house to feed water for 12 units of turbine. A Surface Powerhouse will be located on the downstream of the power block and shall be equipped with twelve vertical-axis reversible Francis type units composed each of a generator/motor and a turbine/pump having generating/pumping capacity of 330MW, respectively. As such, the proposed project will generate 3960 MW by utilizing design discharge of



1235.60 Cumec with rated head of 363.00 m. GEPL envisages to complete the construction of project within a period of 36 months at an estimated cost of INR 18203.01 Crores. At the time of peak construction work in the project, around 8000 persons may be engaged. Out of 8000 nos. the majority of about 2700 nos. will be from the local population/surrounding Villages and balance persons of about 5300 nos. will be skilled /semiskilled from other area.

### Hydrology:

The Ippagudem PSP (Off-Stream Closed Loop Project) is proposed between two reservoirs i.e. Ippagudem PSP (Off-Stream Closed Loop Project) upper and Ippagudem PSP (Off Stream Closed Loop Project) lower reservoir (both are to be constructed newly) and onetime water will be pumped from existing nearby Godavari river to fill up the proposed lower reservoir. Secondly since these two reservoirs are not located across any stream, no Specific hydrological studies are required to be carried out. The upper and lower reservoir does not have any catchment area and hence the inflow from rainfall is negligible.

Total land required for construction of various components, including infrastructure facilities and muck disposal area is estimated to be around 906.08 Ha of forest land. The details are tabulated below:

**Table 2: Area Statement of Proposed Standalone PSP**

Sr. No.	Project Components	Forest (Ha)	Non-Forest (Ha)
1.	Upper Reservoir	414.84	0.00
2.	Lower Reservoir (Including TRC)	291.78	0.00
3.	Approach Road to Project Components	19.90	0.00
4.	Adit	0.31	0.00
5.	WCS, PH	104.15	0.00
6.	Job Facilities Area	25.00	0.00
7.	Muck Disposal area	50.00	0.00
8.	Magazine	0.10	0.00
	<b>Sub-total</b>	<b>906.08</b>	<b>0.00</b>
	<b>Total Area</b>	<b>906.08</b>	

### Project benefit:

Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favourably 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 they are:

- Least expensive source of electricity, not requiring fossil fuel for generation
- An emission-free renewable source

- Able to shift loads to provide peaking power without requiring ramp-up time like combustion technologies
- Often designated as a “black start” source, able to restore network interconnections if a power blackout occurs
- Balancing grid for demand driven variations
- Balancing generation driven variations
- Voltage support and grid stability

**Status of other statutory clearances:**

Forest Clearance: Online application will be submitted subsequently thereby seeking forest diversion for around 906.08 Ha. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.

**Details of court case, if any: Nil.**

EAC in the present meeting (32<sup>nd</sup>) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that in the instant project upper and lower reservoirs are located away from all existing natural water systems and have no/negligible catchment area therefore CAT Plan, RIM treatment, L-section of river and Environmental flow study for the upper and lower reservoir will not be required under EMP. EAC also observed that as per DSS analysis of kml file, the instant project is located at a distance of 7.07 km from the Pamed Wild Buffalo Wildlife sanctuary. EAC after detailed deliberation on the information submitted and as presented, recommended for grant of Standard ToR to the proposed project with the following Additional ToR conditions:

1. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
2. The project involves diversion of about **906.08** ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980.
3. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forest land required should be submitted as soon as the actual extent of forest land required for the project is known, and in any case, within six months of issuance of this letter.
4. 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.
5. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports.
6. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per O.M. No. 22-65/2017-IA.III dated 01.05.2018 for various activities therein.
7. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.

8. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.
9. Conservation plan for the Scheduled I species, if any, in the project study area shall be prepared and submitted to the Competent Authority for approval.
10. Approval from CWC for one-time utilization of 1.65 TMC of water from Godavari Interstate River.
11. Certified map from the Chief Wildlife warden regarding minimum distance of the project site from the Pamed Wild Buffalo Wildlife sanctuary and ESZ of the said Sanctuary.
12. Pre-DPR Chapters viz., Hydrology and Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
13. Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared and submitted in the EIA/EMP report.
14. Environmental matrix during construction and operational phase needs to be submitted.
15. Both capital and recurring expenditure under EMP shall be submitted.
16. Impact of developmental activity/project on the wildlife habitat, if any, within 10 km of the project boundary shall be studied.

**Item No. 32.5**      **Integrated Kashang HEP (243 MW) in the district Kinnaur, Himachal Pradesh by M/s Himachal Pradesh Power Corporation Ltd.- Regarding Extension of validity of EC.**  
**Proposal No. : IA/HP/RIV/137739/2020, File No. J-12011/81/2007-IA.I (R)**

Project Proponent did not attend the meeting. Thus, the proposal has not been considered and has been deferred.

**Item No. 32.6**      **Kelo Major Irrigation project in the Village Danote, district Raigarh of Chattisgarh by M/s Water Resources department, government of Chattisgarh-Regarding Extension of validity of EC**  
**Proposal No. IA/CG/RIV/96743/2008; File No. J-12011/9/2007-IA.I**

Project proponent made the detailed presentation in the 30<sup>th</sup> meeting held on 27.01.2020 and inter alia provided the following information:

- i. The Kelo Major Irrigation Project is located near village Danote of district Raigarh in Chhattisgarh. The total land requirement for the project is about 2243.92 ha. Out of which 361.90 ha is forest land; 1604.08 ha private land and 277.94 ha Government land. Total submergence area is 1334.76 ha. A 24.22 m high earthen dam across river Kelo (a tributary of river Mahanadi) with gross storage capacity of 76.07 MCM is being constructed for providing irrigation to 22810 ha CCA spread in the districts of Raigarh and Janjgir Champa and for providing drinking water at the tune of 4.44 TMC. Catchment area of the project is 920.21 Sq.km. The total estimated cost is about Rs. 972.22 Crores.

- ii. The Environmental Clearance to the above project was granted by the Ministry vide letter No. J12011/28/2008-IA. I dated 21.10.2008. Environmental Clearance was valid for a period of 10 years. At present, dam work is almost completed and 85 % of canal work is completed. To complete the balance work of project, extension of validity of Environmental clearance for 5 years is required. Accordingly, application for extension of EC validity period was filed online by the PP on 21.02.2019.
- iii. Project Proponent further informed that project had started irrigation facility in the year 2014 to some extent, within the 10 years limit of Environment Clearance obtained in 2008. By this, irrigation facility provided to the farmers resulted in the additional production of crops.

Matter regarding extension of validity period of the existing Environmental Clearance beyond 10 years was earlier examined in the Ministry before taking it to the 30<sup>th</sup> EAC meeting. It was observed that Environmental Clearance granted to the Kelo Irrigation Project was valid up to 21.10.2018 and application for extension of validity period was filed online on 21.02.2019 i.e after lapse of three months of the validity of the Environmental Clearance. As per the provisions in EIA Notification 2006 and as amended thereof, no condonation for delay shall be granted for any application for extension filed after 90 days of the validity period of EC. Accordingly, based on the information submitted by the PP and as per the extant provisions in the EIA Notification 2006, PP was advised vide Ministry's letter dated 21.08.2019 to initiate the process of obtaining Environmental Clearance *denovo*.

Subsequently, the Secretary, Govt of Chhattisgarh vide letter dated 27.11.2019 has informed to this Ministry that Kelo Project started the irrigation facility in the year 2014, which is within the 10 years' limit of Environment Clearance obtained in 2008 and by this, irrigation facility has been provided to Kharif Crops. Further, it was also informed that Kelo Project is constructed mainly for irrigation purpose, which was 22810 hectares CCA. At present, 85% work of project has been completed, benefitting 24400 numbers of cultivators consisting mainly from ST, SC groups of marginal cultivators. As the irrigation facility was started well within the period of obtained Environmental Clearance, Govt. of Chhattisgarh requested to consider the Environment Clearance as completed to maintain the continuity of Irrigation provided to farmers and to complete the remaining works of project in scheduled time frame. In view of the representation received from the Govt. of Chhattisgarh, proposal for extension of validity of EC was placed before the EAC in 30<sup>th</sup> meeting held on 27.01.2020.

EAC in the 30<sup>th</sup> meeting held on 27.01.2020 deliberated on the information submitted by the PP for extension of validity of EC dated 21.10.2008 and provisions of EIA Notification 2006 and as amended thereof, regarding extension of validity of EC. EAC opined since the irrigation facility is already extended to some extent by the PP within 10 years, extension of validity of EC may not be required in the instant case. However, as PP did not submit any document, which proves that irrigation facility was started in the year 2014 to some extent, which had resulted in the additional production of crops, therefore committee was of the view that, if Project Proponent submit the following to the Ministry, extension of validity of EC may not be required:

- i. Documentary evidences for the irrigation started along with the affidavit inter alia stating the details of irrigation extended (CCA) to the agricultural area, number of villages benefitted, quantum of additional crop production.
- ii. Details of statutory clearances obtained for the project.
- iii. Component wise status (%) of construction of project work.
- iv. Six monthly compliance report.

Project Proponent (PP) submitted the above information online on 17.04.2020 to the Ministry. Accordingly, proposal was considered in the present meeting (32<sup>nd</sup>). PP made the detailed presentation on the additional information as sought by the EAC in the 30<sup>th</sup> meeting. PP apprised EAC that the affidavit has been submitted stating that work related to the construction of Dam has been completed in the year 2014 and irrigation facility to the agricultural field has been started on trial basis from the year 2014 to the Kharif crop. Further, construction of canal work is under progress and 85% canal work has been completed. Details of the irrigation by the Kelo project is as follows:

Sl. No.	Year	Irrigation Area in Ha	No. of villages benefited	Additional Crops Production in Tonnes (approx.)
1	2014	4500	45	56
2	2015	3935	36	49
3	2016	4005	41	50
4	2017	4202	44	52
5	2018	2694	33	37
6	2019	4001	34	50

PP in the present meeting also apprised EAC about the clearances/approvals obtained for the Kelo project, status construction of project and six-monthly compliance report addressed to Regional Directorate, Bhopal.

EAC in the present meeting (32<sup>nd</sup>) after detailed presentation on the project by the PP noted that the present application by the PP was for the extension of validity of existing Environmental Clearance (EC) beyond ten years. EAC also noted that the work related to the construction of Dam has been completed and irrigation facility to the agricultural field has been started on trial basis from the year 2014 to the Kharif crop. Further, construction of canal work is under progress and yet to complete. EAC deliberated on the extant regulatory provision for extension of validity of Environmental Clearance (EC). EAC observed that as per the EIA Notification 2006 and as amended thereof, Environmental Clearance validity refers to the start of production by Project or activity; it does not say start of full production as per sanctioned Environment clearance capacity.

EAC, after detailed deliberations on the provisions of EIA Notification 2006 and as amended thereof related to the validity extension of EC, information as presented and submitted including reply on additional details sought in the 30<sup>th</sup> meeting by the PP, *recommended that as the PP has submitted by way of affidavit that irrigation facility has already been started on trial to the agricultural field within the validity period of existing EC and resulted in the additional production of crops, therefore, for the instant proposal (Kelo Major Irrigation project) extension of validity of EC is not required. However, environmental conditions as stipulated in the Environmental Clearance letter dated 21.10.2008, shall be followed in toto during construction of balance work and operation phase.*

### 32.7 Any Other item:

It has been felt by the EAC members that many Pumped Storage projects, integrating with Solar Power and Wind Energy, are coming before the EAC and many more may be in the pipeline. Hence, standard ToR for these may be prepared in line with Irrigation and River Valley Projects.

\*\*\*\*\*

The following members participated in the video conference held on 14.05.2020:

- |                             |                                      |
|-----------------------------|--------------------------------------|
| 1. Dr. S.K. Jain            | - Chairman                           |
| 2. Shri Sharvan Kumar       | - Representative of CEA              |
| 3. Shri N.N. Rai            | - Representative of CWC              |
| 4. Dr. Vijay Kumar          | - Rep. of Ministry of Earth Sciences |
| 5. Dr. J.A. Johnson         | - Rep. of WII                        |
| 6. Dr. A.K. Sahoo           | - Representative of CIFRI            |
| 7. Dr. D.M. More            | - Member                             |
| 8. Prof. R.K. Kohli         | - Member                             |
| 9. Dr. S.R. Yadav           | - Member                             |
| 10. Dr. (Mrs.) Poonam Yadav | - Member                             |
| 11. Dr. S. Kerketta         | - Member Secretary                   |

Sd/-  
(Dr. S. Kerketta)  
Director-IA.I and Member Secretary EAC RVP

**From:** "s k jain" <s\_k\_jain@yahoo.com>  
**To:** "Dr S Kerketta" <s.kerketta66@gov.in>  
**Sent:** Saturday, May 30, 2020 10:30:46 AM  
**Subject:** Re: Draft MoM of 32nd EAC of RVP held on 14.05.2020 - reg.

Dear Dr Kerketta,

I am sending the approved minutes of the 32nd EAC meeting held on 14.05.2020.

Regards,

Sharad K Jain / शरद कुमार जैन

Chairman EAC (RVH)

Ex-Director (National Institute of Hydrology, Roorkee)

Visiting Professor, Civil Engg. Dept.

Indian Institute of Technology Roorkee, India

Tel: [+91 98970 18550](tel:+919897018550)

On Friday, 29 May, 2020, 10:15:40 pm IST, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Sir,

Revised the observation and attached for your kind approval please.

regards,

Dr. S. Kerketta

Director- IA (Thermal, River Valley & HEP)

MoEF&CC, New Delhi

Phone: [011-24695314](tel:011-24695314) (O), 26113096 (R)

**Undertaking**

**(To be provided by the PP)**

This is to certify that the information provided in Form-.... in physical form and/or in .pdf format (as applicable to the project and remaining be removed) in PARIVESH, to the Ministry/EAC members and PPT presentation during the EAC meeting held on 14.05.2020 have no deviation in respect of the proposal of ToR/EC/EC validity extension/EC amendment for establishing “.....MW Thermal Power Project at village ....., Taluk ....., District....., State.....by M/s. ....

2. It is further certified that there are no data entry errors in the information uploaded in PARIVESH system including names/email-id/mobile numbers/address of the project proponent, authorized person, etc. It is also certified that the supporting documents uploaded on PARIVESH portal are correct and duly authenticated by the Authorized Signatory.

3. In case of any deviation in data found in any of the documents, the Authorized Signatory shall be held responsible and furthermore, the above said project shall be rejected for grant of amendment in EC.

Authorized Signature

date