Minutes of the 4th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 02nd December, 2020 from 11 a.m. - 05:00 p.m. through video conference.

In the 4th meeting of the re-constituted EAC for River Valley & Hydroelectric Projects which was held on 02/12/2020 under the Chairmanship of Dr. Uday Kumar R.Y. (Acting) in the Ministry of Environment, Forest & Climate Change through video conference (VC). The following members participated in the video conference:

1.	Dr. Uday Kumar R.Y.	-	Chairman (Acting)
2.	Dr. N. Lakshman	-	Member
3.	Dr. Mukesh Sharma	-	Member
4.	Dr. Chandrahas Deshpande	-	Member
5.	Dr. B.K. Panigrahi	-	Member
6.	Dr. A.K. Malhotra	-	Member
7.	Dr. Narayan Shenoy K.	-	Member
8.	Shri Balraj Joshi	-	Member
9.	Shri Sharvan Kumar	-	Representative of CEA
10.	Shri A.K. Singh	-	Representative of CWC
11.	Dr. J.A. Johnson	-	Representative of WII
12.	Dr. A.K. Sahoo	-	Representative of CIFRI
13.	Dr. S. Kerketta	-	Member Secretary

Due to pre-occupation, Dr. K. Gopakumar, Dr. Vijay Kumar, Dr. A. Johnson and Dr. A.K. Sahoo couldn't attend the meeting through video conference.

Item No. 4.0 Confirmation of the minutes of 3rd EAC meeting.

Item No. 3.1.5, Page 24

EAC deliberated on the information and noted EC granted on 03.10.2002 was having validity of 5 years for **commissioning** of the project,…..

Shall be read as

EAC deliberated on the information and noted EC granted on 03.10.2002 was having validity of 5 years for **commencing** the project construction work, …..

Item No. 4.1 Discussion on Project Proposals

Item No. 4.1.1 Completion of Balance Works of Two Units (2x115 MW) at Lower Sileru Hydro Power House and Improvement of Power Canal Works in East Godavari, Andhra Pradesh by V. Surya Lakshmi Regarding ToR. Proposal No. IA/AP/RIV/183996/2020; File No. J-12011/15/2020-IA-1 (R)

Project Proponent along with the consultant (R.S Envirolink) made the detailed presentation on the project and provided the following information to the EAC:

Andhra Pradesh Power Generation Corporation Limited (APGENCO), a State owned power generation organization of Andhra Pradesh, proposes to complete the balance works of Two Generating Units (2 x 115 MW) at Lower Sileru Powerhouse utilizing the existing infrastructure of Lower Sileru hydropower project, where four units of 115 MW each are under operation since 1978.

Lower Sileru project is an operational project located on Sileru river, which is a tributary of Sabari river. The project is located in East Godavari district in Andhra Pradesh. Donkarayi dam is located at 17°56'02" N and 81°47'46"E; Forebay dam is located at 17°51'56" N and 81°42'05"E.

Lower Sileru project envisaged the installation of 6 units of 115MW each; out of which 4 units were installed and commissioned by 1978. Infrastructure required to operate all six units was put in place at that time which includes Donkarayi dam, power canal, forebay dam, surge shaft, two nos of penstocks, powerhouse and tail race channel. However, only four units were installed due to paucity of funds. No further work was carried out since then for completion of project. Now with the approval of the state government and commitment of funds, it is proposed to complete the balance works of installation of two units of 115 MW each, for which scoping clearance is requested.

Lower Sileru hydropower project was envisaged to utilize the potential energy due to drop in the water level between Donkarayi and Pollur; which is 193.5 m and the quantum of available water is 13.25 TMC. Following are the major project components of existing project:

- Donkarayi dam, a masonry dam of 71.32 m height with FRL at +316.08 m, and an earthen dam of 37.2 m high on the left bank with intake regulator
- A 15.60 Km long power canal up to Forebay earth dam with discharge capacity of 123.1 cumec
- A Forebay earthen dam of 67.06 m high with FRL at + 283.46 m.
- Head race tunnel of 3.23 km long; horse shoe shaped with discharge capacity of 430.75 cumec for six units;
- A surge shaft of 24.4 m dia to take care of instantaneous surge of water
- Steel penstocks of 5.5 m dia (2 existing + 1 proposed).
- A surface powerhouse of size 144 m x 25 m for 6 units of 115MW each
- A 585 m long tailrace channel to let in the water from the machines to the river.
- Four Units of 115 MW each are already commissioned.

The turbines and generators for the first 2 units are imported from erstwhile U.S.S.R. The 3rd and 4th Units are supplied by M/s BHEL, Haridwar. Two more units are to be installed now. However, Draft tubes and their embedment in concrete up to EL 70 m for these two units is already completed during commissioning of first 4 units.

APGENCO envisages to complete the balance works of the power house within a period of 30 months including 6 months' period for design engineering, model tests, equipment mobilization and material procurement at an estimated cost of INR 1098.12 Crores.

Proposed Lower Sileru Hydro Electric Scheme (2x115 MW) will consist of installation of penstock and two units of 115 MW each in existing surface powerhouse. All other power generation infrastructure is already existing, therefore, no additional land will be required for the project.

Project benefit:

- Employment Generation to the local population
- Improvement in the quality of life: primary education, primary health care, women and child welfare, periodic medical camps.
- Development strategy to bring about a positive socio-economic transformation of the people, so as to improve the quality of their life.
- Generation of employment for local populace in unskilled category.
- Presently the surroundings of the project and the state in general are power starved. This power shall bring overall improvement in quality of life and the economic growth of the local populace.
- The construction and operation of this Project would lead to overall sustainable development in the project region by making a direct as well as indirect contribution to the populace.

Apart from this, proposed scheme 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: Govt. of Andhra Pradesh has accorded administrative sanction for the execution of balance works for the two Units of 115 MW each for the Lower Sileru Power House. Approval of DPR is within the purview of Govt. of Andhra Pradesh. No approval from CWC/ CEA is required for completion of balance works of the project.

Detail of court case, if any: Nil

Observation and recommendation of the EAC in the present meeting:

EAC in the present meeting (4th meeting) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that instant project is an operational project located on Sileru river, which is a tributary of Sabari river. The project is located in East Godavari district in Andhra Pradesh. Lower Sileru project was planned for the installation of 6 units of 115 MW each; out of which 4 units were installed and commissioned in 1978. Infrastructure required to operate all six units was put in place at that time which includes Donkarayi dam, power canal, forebay dam, surge shaft, two nos of penstocks, powerhouse and tail race channel. However, only four units were installed due to paucity of funds. No further work was carried out since then for completion of project. EAC further noted that PP has submitted DPR in place of PFR. EAC also deliberated on the applicability of different EMPs in the instant operational project. 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:

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. Three season (Pre-monsoon, Monsoon and winter season) baseline data of all the environmental attributes including biological environment as mentioned in the Standard ToR shall be collected for preparation of EIA/EMP report.

3. Requisite studies for the E-flow shall also be undertaken.

4. Impact of developmental activity/project on the wildlife habitat, if any, within study area shall be studied.

5. CAT plan, Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared along with other EMPs and incorporated in the EIA/EMP report.

6. 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.

7. 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.

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, Layout Map and Power Potential Studies duly approved by CWC shall be submitted

11. Environmental matrix during construction and operational phase needs to be submitted.

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

13. Environmental Cost benefit analysis shall be done.

14. Submission of Pre-feasibility report to the Ministry as per the Ministry OM dated 30/12/2010 prior to grant of ToR.

15. Declaration from the Project Proponent that no construction work related to the proposed balance work is taken after 1994.

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Item No. 4.1.2 Lakhwar Multipurpose Project in District Tehri Garhwal of Uttarakhand by M/s UJVN LTD.- Regarding Environmental Clearance.
Proposal No. IA/UK/RIV/107946/2019; File No. J-12011/11/2019-IA-1(R)

Project Proponent along with the consultant made the detailed presentation on the project and provided the following information:

Combined Lakhwar Vyasi project was accepted by NITI AYOG (erstwhile Planning Commission) in its Fifth five-year plan with an estimated cost of Rs. 140.97 crores on 09.01.1976. Lakhwar Vyasi project had three major components viz., Lakhwar dam, Vyasi dam and Katapathar barrage in the district of Dehradun, Uttarakhand.

The Lakhwar Vyasi Multipurpose project envisaged construction of 204 m high Lakhwar Dam with dam toe power house at Lohari village, Construction 87 m high Vyasi Dam near Juddo village

approximately 5 KM downstream of Lakhwar Dam, 2.7 Km HRT, 120 MW power House at Hathiyari and a barrage near Katapathar approximately 3 KM downstream of Hathiyari Power House of Vyasi Project as balancing reservoir.

Environmental Clearance (EC) to combined projects was granted by MoEF in February, 1987. In 1987 after EC, work started by U.P. Irrigation Department and activities such as 40 km Road infrastructure, Dam stripping, Diversion tunnel, Intake, Underground power house, Adit to control room, Adit to erection bay, Tail race tunnel, etc. completed till 1992.

After formation of Uttarakhand State, the project was handed over to M/s NHPC for its early completion through a MoU signed on 01.11.2003. The above project was bifurcated into two parts viz., Lakhwar MPP (300 MW) with Katapathar Barrage 3 km downstream of Vyasi HEP and Vyasi HEP (120 MW) 5 km downstream of Lakhwar MPP.

A fresh environmental clearance to Vyasi HEP (120 MW) was accorded on 07.09.2007. In Application No. 431 of 2015 (Manoj Kumar Mishra &Bhim Singh Rawat Vs Union of India & Others) on the plea that environment clearance granted by MoEF in 1987 was an administrative approval to the composite Lakhwar-Vyasi project; and Lakhwar MPP has not been appraised under EIA notification; NGT has issued an order dated 10.01.2019 and directed EAC to appraise the project afresh in terms of EIA notification 2006 and impose additional general and specific conditions as may be considered necessary.

EAC deliberated the issue of Lakhwar Multipurpose Project vis-a-vis the NGT Order during its meeting held on January 28, 2019 for ToR and recommended for a visit by a Sub-Committee of the EAC to the project site for additional study, if any, to be taken up based on the standard ToR for River Valley Projects. Sub-committee of EAC has made a visit to project site during April 2019. Based on the EAC's observations and subcommittee site visit report, fresh scoping clearance was sought; which was issued by MoEF&CC vide letter no. J-12011/11/2019-IA-I dated 5th December 2019.

Public hearings were held on 30th September 2020 at Lakhwar Stadium, Near MahasuMandir, Village Lakhwar, District Dehradun and 12th October 2020 at Government Primary School, Ranogi (Debogi), District Tehri Garhwal, Uttarakhand. EIA/EMP report for EC was submitted to the Ministry on 20.11.2020. Issues raised during Public Hearing are:

- Villagers in the project area suggest that the work on Lakhwar Dam should start as earliest.
- Preference in jobs should be given to the local youth of affected families and affected area.
- Panchayat Parivar Register updated in 2020 should be considered for counting of PAF's.
- UJVN Ltd. has the responsibility to develop the area and provide an approach road up to the selected location for Maund Mela.

Lakhwar Multipurpose Project is located on Yamuna river in the Dehradun and Tehri Districts of Uttarakhand State and being developed by UJVN Ltd. The construction of dam and underground power house for Lakhwar Multipurpose Project (300 MW) is proposed near Lohari village in Kalsi Tehsil of Dehradun district of Uttarakhand. Proposed dam site is located at latitude 30˚31'03" N and longitude 77˚56'58" E.

All the components of Lakhwar Multipurpose Projects are approachable from National Highway 507 (123). NH 507 is the one the busiest highway in the region from May to October, connecting Dehradun to Yamunotri (a Hindu pilgrim). The project site is approachable from Dehradun by NH-

507 up to project site at Lohari village. Kalsi is the nearest important town from the project area which is 20 km away from Project site.

The project envisages construction of a 204 m high (deepest foundation level) concrete gravity dam across river Yamuna to with an installed capacity of 300 MW. This is a storage scheme. The catchment area of the project is 2080 Sq. km. Total land requirement is 927.0822 ha, out of which 768.1552 ha is forestland and 158.927 ha is private land. Total submergence area is about 957 ha. An underground/surface powerhouse is proposed with 03 units of 100 MW capacity each. About1809 families from 35 villages have been identified as PAFs. 1159 families are identified as PAF' from already acquired land and 650 PAFs have been identified who will be affected from yet to be acquired private land and no family will be displaced due to acquisition of private land. The total cost of project is about Rs. 5747.17 crores and proposed to be completed in 69 months.

Major project components are:

Dam Complex - A 204m high concrete gravity dam is proposed with top level of the dam at El 800 m and the riverbed level at the dam site is around El 623 m. The Full Reservoir Level (FRL) and minimum draw down level (MDDL) of the reservoir are El 796 m and El 752 m, respectively, with gross storage of 587.84 MCM at FRL for diurnal peaking capabilities. The intake structure has been proposed on right abutment just upstream of dam body. The left bank is steeply sloping with exposed rock mostly along the slope and is covered by thin overburden at lower elevations. Submergence area at FRL of 796m has been worked out as 9.57 sq. Km; which will provide a gross storage of 587.84 MCM and live storage of 330.40 MCM. Average width of submergence is 483 m and length of submergence is 23 km.

Pressure Shaft/ Penstock -Three steel lined penstocks, each of 4.30 m diameters with length of 186.5 m, 211 m and 235 m.

Power House - An Underground Powerhouse (size of cavern- 165 m x 20 m x 48.05 m D – Shaped (unfinished) is proposed with Vertical Francis turbines at axis level of El. 616 m. The reservoir to be created by the dam will operate between FRL 796 m & MDDL 752 m with rated head of 148.0m. The installed capacity of the power house will be 300 MW.

Kataptahar Barrage-The water from Lakhwar reservoir will fall back into Yamuna River after generating power at Lakhwar and Hathiari powerhouse of Vyasi Project. Katapathar barrage (length- 152.5 m), with three nos. of sluice bays and five nos. of 16m wide with 3.5 m thick piers in between, will act as a balancing reservoir.

Based on the final project layout, land requirement has been finalized as 927.0822 ha; out of which 158.927 Ha is private land and 768.1552 Ha is forest land.

- **Forest land**: Approval of diversion of 868.08 ha forest land of combined Lakhwar-Vyasi Multipurpose Project in favour of Uttar Pradesh Irrigation Department was accorded by MoEF vide letter No -8-172/86-Fry (Cons) Dated 31.10.1986. MoEF&CC vide letter F. No. 8-172/1986-FC (pt-1) dated 31.01.2014 accorded the approval for transfer of the lease in favour of UJVN Ltd in respect of 768.1552 hectares of forestland already diverted during 1986 for construction of Lakhwar Project.

- **Private land:** Out of 158.927 ha of private land, 105.422 ha of private land has already been acquired after paying compensation at a cost of Rs. 610.85 lakh by UP Irrigation Department

and same has been transferred to UJVNL. Now 53.505 ha of private land will be acquired for the project.

The project is located within 10km aerial distance of Mussoorie Wildlife Sanctuary. In the absence of Eco-Sensitive Zone notification of Mussoorie wildlife Sanctuary, Application has been filed seeking wildlife clearance from National Board for Wildlife (NBWL). Government of Uttarakhand vide letter dated 05/02/2020, based on the recommendation of State Board of Wildlife, has forwarded the proposal for grant of wildlife clearance to National Board for Wildlife (NBWL). Standing committee of National Board for Wildlife, MoEF&CC in its meeting held on 07.04.2020 recommended the proposal for Construction and Commissioning of Lakhwar MPP and communicated the same vide letter no.F.No.6-2/2020 WL dated 20.04.2020.

The catchment area of river Yamuna upto the proposed dam site is 2080 sq km, out of which 60 sq km is snow fed catchment. The long term 10-daily series at the project site has been worked out for the period from 1971 to 2003. The average 10-daily discharge of Lakhwar G&D site for the period from 1971 to 1981 has been considered. The consistency of the flow series of various sites, used in deriving the flow series at the project site has been approved by CWC vide letter no: Hydrology (N) Direct. /1/97/81/1-2/171 dated: 25.03.2011. The design flood value of 8850 cumec is recommended by CWC for planning purpose of Lakhwar project.

Primary Data was collected through field surveys for pre-monsoon and monsoon from May 2019 to August 2019. Based upon the ambient air quality monitoring done in the study area, it is concluded that air quality in general is good and within the permissible limits of CPCB standards. The project is located on the pilgrimage route i.e. NH507 to Yamunotri, the noise levels in the study area are little more than the threshold levels prescribed by CPCB.

Surface water quality of the samples collected during Pre-Monsoon and monsoon season was compared with the Water Quality Criteria of Central Pollution Control Board. The surface water in the study area at most of the locations fall under Class 'B' i.e. designated best use of outdoor bathing (organized) according to CPCB, Water Quality Criteria.

Ground Water Quality analysis results of ground water samples were compared with drinking water standards IS-10500:2012 to assess the status of ground water taken from spring as this water is used for drinking purpose in villages. All the samples were found within permissible limits as per drinking water standards prescribed by CPCB.

As per land use/ land cover classification of the study area, more than 52% of the study area is comprised of good forests and only 3.29% of the forest is scrub. Large part of the study area is also subjected to agriculture (27.33%). The project area harbors 324 plant species belonging to 118 families of different plant groups like Angiosperms, Gymnosperms, Pteridophytes, Bryophytes and Lichen.

15 species of mammals are reportedly found in the area. Insects and butterflies were represented by 31 species, out of 31 species, 14 species of insects and 17 species were butterflies & moths. *Gypshimalayensis* is the only bird, which is listed as Near Threatened (NT) under IUCN 2019.2, rest of the species fall under Least Concern (LC) category. Among the aquatic organisms 32 species of peri-phyton, 46 species of phyto-benthos, 8 species of zooplankton and 13 genera of macro-invertebrates were recorded from Yamuna river and its tributaries. 10 fish species are reported from the Yamuna river and its tributaries in the study area. Mahseer and trout are an important migratory fish in Yamuna River and its tributaries.

Construction of dam and storage of water for power generation will lead to permanent change in flow regime of the river – both upstream as well downstream. This is an irreversible impact and cannot be mitigated. Other Impacts during Construction due to construction activity of project components, running (or)movement of Construction Equipment, Muck generation from excavation activity, Road Construction will have impact on Air Quality, Noise levels, Water Quality, Flora and Fauna and change in land use pattern. Detail Environment Management Plan is prepared to mitigate impacts on the environmental attributes including fauna and flora. Further, following measures will be adopted to Mitigate the impacts:

1. Well-designed excavation Methodology
2. Regular servicing and maintenance of plant and equipment
3. Providing proper durable protection works, reclamation of dumping sites as per approved plan
4. Proper medical check-up of all labors before coming to site
5. Providing provision of community mess/ kitchen for labor
6. Educating labor and using guards for restriction of moment from the project area.
7. Sprinkling water on roads during construction.

Detail breakup of EMP cost is as under:

Sl. No	**Component of EMP**	**Capital Cost**	**Recurring Cost (Rs. In lakh)**						**Total Cost (Rs. In lakh)**
		(Rs. In lakh)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
1	Biodiversity Conservation & Wildlife Management Plan	108.50	16.60	16.60	16.60	16.60	16.60	16.50	208.00
2	Fisheries Conservation and Management Plan	1157.00	32.41	32.41	32.41	32.41	32.40	32.40	1351.44
3	Muck Dumping and Management Plan		40.00	40.00	40.00	40.00	20.00	5.13	185.13
4	Public Health Delivery System	65.00	34.00	34.00	34.00	29.00	29.00	29.00	254.00
5	Landscaping, Restoration of Quarry and Construction Sites					38.50	38.50	5.00	82.00
6	Sanitation and Solid Waste Management Plan	95.00	18.72	18.72	18.72	18.72	18.72	33.72	222.32
7	Energy	63.00	20.00	20.00	19.00	18.00	18.00	18.00	176.00

	Conservation Measures								
8	Labour Management Plan	50.00	11.00	11.00	11.00	11.00	11.00	6.00	111.00
9	Pollution Mitigation Measures	25.00	10.00	10.00	10.00	10.00	10.00	10.00	85.00
10	Environmental Monitoring Program	2.00	8.80	8.80	8.80	8.80	8.80	26.40	72.40
11	Rehabilitation and Resettlement Plan	23308.50	17.00	17.00	17.00	17.00	16.00	16.00	23408.50
12	Green Belt Development Plan		29.50	29.50	29.48	5.00	5.00	5.00	103.48
13	Reservoir Rim Treatment	351.41							351.41
14	Disaster Management Plan	80.00	20.00	20.00	20.00	20.00	20.00	20.00	200.00
15	Local Area Development (CER) Budget		479.00	479.00	479.00	479.00	479.00	480.00	2875.00
Total		**25305.41**	**737.03**	**737.03**	**736.01**	**744.03**	**723.02**	**703.15**	**29685.68**

Dam break modelling has been carried out on MIKE 11. In order to visualize the worst case scenario Dam Break Modeling exercise was undertaken and an inundation map was prepared. An inundation map depicts the d/s areas vulnerable to inundation by the Dam break flood. Based on computed maximum flood elevation, 47 villages have been identified which can be affected due to dam break flood. Based upon the outputs generated from this modeling, a Disaster Management Plan has been formulated. This plan presents warning and notification procedures to be followed in case of failure or potential failure of the dam. The purpose is to provide timely warning to the population likely to be affected and alert key people who have to take respective actions in case of an emergency. A comprehensive DMP will be prepared on project completion.

There are 35 project affected villages due to land acquisition for various components of the proposed project. Out of these villages, 22 are in Tehri Garhwal and 13 are in Dehradun district. A survey of villages was carried out as part of the SIA study and data compiled on occupation, amenities, quality of life, etc. Based on discussion and survey of affected families, people's perception of the project and their expectations have been identified. SIA has identified socio-economic impacts such as impact due to land acquisition, impact on occupation pattern, impact due to influx of labour such as strains on local infrastructure, increased incidences of diseases, social conflicts, increased crimes and economic impacts. Both positive and negative impacts have been identified and suitable measures incorporated in EMP including local Area Development to minimise the impacts and improve the quality of life.

Total land requirement for the project has been worked out as 927.0822 ha, out of which 158.927 ha is private land and remaining is forest land, which has already been diverted for the project. Out of total requirement of private land, 105.422 ha has already been acquired by UP Irrigation Department and transferred to UJVNL. Remaining 53.505 ha will be acquired for which process has already been initiated. A total budget of Rs. 234.085 crore has been proposed for R&R implementation including ex-gratia grant @ Rs. 75 lakh per hectare for already acquired 105.422 ha of land.

Project benefit:

- Annual Generation- 572.54 MU and additional generation downstream projects
- Additional Irrigation- 33780 Hectare
- Water for domestic /Industrial use- 78.83 MCM
- Water availability of Drinking water for Delhi - 19.03MCM (1,90,30,000 KL)
- Controlling floods
- Rejuvenating river in lean season.
- A number of marginal activities and jobs would be available to the locals during construction phase. During construction about 2000 skilled and unskilled manpower will be engaged for various construction activities.

Status of other statutory clearances:

- DPR of Lakhwar Multipurpose project was approved by Technical Advisory Committee of CWC in its 116th meeting held on 14th December 2012 & minutes issued vide letter no. 16/27/2012-PA(N)/8-32, dated 03rd January 2013.

- Revised Cost Estimate (RCE) of the Lakhwar Multipurpose Project, Estimated cost Rs 5747.17 Crore@ PL July 2018 (Cost of Water component is Rs 4673.01 Cr (81.30%) and Cost of Power component is Rs 1074.16 Cr (18.70%)), has been accepted by Advisory Committee of MoWR, RD&GR in its 141st meeting held on 11.02.2019 conveyed vide MOM through letter No. 16/27/2012-PA(N)/583-611 dated 18.02.2019.

- MoEF&CC vide letter F. No. 8-172/1986-FC (pt-1) dated 31.01.2014 accorded the approval for transfer of the lease in favour of UJVN Ltd in respect of 768.1552 hectares of forest land.

- Standing committee of National Board for Wildlife, MoEF&CC in its meeting held on 07.04.2020 recommended the proposal for Construction and Commissioning of Lakhwar MPP and communicated vide letter no.F.No.6-2/2020 WL dated 20.04.2020.

Observation and recommendation of the EAC in the present meeting:

EAC in the present meeting (4th meeting) deliberated on the information submitted (Form 2, EIA/EMP report, Public Hearing issues kml file, etc.) and as presented in the meeting and observed thatMoEF&CC vide letter F. No. 8-172/1986-FC (pt-1) dated 31.01.2014 accorded the approval for transfer of the lease in favour of UJVN Ltd in respect of 768.1552 hectares of forest land already diverted during 1986 for construction of Lakhwar Project. Further, the project is located within 10 km aerial distance of Mussoorie Wildlife Sanctuary. Standing committee of National Board for Wildlife, MoEF&CC in its meeting held on 07.04.2020 recommended the proposal for Construction and Commissioning of Lakhwar MPP and communicated the same vide letter F.No.6-2/2020 WL dated 20.04.2020.

EAC also noted that though it's a Multipurpose Project, instant application for only hydroelectric component. EAC after detailed deliberation on the information submitted by the PP and as presented **recommended the proposal for grant of Environmental Clearance** subject to compliance of applicable Standard EC conditions with the following additional conditions:

1. 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.

2. 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.

3. Any other clearances from any other organization/department as applicable to the proposed project shall be obtained.

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. 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.

6. 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 for the project as per the EIA Notification, 2006 and as amended thereof.

7. 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.

8. As the proposed project falls in Yamuna River Basin and its CIA & CCS is already complete, the recommendation of CIA & CCS shall be followed while implementing the Project.

9. Beneficiary states of Lakhwar project shall take separate Environmental Clearance for **irrigation** as per the EIA Notification, 2006 and as amended thereof.

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Item No. 4.1.3 Kundah Pumped Storage Hydro Electric Project (4x125 MW) in tehsil Udhagamandalam, district The Nilgiris, Tamil Nadu by M/s Tamil Nadu Generation and Distribution Corporation– Regarding Environmental Clearance. Proposal No. IA/TN/RIV/183831/2019; File No. J-12011/62/2006-IA1(R)Pt

The Kundah Pumped Storage Hydro Electric Project (4x125 MW) is a Pumped Storage Scheme in Nilgiris hills of Tamil Nadu for providing peaking benefits utilizing the existing reservoir at Porthimund (live storage 20.10 Mm^3 between FRL 2220.46m and MDDL of 2207.55 m) as the upper reservoir and Avalanche-Emerald reservoir (live capacity 130.84 Mm^3 between FRL 1985.80m and MDDL 1957.98 m) as lower reservoir. In this project proposal, no new reservoir is proposed. Both the existing reservoirs will be connected with tunnels which will serve as Head race & Tail race water conducting system. An underground powerhouse will be constructed between the two reservoirs and connected with the tunnels. The water conductor system shall comprise one headrace tunnel, 2 numbers pressure shafts, 4 numbers penstocks, one tail race surge shaft & one tail race tunnel. The underground powerhouse is proposed to house 4 units of 125 MW each, which can be reached by means of an Access Tunnel.

Chronology of Environmental Clearance

- Initially, Environmental clearance for the Kundah Pumped Storage HEP (4x125 MW) in Nilgiris District of Tamil Nadu was accorded by Ministry vide letter dated 08.05.2007 and subsequently the validity of Environmental clearance was extended in stages and finally up to 07.05.2020 vide Ministry's letter dated 18.01.2018.

- In the meanwhile, as the project could not be commissioned within the Environmental Clearance (E.C) validity period due to various reasons, Ministry was requested by TANGEDCO to extend the validity of E.C. vide letter dated 18.07.2019. However, MoEF&CC vide letter dated 17.10.2019, directed to initiate the process of obtaining Environmental Clearance de-novo.

- In consonance with the provision under section-6 of the MoEF&CC notification, dated 14th September 2006, TANGEDCO had submitted TOR application i.e. Form-1 and Detailed Project Report vide proposal No. IA/TN/RIV/121832/2019 on 21.10.2019.

- Further, the Expert Appraisal Committee considered TANGEDCO's proposal in its 28th meeting held on 31.10.2019 and directed that a Sub-committee may visit the site and submit their views for finalizing the ToR.

- Accordingly, a Sub-Committee of EAC/MoEF&CC visited the Kundah PSHEP project site on 06.12.2019. The Committee has recommended that it should be ensured that work at the project should not stop even if ToR is granted. The recommendations of the Sub-Committee have also been endorsed by the EAC/ MoEF&CC meeting on 27.01.2020.

- Subsequently, the ToR issued vide F.No. J-12011/62/2006-IA-I (R) Pt., dated 05.06.2020 as per Standard ToR (Hydro projects) and additional ToR for preparation of EIA/EMP report for the activities at the proposed site as per the provision of the Environmental Impact Assessment Notification, 2006 and as amended time to time with one season fresh baseline data collection for preparation of EIA/ EMP report, permission to carry out construction work at the project site for a period of six months from the date of issue of this letter or grant of new Environmental Clearance, whichever is earlier and exemption of Public Hearing.

- In the meanwhile, baseline study for the preparation of EIA/EMP Report of Kundah PSHEP has been conducted during December 2019 to February 2020.

- Certified Compliance of earlier ECs has been obtained from Regional, MOEF&CC, Chennai dated 10.11.2020.

- EC application i.e. final EIA/EMP Report along with all relevant Annexure & Form-2 has been uploaded on Parivesh portal of MoEF&CC on 19.11.2020.

Salient features of the project

- Head Race Tunnel (HRT) —1247 m long, 8.5 Dia Circular with peak discharge of 240 cumecs.
- Head Race Surge Shaft (Restricted Orifice)-68.14 m for 28 m Ø and 34 m for 16 m Ø
- Adit to Head Race Tunnel —434.14 m long, 6.5 m x 6.5 m, D-shape.
- Pressure Shafts —2 Nos. each 459 m long, 5.5 m dia with peak discharge of 120 cumecs.
- Penstocks 4 Nos. each 50 m long, 3.9 m dia with peak discharge of 60 cumecs.
- Power House —An underground power house of size 156 m (L) x22 m (W) x 48 m (H) including service bay to accommodate 4 nos. Francis reversible turbine type generating units of 125 MW each operating under rated generating net head of 236 m and a generating design discharge of 240 cumecs and rated pumping head of 248 m & a pumping design discharge of 183.28cumecs.
- Transformer cavern —Size 137.40 m (L) x 19.0 m (W) x 18.5 m (H)
- Tail Race Tunnel (TRT) — 895 m long 8.5 m Dia Circular with peak discharge of 240 cumecs.
- Tail Race Surge Shaft—72.50 m high, 10m width and 52.0 m length
- Adit to Tail Race Surge Shaft —480 m long, 6.5 m x 6.5 m D —Shape
- Access Tunnel —1284 m long, 8 m x 8 m D-Shape.
- Cable Cum Ventilation Tunnel —869 m long, 6.5 m x 6.5 m D-Shape.

The Proposed project is located between latitude 11º20' & $11^0$22' N and Longitude 76º33' & 76º37' E. This underground project location falls in Kaducuppa Reserved Forest and Hiriyashigee Reserved forest of Nilgiris District, between TNEB's Porthimund Reservoir (formed during 1966) and Avalanche - Emerald reservoir (formed during 1961). The Project office and the residential Quarters will be at Nanjanad Village, Uthagamandalam Taluk, Nilgiris District. Proposed Power House is at 35 km distance from Udhagamandalam (Ooty). Distance from nearest Railway station : Mettupalayam, 105 km. Distance from nearest Airport Coimbatore, 147 km.

Land requirement

Forest Land:

- Forestland requirement is 30 ha. Forest clearance obtained vide letter dated 21.08.2013. Lease Agreement has been signed with State Forest Department.

Private Land:

- 47.89 ha of private land has been purchased.
- Out of this, 36 ha has been handed over to forest department towards compensatory afforestation. Balance 11.89ha of land is utilized for project purpose.
- No other additional land is required for the project.

Present status of the Project:

Works completed:

- Mining in Main Access Tunnel' and 'Cable Cum Ventilation Tunnel' and all the Additionally Driven Inspection Tunnels (ADITs).
- Pilot Tunnel excavation in Power House Cavern and Transformer Cavern.
- Power House slashing, Transformer Cavern Slashing,
- Mining in Unit Tail race tunnels I & II,
- Tail Race Surge chamber
- Glory Hole excavation, Transformer Cavern benching.

Work under progress

- Power House Cavern benching, TRT benching,
- TRT surge chamber mining and TRT Gate shaft Excavation are under progress.
- Head Race Surge Shaft excavation, Pilot Tunnel Mining in Inclined portion of Pressure Shafts PS-1 & PS-2 and Ferrule erection chamber excavation and Head Race Tunnel mining are under progress**.**

Baseline data collection for the project is done for the Winter Season (December 2019 to February 2020). The analysis results show that soil is basic in nature as pH value ranges from 6.54 to 7.62 with organic matter 2.34%-3.09%. The concentration of Nitrogen (12.6 mg/100 gm to 14.8 mg/100 gm), Phosphorus (0.71 mg/100gm to 0.93 mg/100gm) and Potassium (8.1 mg/100gm to 9.2 mg/100gm) has been found to be in good amount in the soil samples.

Concentrations of Suspended particulate matter (SPM) in winter season the study area were observed from the minimum 57 $\mu g/m^3$ to the maximum value 123 $\mu g/m^3$. Concentrations of respirable suspended particulate matter less than 10 µm size (RSPM) in winter season the study area were observed from the minimum of 47 $\mu g/m^3$ to the maximum of 98 $\mu g/m^3$. Sulphur dioxide concentrations in winter season the study area were observed from the minimum of 3.30 $\mu g/m^3$ to the maximum value of 9.50 $\mu g/m^3$. Nitrogen dioxide concentrations in winter season the study area were observed from the minimum 7.00 $\mu g/m^3$ to the maximum value 14.50 $\mu g/m^3$.

Assessment of day time noise levels around the pumping station are ranging between 46.4 to 68.5 dB(A) during study period. Whereas the night equivalents were in the range of 37.5 to 56.5 dB(A). From the results it can be seen that the Day equivalents and the Night equivalents were within the Ambient Noise standards of residential areas standards.

Analysis results of surface water reveal that the pH varies from to 7.40 to 8.44, Total Hardness varies from 160 to 318 mg/l and Total Dissolved Solids varies from 122 to 340 mg/l. Analysis results of ground water reveal that the pH varies from to 7.36 to 7.68, Total Hardness varies from 154 to 188 mg/l and Total Dissolved Solids varies from 264 to 304 mg/l.

According to primary survey conducted in study area and consultation with the secondary resources, a total of 145 floral species belonging to 58 plant families have been listed in the project area. Based on the number of species, the most important plant families reported in this region are; Acanthaceae, Amaranthaceae, Euphorbiaceae, Fabaceae, Poaceae and Malvaceae etc.

As per inventory of the fauna recorded in the primary survey (by direct and indirect method) and reported in the secondary resources a total of 21 mammalian, 46 avian, 11 amphibian, 8 reptilian and 17 butterflies are found. The study area includes Nilgiris hills, upper small lake (Porthimund Lake) the lower large lake (Avalanche-Emerald Lake). The survey was carried out for assessment of

aquatic flora and fauna and fisheries. The study recorded the presence of insects from 6 orders (Odonata, Hemiptera, Coleoptera, Ephemeroptera, Diptera and Trichoptera). Fishing activities are banned in the lakes of the Nilgiri hills. Common fishes reported in the area are-Trout, Nilgiri Danio, Black Mahseer, Ray-finned Fish, Gangetic Mystus, Black-line Rasbora, Common Carp, etc.

Based on the evaluation of baseline data and predicted impacts, suitable management plans have been prepared in order to ameliorate the negative impacts in the sphere of land, water, air, noise, biological and socio-economic environments. In Kundah Pumped Storage HEP, the environmental management actions will be integrated into the civil work contracts and other project planning and design activities. The EMP measures include mitigation or enhancement measures as appropriate to the nature of impacts. Detail break up EMP cost to mitigate the impacts is as follows:

Description	**Capital Cost** **INR Lakh**	**Working Costs** **INR Lakh**	**Total Costs** **INR Lakh**
Catchment Area Treatment Plan	56.24	-	56.24
Greenbelt Development Plan	35.94	-	35.94
Biodiversity Conservation and Wildlife Management Plan	70.00	-	70.00
Muck Disposal Plan	12.695	11.77	24.465
Energy Conservation Measures	-	105.00	105.00
Restoration and landscaping of working Areas	35.00	-	35.00
Sanitation and Solid Waste Management Plan	50.00	-	50.00
Water and Air Quality & Noise Management Plan	40.00	-	40.00
Forest Protection Plan	25.00	-	25.00
Reservoir Rim Treatment Plan	50.00	-	50.00
Compensatory afforestation Plan	72.594	5.00	77.594
Disaster Management Plan	80.00	-	80.00
Total EMP Budget	**527.469**	**121.77**	**649.239**

The TNPCB had conducted public hearing meeting on 12.04.2007 for the Kundah Pumped Storage Hydro-Electric Project. During the above public hearing meeting it was requested to give priority to local public for employment. Unskilled labour from local public is being utilized to the extent possible. It was also requested that none of the houses shall be affected due to extension of roads. The same has been adhered. No other major issues were raised during the Public hearing meeting. Exemption from conducting fresh public hearing has been accorded by MoEF&CC in the fresh TOR issued.

Status of other statutory clearances-

S. No.	Statutory Clearances	Status
1.	Scoping and ToR from MoEF&CC, GoI	The application for ToR was filed on 21.10.2019. The Project proponent was granted ToR by MoEF&CC vide File No. J-12011/62/2006-IA-I (R) Pt, dated 05.06.2020.
2.	Signed Copy of the ToR	A signed copy of ToR was issued by MoEF&CC, New Delhi on 05.06.2020.
3.	Baseline Data Collection	December 2019-February 2020.
4.	Public Hearing	Exemption from conducting Public Hearing has been given by MoEF&CC while issuing ToR vide letter dated 05.06.2020
9.	MoEF / EAC Clearance	For seeking EC, the EIA/EMP report shall be submitted to EAC, MoEF&CC, GoI.
10.	NOC from State Pollution Control Board	Tamil Nadu Pollution Control Board accorded Environmental Consent to establish the project vide their letter dated 16.10.2007. Consent has been renewed up to 8.4.2020. Further renewal will be obtained on issue of fresh EC.
11.	Forest Clearance	• Stage-I Forest Clearance for the diversion of 30 ha of Forestland in Kaducuppa RF, Pothirmund RF & Hiriya Shighe RF was obtained vide letter dated 27.11.2008. • Stage-II FC for the diversion of 30 ha of Forest land in Kaducuppa RF, Pothirmund RF & Hiriya Shighe RF was obtained from vide letter dated 21.08.2013.

Observation and recommendation of the EAC in the present meeting:

EAC in the present meeting (4th meeting) deliberated on the information submitted (Form 2, EIA/EMP report, Public Hearing issues kml file, etc.) and as presented in the meeting and observed that iinitially, Environmental clearance for the Kundah Pumped Storage HEP (4x 125 MW) in Nilgiris District of Tamil Nadu was accorded vide letter dt.08.05.2007 and subsequently the validity of Environmental clearance was extended in stages and finally up to 07.05.2020 vide dated 18.01. 2018. In the meanwhile, as the project could not be commissioned within the Environmental Clearance (E.C) validity period due to various reasons, MoEF&CC/GOI was requested by TANGEDCO to extend the validity of E.C. vide letter dated 18.07.2019. However, MoEF&CC vide letter dated 17.10.2019, directed to initiate the process of obtaining Environmental Clearance de-novo. Accordingly, proposal for ToR was submitted and granted with PH exemption, collection of one season baseline data. EAC further noted that the Kundah Hydro Power Project is located in the Buffer Zone of Nilgiri Biosphere Reserve area. The project area is surrounded by natural forests.

EAC after detailed deliberation deferred the project for want of following information:

1. As the project is located in the Buffer Zone of Nilgiri Biosphere Reserve area, impact study shall be carried out with detailed mitigation measures.

2. Conservation plan for Schedule I species to be prepared and submitted to the Chief Wildlife Warden for approval.
3. Details of CER to be made as part of EMP as per Ministry's OM dated 30.09.2020. Based on the concern/issues raised in the earlier Public Hearing, activities may be included in local area development of EMP.
4. Environmental matrix during construction and operational phase needs to be submitted.
5. Fisheries management plan alongwith budgetary provision to be submitted.

Item No. 4.1.4 Wakurde Lift Irrigation Scheme, District Sangli, Maharashtra by M/s Superintending Engineer, Kolhapur Irrigation Circle, Sinchan Bhavan, Tarabai Park, Kolhapur– Regarding Extension of Validity of EC Proposal No. IA/MH/RIV/177772/2020; File No. J-12011/48/2008-IA-I (R)

The Ministry of Environment & Forest, New Delhi has granted environmental clearance vide letter No. J-12011/48/008-IA-1 dated 19th August 2010 for Wakurde Lift irrigation Scheme in Sangli District in Maharashtra by Kolhapur Irrigation Circle, Maharashtra Krishna valley Development Corporation.

Wakurde lift irrigation project involves irrigating the land of Shirala, Walwa Taluka of Sangli District and Karad Taluka of Satara District of Maharashtra State. The scheme is supposed to lift the water from Warna Left bank Canal at Km 24 for part-1 and at km 68 for Part-II to irrigate total 28035 ha command area.

Maharashtra Krishna Valley Development Corporation, Pune sanctioned First Revised Project Report of the Wakurde Lift Irrigation Scheme vide Marathi letter No. MKVDC/ M.P.-3/Wakurde LIS/8560/4 dated 25/10/2004. The Ministry of Environment &Forest, New Delhi has granted environmental clearance vide letter No.J-12011/48/008-IA-I dated 19th August 2010 for command area 28035 ha. After this the work of the scheme of Part-I is started.

Presently 70% work of Part-I is completed and initial survey and investigation work is completed for Part-II. It is planned to complete Part-I and Part-II of the project work in the next three years. The scheme is a lift irrigation scheme therefore no separate storage dam is to be constructed. Hence there will be no rehabilitation of any village under this scheme.

No any Forestland is required for this scheme. It is proposed to give irrigation benefits to higher level areas of Shirala, Karad and Walwa Taluka through Wakurde Lift Irrigation Scheme. The scheme is distributed in two parts. Command area from Shirala, Walwa and Karad Taluka will be benefitted by this LIS scheme.

The scheme involves Part-I and Part-II. In Part-I water is being lifted from km No.24 of Warna Left Bank Canal and In Part-II water is being lifted from Km. No. 68 of Warna Left Bank Canal

For Part-I, Water is lifted in three stages to irrigate 12275 Ha. Stage I and II have been partially commissioned on 30/12/2011. Water is pumped out to Hategaon P.T. and from there to M.I. Tank at Wakurde Bk. Due to partial commissioning of the scheme, 2200 Ha (2772 Ha crop area) has been created in 14 villages of Karad taluka by discharging water from Yenape Tunnel in South Mand river under Stage II. Stage I & stage 2 pump house with required canal & canal structures and tunnel up to Wakurde M.I. Tank are completed in all respect.

Also, by the end of June 2019, 830 hectare (1030 hectare crop area) has been created in Shirala taluka under this project. Thus a total of 3030 ha (3802 ha) of crop area has been created.

In Part-II, water will be lifted in Single stage to irrigate 15760 ha. Preliminary work for the Part-II is completed. The designing of the part-II is in process. The total expenditure of Rs.211.67 crore is incurred on the Project up to march 2020.

Observation and recommendation of the EAC in the present meeting

EAC after detailed presentation by the Project Proponent observed that the Ministry of Environment & Forest, New Delhi has granted environmental clearance vide letter No. J-12011/48/008-IA-1 dated 19th August 2010 for Wakurde Lift irrigation Scheme in Sangli District in Maharashtra.

The scheme involves Part-I and Part-II. In Part-I water is being lifted from km No. 24 of Warna Left Bank Canal and In Part-II water is being lifted from Km. No.68 of Warna Left Bank Canal. Total command area is 28035 ha. EAC deliberated on the validity extension of existing EC beyond ten years within the regulatory provisions. EAC after detailed deliberation **recommended** granting another three years of validity of extension of EC dated 19.08.2010.

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Item No. 4.1.5 MP 30 Gandhi Sagar Off-Stream Pumped Storage Project, District Neemuch, Madhya Pradesh by M/s Greenko Energies Private Limited – Regarding Amendment in ToR Proposal No. IA/MP/RIV/184197/2020; File No. J-12011/22/2019-IA-I (R)

Project Proponent along with the consultant (R.S. Envirolink) made the detailed presentation on the project and provided the following information to the EAC:

Greenko Group through its subsidiary - Greenko Energies Pvt. Ltd., hereinafter referred as GEPL, proposes to develop MP 30 Gandhi Sagar Off Stream Pumped Storage Project (PSP) in Khemla Block (V), Rampura (T) of Neemuch (D) in the state of Madhya Pradesh.

The total capacity of proposed PSP is 1440 MW (10411.2MWH) and envisages non-consumptive utilization of 1.22 TMC of water from existing Gandhi Sagar Reservoir by re-circulation. The gross storage capacity of Gandhi Sagar reservoirs is 258.47 TMC. As such, the proposed project involves creation of upper reservoir at 24° 31' 6.89" North and Longitude is 75° 30' 56.12" East and the existing Gandhi Sagar reservoir at 24° 31' 5.40" North and 75° 32' 5.28" East will be used as lower reservoir. Water from Gandhi Sagar reservoir will be pumped and stored in the upper reservoir which will be used for power generation.

The proposed scheme involves construction of rock fill embankment (upper reservoir) - 35.0 m in height for gross storage of 1.80 TMC water. Water conductor system consists of 6 Nos. wherein 1 No. Independent Pressure shaft bifurcated into 2 for Smaller units. The Powerhouse will be equipped with Five Vertical-axis Reversible Francis type units composed each of generator/motor and a pump/turbine having generated/pumping capacity of eight units of 240 MW / 251 MW and Two Vertical- axis Reversible Francis type units of 120 MW / 135 MW, respectively. As such, the proposed project will generate 1440 MW by utilizing design discharge of 220.91 & 111.10 Cumec

with a rated head of 121.70 m and 121.00 m, respectively for each unit of 240 MW and 120 MW, respectively.

The total land required for construction of various components including infrastructure facilities and muck disposal area is estimated to be around 387.50 ha, involving 282.05 ha of reserved forestland and 105.45 ha of non-forest land. The proposed PSP is located around 3.4 km (South) from the notified eco-sensitive boundary of Gandhi Sagar Wildlife Sanctuary.

GEPL envisages completing the construction of project within a period of 3.5 years at an estimated cost of INR 6991.25Crores. The project was accorded TOR on dated 28.02.2020. An online application for amendment in ToR/EC was submitted on dated 20-11-2020 requesting the Ministry for an amendment in TOR because of following reason:

- After the grant of TOR ground survey was taken up at site, on evaluation of actual data it was observed that actual surveyed contours showed difference of 3-5m i.e. actual elevations observed were higher than the earlier data considered.

- Based on the market survey and energy needs of the DISCOMS, it was observed that number of hours of storage requirement is around 7 hours as against 6 hours earlier envisaged.

- Based on above the optimization of project was taken up and revised PFR has been prepared, major changes in the revised proposal is as below:

1 Based on the optimization of project, the capacity of the project has increased from 1360 to 1440 MW because of availability of higher head i.e. 121.7 as against earlier 113.0.
2 Project Affected families will be greatly reduced to about 50%. However, the exact details shall be provided in the final EIA/EMP studies. (for old proposal-PAFs- about 140 & new proposal PAFs-about 60).
3 Above optimization process has resulted in the slight shift in the location of project components and marginal changes in the sizing of components.
4 Owing to more storage hour requirements of around 7 hours (7.23 hours now in our case) the water requirement for live storage has increased to 1.22 TMC from 1.07, this has also impacted the sizing of components.

The comparative statement with reference to earlier proposal and revised proposal is to be given in table format:

SALIENT FEATURES OF THE PROJECT

		NAME OF THE PROJECT	**MP 30 GANDHI SAGAR Standalone Pumped Storage Project (As per ToR Granted)**	**MP 30 GANDHI SAGAR Off-Stream Pumped Storage Project (Proposed new layout)**
1		**Location**		
	a	Country	India	India
	b	State	Madhya Pradesh	Madhya Pradesh
	c	District	Neemach	Neemach

		NAME OF THE PROJECT	**MP 30 GANDHI SAGAR Standalone Pumped Storage Project (As per ToR Granted)**	**MP 30 GANDHI SAGAR Off-Stream Pumped Storage Project (Proposed new layout)**
	d	Village near Powerhouse	Khemla Block, Rampura Taluk	Khemla Block, Rampura Taluk
2		**Geographical Co-Ordinates**		
	a	Upper Reservoir - (Now Proposed)		
		Latitude	24° 31' 19.90" N	24°31'6.89"N
		Longitude	75° 31' 8.54" E	75°30'56.12"E
	b	**Gandhi Sagar reservoir Reservoir – Lower (Existing)**		
		Latitude	24° 31' 5.4" N	24° 31' 5.4" N
		Longitude	75° 32' 5.28" E	75° 32' 5.28" E
3		**Access to Project Site**		
	a	Airport	Neemach, 85Km from project site	Neemach, 85Km from project site
	b	Rail head	Neemach, 67 Km from project site	Neemach, 67 Km from project site
	c	Road	SH 31A	SH 31A
	d	Port	Navlakhi	Navlakhi
4		**Project**		
	a	Type	Standalone Pumped Storage Project	Off-Stream Pumped Storage Project
	b	Storage Capacity	8160 MWH	10411.20 MWH
	c	Rating	1360 MW	1440 MW
	d	Peak operation duration	6 Hours daily	7.23 Hours daily
5		**Upper Reservoir (Now proposed)**		
	a	Live Storage	1.07 TMC	1.22 TMC
	b	Dead Storage	0.05 TMC	0.58 TMC
	c	Gross Storage	1.12 TMC	1.80 TMC
	d	Full Reservoir level (FRL)	EL +520.00 m	EL +523.00 m
	e	Minimum Draw Down Level	EL +495.00 m	EL +508.00 m

		NAME OF THE PROJECT	MP 30 GANDHI SAGAR Standalone Pumped Storage Project (As per ToR Granted)	MP 30 GANDHI SAGAR Off-Stream Pumped Storage Project (Proposed new layout)
		(MDDL)		
	f	Top Bund Level (TBL)	EL +523.00 m	EL +526.00 m
	g	Foundation Level	EL +490.00 m	EL +491.00 m
	h	Max Height of Embankment	33.00 m	35.00 m
	i	Length of Embankment	5285.00 m	5561.131 m
6		**Gandhi Sagar reservoir – Lower Reservoir – (Existing)**		
	a	Type of Dam	Masonry Gravity Dam	Masonry Gravity Dam
	b	Full Reservoir Level (FRL)	EL 400.00 m	EL 400.00 m
	c	Minimum Draw Down Level (MDDL)	EL 381.00 m	EL 381.00 m
	d	Height of Dam above deepest bed level	63.70 m	63.70 m
	e	Length of Dam	514.00 m	514.00 m
	f	Gross Storage Capacity	258.47 TMC	258.47 TMC
7		**RCC intake Structure**		
	a	Type	Open Semi Circular	Diffuser Type
	b	Elevation of Intake center line	EL +483.87 m	EL +495.50 m
	c	Elevation of bell mouth bottom	EL +478.33 m	EL +491.05 m
8		**Penstock /Pressure Shafts**		
	a	Type	Finished steel lined - circular	Finished steel lined - circular
	b	Number of Penstocks	8 No. of Independent Penstocks	6 Nos., wherein one No. Independent Pressure shaft bifurcated in to 2 for Smaller units
	c	Diameter of penstock	7.0 m - main Penstock	7.5 m - main Penstock 5.3 m – Branch Penstock
	d	Length of penstock/Pressure Shaft	621 m	For 5 nos. - 683.48 m each (Main Penstock) for 5 larger units For 1 No. – 607.23 m long (Main Penstock) and 76.25 m each Branch Penstock for 2

		NAME OF THE PROJECT	MP 30 GANDHI SAGAR Standalone Pumped Storage Project (As per ToR Granted)	MP 30 GANDHI SAGAR Off-Stream Pumped Storage Project (Proposed new layout)
				smaller units.
9		**Powerhouse**		
	a	Type	Surface Powerhouse	Surface Powerhouse
	b	Dimensions (Excluding Service Bay)	201.00 m (L) x 24.00 m (W) x 58.00 m (H)	181.20 m (L) x 25.50 m (W) x 56.10 m (H)
10		**Tail Race Channel**		
	a	Type & Shape	Concrete lined & Trapezoidal	Concrete lined & Trapezoidal
	b	Length of the channel	1056.00 m	860.00 m
	c	Bed Width	90.00 m	85.00 m
	d	Full supply depth	6.0 m	6.0 m
	e	Bed slope	1 in 7200	1 in 7000
11		**Tailrace Outlet Structure**		
	a	Type	Open Semi Circular	Diffuser Type
	b	Elevation of outlet centre line	EL +342.33 m	EL +370.71 m
12		**Hydro-Mechanical Equipment**		
	a	**RCC Intake Structure**		
		Trash Rack		
		No. of Trash racks	8 nos.	6 nos.
		No. of bays in each trash rack	7 Nos. each of size 3.58m (W) x 18.81m (H)	2 nos. of 7.75 m (W) x 10.97 m (H) & 1 no. of 8.5 m (W) x 10.97 m (H) for each unit
		Intake Service Gate	Size – 5.80 m (W) x 7.0 m (H) – 8 Nos. With Rope Drum Hoist	Size – 6.20m (W) x 7.50 m (H) – 6 Nos. With Rope Drum Hoist
		Intake Stop log Gate	Size – 5.80 m (W) x 7.0 m (H) – 2 Nos. with Moving Gantry	Size – 6.20m (W) x 7.50 m (H) – 1 No. with Moving Gantry
	b	**Draft Tube Gates**	High pressure steel type slide gates	High pressure steel type slide gates
		No. of Service gates per unit	Total – 16 nos. 2 per unit each of size W 5.75m X H 5.75 m (Vertical lift fixed wheel type) with Hydraulic Hoist	5 Nos. - 7.0 m (W) x 8.5 m (H) for Larger Units & 2 Nos. - 5.1 m (W) x 6.2 m (H) for Smaller Units with

		NAME OF THE PROJECT	MP 30 GANDHI SAGAR Standalone Pumped Storage Project (As per ToR Granted)	MP 30 GANDHI SAGAR Off-Stream Pumped Storage Project (Proposed new layout)
				Independent Hydraulic Hoist
		No of Stoplog gates per unit	Total – 4 nos. 2 per unit each of size W 5.75 m x H 5.75 m (Vertical lift fixed wheel type) with Rope drum Hoist	1 No. – 7.0 m (W) x 8.5 m (H) for Larger Units & 1 No. - 5.1 m (W) x 6.2 m (H) for Smaller Units with Moving Gantry Crane
	c	**Tailrace Outlet Structure**		
		No. of Trash racks	8 nos.	7 nos.
		No. of bays in each trash rack	2 bays each of size 5.70 m (W) x 41.55 m (H)	2 no's of 6.65m(W) x 10.87 m (H) & 1 no of 6.70 m (W) x 10.87 m (H) for each larger unit& 2 no's of 5.20m(W) x 6.73 m (H) + 1 no of 6.60 m (W) x 6.73 m (H) for each smaller unit
13		**Electro Mechanical Equipment**		
		Pump Turbine	Francis type, vertical shaft reversible pump turbine	Francis type, vertical shaft reversible pump turbine
		Total No of units	8 nos. (8 X 170MW)	7 no's (5x240 MW & 2x120 MW)
		Total Design Discharge (Turbine Mode)	1391 Cumec	1326.75 Cumec
		Rated Head in Turbine mode	113.00 m	121.70 m for larger unit& 121.00 m for smaller unit
	a	**240MW Turbines**		
		Total No of units	8 Units (4Nos. with variable speed & 4 Nos. with Fixed Speed)	5 Units (Fixed speed)
		Turbine Design Discharge	173.88 Cumec	220.91 Cumec
		Pump Capacity	200 MW	251 MW
		Rated Pumping Head	122 m	127.90 m
		Rated Pump Discharge	149.73Cumec	183.86 Cumec
		Synchronous speed	150 rpm	136.36 rpm
	i	**Generator-Motor**		
	a	Type	Three (3) phase, alternating current	Three(3) phase, alternating current synchronous generator

		NAME OF THE PROJECT	MP 30 GANDHI SAGAR Standalone Pumped Storage Project (As per ToR Granted)	MP 30 GANDHI SAGAR Off-Stream Pumped Storage Project (Proposed new layout)
			synchronous/asynchronous generator motor semi umbrella type with vertical shaft	motor semi umbrella type with vertical shaft
	b	Number of units	8 Units (4 Fixed + 4 Variable)	5 Units
	c	Rated Capacity	Generator – 170 MW; Pump Input – 200 MW	Generator – 240 MW; Pump Input – 251 MW
	d	Rated Voltage	15.00 KV	18.00 KV
	ii	**Main Power Transformer**		
	a	Type	Three Single Phase Power transformers with Off-Circuit tap changer (OCTC)	Three Single Phase Power transformers with Off-Circuit tap changer (OCTC)
	b	Number of units	24 Numbers (i.e. 3 Nos./Unit)	15 Numbers (i.e. 3 Nos./Unit)
	c	Rated Capacity of each unit	Single Phase, 15KV/400 KV, 80 MVA	Single Phase, 18KV/400 KV, 100 MVA
	d	Rated Voltage	Primary – 15 kV; Secondary - 400 kV adjustable range of the secondary voltage: - 10% to +10%(3kV/tap)	Primary – 18 kV; Secondary - 400 kV adjustable range of the secondary voltage: - 10% to +10%(3kV/tap)
	b	**120MW Turbines**		
		Total No of units	-	2 Units (Variable speed)
		Turbine Design Discharge	-	111.10 Cumec
		Pump Capacity	-	135 MW
		Rated Pumping Head	-	128.70 m
		Rated Pump Discharge	-	98.16 Cumec
		Synchronous speed	-	187.50 rpm
	i	**Generator-Motor**		
	a	Type	-	Three (3) phase, alternating current asynchronous generator motor semi umbrella type with vertical shaft
	b	Number of units	-	2 Units
	c	Rated Capacity	-	Generator – 120 MW Pump Input – 135 MW
	d	Rated Voltage	-	18 KV

		NAME OF THE PROJECT	**MP 30 GANDHI SAGAR Standalone Pumped Storage Project (As per ToR Granted)**	**MP 30 GANDHI SAGAR Off-Stream Pumped Storage Project (Proposed new layout)**
	ii	**Main Power Transformer**		
	a	Type	-	Indoor, 3-Ph power transformers with Off-Circuit tap changer (OCTC)
	b	Number of units	-	2 Units
	c	Rated Capacity of each unit	-	Each 160 MVA, 18 kV/400kV rating power transformers.
	d	Rated Voltage	-	Primary – 18 kV; Secondary - 400 kV adjustable range of the secondary voltage:-10% to +10%(3kV/tap)
14		**400 KV Gas Insulated Switchgear**		
	a	Type of GIS	Indoor Type	Indoor Type
	b	No. of GIS units	One No.	One No.
	c	Location	Inside GIS Building above ground	Inside GIS Building above Ground
	d	Scheme	Double Busbar Arrangement with bus coupler	Double Busbar Arrangement with coupler
15		**Power Evacuation**		
	a	Voltage Level (KV)	400 KV	400 KV
	b	No. of Transmission lines	One 400 KV transmission line with double circuit.	One 400 KV transmission line with double circuit.
	c	Total Length	400 KV Double Circuit Transmission Lines with Moose conductor of length 50 Kms from PSP will be connected to **400 / 220 KV MPEB substation** at **Neemuch** or to 400/765 kV PGCIL substation at Chittorgarh of Rajasthan State which is about 133Km for evacuation of generated Power and for Supply of power during pumping mode	One 400 KV Double Circuit Transmission Lines with Moose conductor of length **81 Kms (app)** from PSP will be connected to 400/220 kV PGCIL substation at Kota of Rajasthan State for evacuation of generated Power and for Supply of power during pumping mode.
16		**ESTIMATED COST**		

		NAME OF THE PROJECT	MP 30 GANDHI SAGAR Standalone Pumped Storage Project (As per ToR Granted)	MP 30 GANDHI SAGAR Off-Stream Pumped Storage Project (Proposed new layout)
	a	Civil Works	2422.83 Cr.	2797.67 Cr.
	b	E&M Works incl. Transmission line	1986.00 Cr.	1930.50 Cr.
	c	IDC & Others	1645.23 Cr.	2263.08 Cr.
		Total Project Cost with IDC	**6054.06 Cr.**	**6991.25 Cr.**

Observation and recommendation of the EAC in the present meeting:

EAC after detailed presentation by the Project Proponent along with the consultant observed that he project was accorded TOR on dated 28.02.2020 for 1360 MW installed capacity. After the grant of TOR ground survey was taken up at site by the PP and on evaluation of actual data it was observed that actual surveyed contours showed difference of 3-5m i.e. actual elevations observed were higher than the earlier data considered. Based on the market survey and energy needs of the Discoms and on the optimization of project, the capacity of the project has increased from 1360 to 1440 MW because of availability of higher head i.e. 121.7 as against earlier 113.0.EAC further noted that due to revised proposal Project Affected families will be greatly reduced to about 50%. EAC deliberated on the salient features of the revised project and after detailed deliberation **recommended the project for grant of Amendment in ToR** which was granted vide Ministrys letter dated 28.02.2020 to the proposed MP 30 Gandhi Sagar Off-Stream Pumped Storage Project in district Neemuch, Madhya Pradesh.

Item No. 4.1.6 Badaun Lift Canal Project district Badun, Uttar Pradesh by M/s Eastern Ganga Canal, Irrigation Department, Uttar Pradesh - regarding re-consideration of EC Proposal No. IA/UP/RIV/26603/2015; File No. J-12011/02/2015-IA.I (R)

Project Proponent along with the consultant (Enviro Infra Solutions Pvt. Ltd. Ghaziabad) made the detailed presentation on the project and provided the following information to the EAC:

The proposed canal head regulator shall be located on the left bank of Narora barrage at a distance of 12 m from the upstream edge of left bank return wall. It is located on the left bank of the Ganga and is about 5 km from Gunnaur on NH-509.Geographical locations of project area i.e. canal headwork and command area are covered under Survey of India Toposheet No. 53 L/8, L/11, L/12, L/15, L/16; 53P /3 and 53 P /4;54I/9, I/13and 54M/1. The command area of Badaun Lift Canal Irrigation project lies between coordinates (Long 78º24'20" E Lat28º11'40" N) (Long 78º56'40" E, Lat 28º23'20" N) (Long 79º11'20" E, Lat 28º07'00" N) (Long 78º51'40" E, Lat 27º58'20" N). The command of the Badaun lift irrigation scheme falls in five tehsils namely Gunnaur, Sahaswan, Bisauli, Bilsi and Sadar. Sahaswan, Bisauli, Bilsi and Sadar tehsils are in Badaun district and Gunnaur tehsil is in Sambhal district.

The project envisages utilizing 102 cumecs of surplus monsoon discharge at Narora for irrigating upland of Badaun and Sambhaldistrict. The scheme envisages construction of a canal head regulator on upstream left bank of Narora Barrage to divert 102 cumec of water from the pond to 20.05 km long gravity main canal up to village Dhanwara followed by lifting by 15 m across MahawaNadi into balance

32.25 km long gravity canal to provide Kharif irrigation through 4 branches in command area (1,369,665 ha) covered under five tehsils namely, Sahaswan, Bisauli, Bilsi and Sadar tehsils in Badaun district and Gunnaur tehsil in Sambhal district, U.P.

Total land requirement is 504.26 ha, out of which forest land and government land is nil and total 504.26 ha is private land. Total submergence area is NIL ha. No family is affected in terms of residential/commercial structure acquisition. The total cost of the project is about Rs.3128.39 Crores and it is proposed to be completed in 5 years. No ecological sensitive area exists within the 10 km radius area of the project site.

The project components include Head regulator, Escape channel, Main Canal, Sahswan Branch, Nadaha Branch, Islamnagar Branch, Asafpur Branch, Pump house, Buildings, Distributary and minors. For construction of the canal head regulator, main canal, branches and distribution system new about 504.26 ha land will be required of which forest and revenue land shall be nil and entire land shall be acquired from private owners. None of the persons shall be displaced due to the project and it is only agriculture land that shall be acquired. The component wise land requirement is shown below:

S.N.	Component	Area (ha)
1	Main Canal	191.98
2	Sahswan Branch	32.45
3	Nadaha Branch	23.15
4	Islamnagar Branch	107.06
5	Asafpur Branch	29.01
6	Pump house	0.50
7	Buildings	0.04
8	Distributary and minors	120.07
Total		**504.26**

Badaun Lift Canal Irrigation is proposed to utilize water from river Ganga to irrigate the command area in western part of Badaun district of Uttar Pradesh. The water is proposed to be diverted from existing Narora barrage across river Ganga and no new dam / barrage is proposed in the project. As such no additional submergence / new reservoir is proposed. The water shall be diverted in new canal while maintaining the normal pond level of 178.96 mamsl.

The In-principle clearance for preparation of DPR of Badaun Lift Canal Irrigation Project was accorded from CWC vide CWC letter No. 13/81/2013-PA(N)/47-51 dated 15.01.2014. During in principle clearance, the water availability of Badaun Lift Canal Irrigation Project was carried out based on inflow data of the river Ganga at Narora Barrage Site (CA=32,512 sq. km) for the period from 1985-86 to 2012-13. The flow data of river Ganga available at Bijnor Barrage (CA=30,000 sq. km) for the period from 1997-98 to 2012- 13 were also used in consistency check of inflow data of Narora Barrage. The annual gross yield of 25050 MCM at 75% dependability was recommended from Hydrology (N) Directorate of CWC at Narora Barrage. The total committed/planned utilization of 4913 MCM at Narora Barrage was deducted in the gross annual yield of 25050 MCM and 75 % dependable annual net yield of 20137 MCM was recommended by CWC, which is much more than the water requirement of 634 MCM for proposed Badaun Lift canal Irrigation project.

The baseline study and primary data collection has been carried out during post monsoon 2017, pre-monsoon and monsoon of the year 2018. Ambient air quality monitoring has been done at 06 locations. Specific station-wise Ambient Air Quality (AAQ) data for PM_{10}, $PM_{2.5}$, SO_2 and NO_X as recorded during the study period i.e. Post Monsoon 2017, Pre Monsoon 2018 and Monsoon 2018. The maximum

concentration of PM_{10}, $PM_{2.5}$, NO_X was 54.7 μg/m^3, 41.5 μg/m^3 15.5 μg/m^3 respectively, while concentration of SO_2 was 10.2 μg/m^3. Thus, it was found that concentration of pollutants was within the limits of standards prescribed by CPCB.

Ambient noise level monitoring has been done at 06 locations. The noise monitoring shows the day and night time noise level at Faizganj (commercial) recorded are 61.9dB (A) Leq during day time and 48.7dB (A) Leq during night time and were within the prescribed limit. The noise levels for the rest of 4 stations were within the prescribed limits. The major source of the noise in the study area is vehicular movement as well as rural activity.

Surface water sampling has been taken for 05 locations. The pH values of all analyzed samples ranged between 7.5-8.15 and were within the permissible limit (6.5-8.5). The TDS levels ranged from 180.92 to 258.2 mg/l and were well below the desirable limit of 500 mg/l. The chlorides level in surface water samples ranged from 15.00 to 21.00 mg/l and were below the desirable limit of 250 mg/l. The fluorides level ranged between 0.35 to 0.46 mg/l was lower than the desirable limit of 1.0 mg/l. The nitrate level ranged between 0.75 to 0.94 mg/l and was lower than the desirable limit of 45 mg/l. The BOD values exceeded the permissible limit, which indicates the presence of organic pollution loading. The concentration of various heavy metals was below the detectable limits, indicating the suitability of water for meeting domestic requirements.

Ground water sampling has been taken for 25 locations. The analysis results indicate that the pH ranged between 6.6 to 8.3, which is well within the specified standard of 6.5 to 8.5 limit. Total hardness was recorded to range from 138.23 to 274.7 mg/l, which is within the permissible limit 600 mg/l at all locations. The Total Dissolved Solids (TDS) concentration recorded ranged between 211.8 to 378.20 mg/l and was within the permissible limits (2000 mg/l). Bacteriological studies reveal that no coliform bacterial are present in the samples. The heavy metal contents were observed to be in below detectable limits. All physical and general parameters were observed within the desirable limit at all sampling locations as per IS10500:2012.

The predominant land use class of the study area is agriculture land (89.91%) followed by settlements (7.61%), Vegetation (1.63%) and Dry river bed (0.43%) and water body (0.42%). During the whole study period, a total of 193 terrestrial species were recorded inhabiting land. Asteraceae, Fabaceae and Poaceae were recorded as dominant family. The floral diversity (193 species) was dominated by tree species (43); the other species recorded are shrub (14), climber (16), herb (57), parasitic angiosperm (07), grass (48) species, and 4 species of bryophytes and pteridophytes each. A total of 51 plant species were recorded inhabiting aquatic sites during monsoon season, 2018. These include 22 species of phytoplankton and 29 species of other plant species.

During the study period 2017-18, a total of 138 fauna species were recorded in the project site. These include 105 non-aquatic species, 02 amphibians and 31 aquatic species. The terrestrial faunal species recorded in the project area includes: butterfly 21 species, insect 13 species, amphibian 02 species, reptile 09 species, avifauna 23 species and mammal 16 species.

The environmental impacts before the construction are identified during planning phase. This happens due to identification of the project in a location which may be susceptible to adverse impacts due to natural environment conditions. Impacts of the project due to its location are as follows: (i) Displacement of People (ii) Loss of land (iii) Geological Risk and (iv) Risk due to seismicity & earthquake

For the project, like any other development / infrastructure project for the public purpose, land (Private) is to be acquired by the appropriate government. The total private land required for the project is 504.26 ha which is spread over four tehsils in Badaun district and one in Sambhal district, Uttar Pradesh. Though the project has been conceived with the sole objective of minimal displacement of people and their property in the project affected area, the acquisition of land for public purpose has been necessitated. The acquisition of the land shall be by mutual consent with the stake holders in consonance with Section 46 of "The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013", (RFCTLARRA 2013) which has come into force from 1-1-2014, notified by Government of India. Compensation shall be paid for land and other assets as per U.P. Government norms i.e., maximum @4 times the circle rate fixed by the collector and as determined by the distinct committee, formulated as per U.P. G.O. No.2/2015/215/F-13-20(48)/2011, date 19.3.2015

Environmental Management Plan with budget breakup: The summary of cost estimate of various environment management plans is shown below:

S. No.	Plans	Cost (Rs. In Lakh)
1.	Catchment Area Treatment Plan	0.00
2	Command Area Development Plan	50463.00*
2.	Compensatory Afforestation Scheme	0.00
3.	Wildlife and Bio-diversity Management plan	40.00
4.	Fisheries Management Plan	100.00
5.	Resettlement and Rehabilitation Plan	37944.00
6.	Green Belt Development Plan	295.00
7.	Reservoir Rim Treatment Plan	0.00
8.	Muck Management Plan	921.00
9	Landscape and Restoration Plan	50.00
10.	Restoration Plan for Quarry Sites	10.00
11.	Disaster Management Plan	15.00
12.	Water, Air and Noise Management Plan	35.00
13.	Public Health Delivery Plan	240.00
14.	Labour Management Plan	345.00
15.	Sanitation and Solid Waste Management Plan	324.00
16.	Local Area Management Plan	782.00
17.	Environmental Safeguards During Construction Activities Including Road Construction	54.00
18.	Energy Conservation Measures	128.00
19.	Environmental Monitoring Plan	206.00
Grand Total		**41489.00**

Project benefit including employment details: There will be number of positive changes on the socio-economic conditions of the people in the surrounding area. There will be obvious change in the scenario leading into the Socio-economic development of the area. (i)Increased Irrigation Potential (ii) Better Living Standards (iii) Improved Market Facilities (iv) Employment Potential / Fisheries (v) Tourism / Recreation Facilities (vi) Sustained Water Availability for Agriculture and Cattle rearing (vii) Increased Green cover (viii) Improvement in Ground Water Level (ix) Improvement in Life Style, Status and Confidence-building (x) Command Area Development (xi) Solution of the problem of migration (xii) Social Forestry. About 1800 workers (labour and staff) would be engaged temporarily during peak construction period.

The public hearing has been successfully conducted on 06.02.19 in Badaun District, and 18.02.2019 in Sambhal district as per EIA Notification 2006 and its subsequent amendment. The major issues raised during the public hearing were related to compensation.

Observation and recommendation of the EAC in the earlier meeting

EIA/EMP report was submitted to the Ministry on 18th March 2019. Project was considered by the EAC in its 23rd meeting held on 23rd April 2019. The EAC after detailed deliberations and considering all the facts of the project recommended the proposal for environment clearance with following additional information to be submitted urgently:

1. Corporate Environment Responsibility (CER) to be prepared as per the Ministry O.M dated 01.05.2018.
2. Permission for felling of 750 trees.
3. Clearance/NOC from the department concerned of Uttar Pradesh State Govt. for utilization of existing barrage and surplus floodwater for irrigation purpose.
4. Permission from NMCG for drawal of water from Ganga River.
5. QCI & NABET Accredited certificate of the consultant for the period during which baseline data and other EIA/ EMP studies carried out.
6. Consolidated EIA/EMP report as per the generic structure of EIA Notification, 2006.
7. Calculation for the cost of water.
8. Approved Conservation plan for Scheduled I species (leopard).
9. Details of recurring cost under various Environment Management Plan (EMP)

Ministry vide letter dated 4th June 2019 informed Project Proponent (PP) to submit the above information. PP vide dated 23rd November 2020 submitted the above information through Parivesh Portal and accordingly proposal was taken to the EAC for discussion in the 4th EAC meeting (present meeting).

Observation and recommendation of the EAC in the present meeting

EAC noted that Project Proponent along with the consultant also made the detailed presentation on the additional information sought by the EAC while recommending the proposal. After detailed presentation by the PP, EAC observed that PP has now submitted the detailed plan on CER**,** Clearance/NOC from the department concerned of Uttar Pradesh State Govt. for utilization of existing barrage, consolidated EIA/EMP report as per Generic structure. EAC also noted that PP has now submitted the Conservation plan for Schedule I species to the concerned CWLW. EAC after detailed deliberation on the other additional information and other information submitted (Form 2, EIA/EMP report, Public Hearing issues, kml file) and as presented by the PP, **recommended the proposal for grant of Environmental Clearance** subject to compliance of applicable Standard EC conditions with the following additional conditions:

1. 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.

2. In pursuant to the Ministry OM dated 30.09.2020, the Environmental Management Plan (EMP) shall be revised considering the commitments made to address the concern raised

during public consultation. Activities proposed under CER shall be made a part of EMP under local area development plan and to be submitted to the Ministry.

3. 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.

4. Conservation plan for Schedule I species shall be implemented as approved by the CWLW.

5. Any other clearances/permission from any other organization/department including **NMCG**, as applicable to the proposed project shall be obtained.

6. 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.

7. 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.

8. Necessary permission to be obtained for quarrying construction materials, if any required, for the project as per the EIA Notification, 2006 and as amended thereof.

Item No. 4.1.7 Gyspa Hydro Power Project (300 MW) on River Bhaga in Lahaul and Spiti, District of Himachal Pradesh by M/s Himachal Pradesh Power Corporation Ltd. (HPPCL) – regarding Terms of Reference Proposal No. : IA/HP/RIV/50633/2016; File No. J-12011/11/2016 - IA 1 (R)

Project Proponent made the detailed presentation on the proposal and informed following to the EAC:

Gyspa (also spelled as Jispa) Dam Project is envisaged as a storage-cum-diversion type scheme on Bhaga River - a tributary of Chandra Bhaga River (also known as Chenab in downstream areas) in Distt Lahaul&Spiti (HP) to generate 300 MW of power in a underground powerhouse located on right bank of Bhaga river. This project is envisaged in conformity with the Indus Water Treaty to harness India's share of available water for storage in Chenab Basin.

The project has been identified jointly by Central Water Commission and HP State Electricity Board and it has been allotted for execution to HP Power Corporation Ltd by the Government of HP vide Principal Secretary (Power) letter No: MPP (F) 2-1/2008 dated 22.09.2009. Further, this project has been declared as project of National Importance by Government of India.

The ToR was accordingly been proposed considering these impediments and limitation of the working season as well as accessibility to the area. The project proposal has been changed as per advice of the EAC tendered in its 43rd meeting held on 12 November 2010. Accordingly, the Pre-Feasibility Report (PFR) of the Project was revised.

Project Components details:

Components	No	Dimensions (Approx.)	Size
Rock-fill dam	1	H= ±200m, L=±800m, W=±950m	Storage Dam
HRT	1	L = ±14.96 Km	Dia= 5.7m
S/Shaft	1	H= ±200m	Dia =20m
P/shaft	1	L= ±520m	Dia 4.5m
TRT	1	L= ±965m	Horse Shoe
Catchment Area at Dam Site			1205 sq. Km
FRL MDDL			EL ±3466m EL ±3335m

Project location (Coordinates):

i) Dam site

Latitude 32^0 37' 051"
Longitude 77^0 10' 030"
Altitude ± 3272 m

ii) Power House

Latitude 32^0 33' 41"
Longitude 77^0 04' 40"
Altitude ± 3025 m

Land requirement (Description on different types of land involved in the proposal with their present status):

S.N.	Name of Component	Land Required		Total (in ha)
		Forest	Private	
1.	Submergence area i/c Rock fill dam, job facilities, quarry site, dumping yards, temporary site offices and labour colonies etc.	1160.00	60.00	1220
2.	Water conductor (HRT, S/S,P/S).	11.5	Nil	11.5
3.	PH & TH caverns.	1.2	Nil	1.2
4.	TRT.	1.0	Nil	1.0
5.	Switch yard.	0.5	Nil	0.5
6.	Diversion tunnel.	3.00	Nil	3.00
7.	Adits.	6.5	Nil	6.5
8.	Roads.	20.00	7.00	27.00
9.	Permanent residential and non-residential buildings.	Nil	2.25	2.25
10.	Rehabilitation and resettlement of displaced	50.00	Nil	50.00

	families.			
Total land required		**1253.70**	**69.25**	**1322.95, say 1323.00**

1220 ha of forest and private land to be submerged. No **Ecological Sensitive Area within 10km of project site (WLS, Tiger/elephant corridor, Critically Pollute Area etc).** The reservoir itself has the potential for tourism and related activity with pisciculture possibilities as snow trout is found in the area and employment generation. Survey and Investigation works yet to be started at site. **Project cost is** 3386.25 crore and about 2000 workers (labor and staff) would be engaged temporarily during peak construction period and about 25 families during operation phase. In all about 74 families in four hamlets would be relocated due to the project. Vulnerable groups among them are estimated to be about 20 persons. However, exact number would be known in the SIA and Baseline survey during EIA study.

Observation and recommendation of the EAC in the present meeting:

EAC after detailed presentation by the PP noted that earlier proposal was considered for ToR in the 48th meeting held on 26.03.2011 and ToR for 300 MW I/C was accorded vide dated 21.12.2011. The said ToR was lapsed in 2014 and fresh application of ToR was submitted online vide dated 29.02.2016. Accordingly, proposal was placed before EAC on 29.03.2016, however meeting was not attended by the Project Proponent. Further application was delisted on 01.02.2017. Now PP submitted the fresh proposal to the Ministry on 24.11.2020. EAC also noted that earlier proposal was returned because of large submergence. EAC after detailed deliberation deferred the proposal for want of following information:

1. Details regarding total land requirement including submergence area to the present proposal and prior to grant of ToR dated 21.12.2011.

2. Comparative chart should be prepared having details on the project configuration (dam height, FRL, submergence area, etc).

3. PFR shall be prepared as per the Ministry guidelines dated 30.12.2010 having details on Site analysis.

Item no. 4.1.8 Dugar Hydroelectric Project in Chamba District of Himachal Pradesh – Regarding amendment of ToR Proposal No. : IA/HP/RIV/184065/2020; File No. J-12011/08/2020-IA-1(R)

Project Proponent made the detailed presentation on the proposal and informed following to the EAC:

The proposed Dugar Hydro Electric Project is located in Pangi valley of Chamba district of Himachal Pradesh. Project is envisaged as a run-of-river scheme for utilizing the flow of Chenab River to harness the head created by constructing a 128 m high (from deepest foundation) concrete gravity dam near Luj village with FRL of EL 2114.00 m a.s.l. and the proposed underground power house (412 MW main plant) located on the left bank of Chenab River just downstream of dam. The tail race tunnel, located on the left bank of the Chenab River, is discharging back into Chenab River at a distance of about 780 m downstream of dam axis with normal tail water level as 2015.00 m a.s.l. (under normal operating condition). To harness the environmental flow during lean season, non-lean non-monsoon season and monsoon season, auxiliary plant of total 88 MW are housed in the power

house cavern. Therefore, the total capacity of plant shall be 500MW (Main plant 412 MW + Aux. Plant 88 MW). The catchment area of Project at Dam site: 7823 km^2 and Submergence Area: 160.45 ha. The updated DPR of Project has been submitted by NHPC to CEA on 25.11.2020.

Earlier, the project was accorded TOR vide dated 05.08.2020 with 449 MW I/C**.** During examination of the revised DPR Chapter on Power Potential Studies, the installed capacity has changed from earlier vetted 449 MW (main plant 380 MW + Aux. Plant 69 MW) to 500 MW (Main Plant 412, Aux. Plant 88MW) (Ref: CEA letter dated 22.10.2020). There is no change in other important project parameters like Dam height, FRL, Submergence area, total land requirement etc. Therefore, application for an amendment in the TOR accorded on 5.8.2020 is submitted.

The comparative statement with reference to earlier proposal and revised proposal is to be given in table format:

Sl No	Details	Original	Revised
1	Proposal for fresh TOR to Dugar Hydroelectric Project in Himachal Pradesh submitted by NHPC Limited on 5.6.2020.	**449MW(Main Plant 380 MW +69 MW)**	**500MW(Main Plant 412 MW + Aux. Plant 88 MW)** **Reason: increment in design energy .**
		TOR Granted on 5.8.2020 for 449MW installed capacity.	Amendment in TOR is required due to change in installed capacity.
	There is no change in other important project parameters like Dam Height, FRL, Submergence area, etc.		

Observation and recommendation of the EAC in the present meeting

EAC after detailed presentation by the PP noted that ToR was accorded to the instant project vide dated 05.08.2020 but during Power Potential Studies, the installed capacity has changed from earlier vetted 449 MW (main plant 380MW + Aux. Plant 69 MW) to 500 MW (Main Plant 412, Aux. Plant 88MW). There is no change in other important project parameters like Dam height, FRL, Submergence area, total land requirement etc. EAC after detailed deliberation **recommended the proposal** for the amendment in the granted ToR i.e. change in the installation capacity from earlier vetted 449 MW (main plant 380MW + Aux. Plant 69 MW) to 500MW (Main Plant 412, Aux. Plant 88MW).

Item no. 4.1.9 Khairibhandan Barrage Project at village Anlabeni, Tehsil – Jashipurin, Mayurbhanj, Odisha – Regarding reconsideration of EC Proposal No. : IA/OR/RIV/30160/2015; File No. J-12011/24/2015-IA-I (R)

Project Proponent made the detailed presentation on the proposal and informed following to the EAC:

The project is proposed at village Anlabani; block Jashipur, in Mayurbhanj District of Odisha. The contemplated barrage across Khairibhandan River is located near village Anlabani in Jashipur block of Mayurbhanj District. The project is located in Jashipur Block of Mayurbhanj District near village Anlabani at Latitude of 21˚ 57' 59" N and Longitude of 86˚ 03' 32" E. The project area is covered in

Topo Sheet No. 73K/1,73K/5,73F/16 & 73G/13.The estimated average annual yield and 75% dependable yield at barrage site is 49924 Ham and 37908 Ham respectively. The designed flood discharge at the site is 3709 cumecs at H.F.L of RL 394.00m. The projected C.C.A is 6950 Ha located at both sides of the river.

The project envisages construction of a 6 m high and 171.50 m long long concrete barrage and associated with 11nos. barrage Gates fitted with 12m X 6m with one number under sluice. Khairibhandan Barrage Project is a Barrage project proposed in Baitarani basin on River Khairi & Bhandan.

The two main canals are to originate from the head regulators located on either side of the barrage. The length of left main canal is 22.50 km and the design discharge of 4.352 Cumecs designed to command total C.C.A of 4000.00 Ha & GCA of 5300 Ha. The right main canal originals from right head regulator of the barrage. The length of right main canal is 18.30Km and designed to carry 3.373 cumecs designed to command total C.C.A of 2950.00 Ha. & GCA of 3400 Ha. Total land requirement is 292.219 ha, out of which 26.444 ha is forestland, 92.740 ha is government land and 173.035 ha is private land. Total submergence area is about 65.8 ha. No village is coming under submergence at full pondage area. Thus there is no Rehabilitation and Resettlement involved due to the implementation of this project. The total cost of the project is about Rs. 235.98 Crores and to be completed in five years.

CCA of the project is 6950 Ha but due to presence of Similipal National Park within 10 km General condition is applicable to the project and to be appraised for EC by the EAC at the Central level.

Baseline data collected during three seasons viz, Post Monsoon, Winter Season and Pre monsoon during the study period between July-2016 - June-2017 for physical, biological and socio-economic components of environment, identification, prediction and evaluation of impacts based on the project activities and to prepare Environmental Management Plan (EMP) for mitigation of adverse impacts due to the proposed project.

The study area covers about 10 km radius with respect to the dam site. The impact identification always starts with the collection of primary or base line data such as the ambient air quality, water quality, noise levels, land use patterns, flora & fauna and the socio-economic aspects within the 10 km radius zone. Maximum level of PM10 recorded in the study area is 77.40 µg/m3 at Kumudabari village and the minimum recorded is 18.20 µg/m3 at Itamundi village. The maximum level of PM2.5 recorded in the study area is 48.60 µg/m3 at Kumudabari village and the minimum recorded is 10.80 µg/m3 at Padampur village. Maximum level of SO2 recorded in the study area is 13.40 µg/m3 Near Hotel Shree Durga and minimum recorded is found to be below detectable limit at all the locations. Maximum level of NOx is found to be Near Veterinary Dispensary of Kalashbandh village is 23.5 µg/m3 and the minimum recorded is found to be below detectable limit at Bhelupani village.

A detailed measurement of noise level has also carried out at different locations within the study area. Surface water samples have collected from River and ponds. The water quality is found to be within the norms and has been inferred that it can be used as source of drinking water after conventional treatment followed by disinfection. In order to assess the groundwater quality, samples drawn from the tube wells and dug wells from the adjoining villages of the study area. The groundwater at all places is found to be suitable for drinking purposes.

In the study area, floral species such 73 trees, 82 shrubs, 23 herbs, 16 climbers and 19 grass species have been recorded. Commonly found flora species are Sal in association with Acacia and Dalbergia

sisoo. Faunal species viz., 12 mammals, 8 amphibians, 14 reptiles, 14 avifauna and 14 butterfly species have been recorded. The common wildlife found around the study area are different snakes, wild boar, wild bear, jackal and peacock. During the study period, two species viz., Indian Elephant and Rock Python are listed as Schedule I species as per Wildlife (Protection) Act, 1972.

Anticipated Environmental Impacts were studied in details due to incremental rise in vehicular traffic in the area due to transportation of machinery and construction activities, surface water quality due to waste water generated from labour colonies, noise environment due to vehicular movements, earth moving machinery, land environment due to Query Operations, Operation of construction equipment, Muck disposal and Construction of roads. The assessment of baseline data and predicted impacts on each component of environment indicate that very marginal adverse impacts on air, water, and noise and land environment envisaged.

Cost of EMP:

S. No	Environment Management Plan	Capital cost (lakhs)	Recurring cost (lakhs)
1	CAT Plan	104.20	3.2
2	Wildlife and Bio-diversity Management plan	2.0	0.15
3	Fisheries Management Plan	12.20	1.12
4	Green Belt Development Plan	25.23	1.45
5	Landscape and Restoration Plan	6.0	0.46
6	Disaster Management Plan	16.50	0.35
7	Water, Air and Noise Management Plan	10.20	0.25
8	Public Health Delivery Plan	5.50	0.35
9	Labour Management Plan	21.32	0.80
10	Sanitation and Solid Waste Management Plan	22.20	1.25
11	Environmental Safeguards During Construction Activities	18.00	0.22
12	Energy Conservation Measures	12.50	0.20
13	Environmental Monitoring	12.57	2.20
	Total	268.42	12.00

ToR was accorded to the proposal vide letter No. J-12011/24/2015-IA I, dated 09.12.2015 and proposal grant of EC was submitted on 23.08.2019. The projected CCA is 6,950 ha and to be appraised by the SEIAA but as boundary of Similipal National Park is located within 10 km of the project boundary; therefore, project attracts General Condition.

As per the Ministry of Environment, Forest & Climate Change, Government of India, New Delhi vide S.O.1533 (E) dated, 14.09.2006 and the procedure prescribed therein, the OdishaState Pollution Control Board, has conducted the Public Hearing on 13.04.2018 under the Chairmanship of ADM, Mayurbhanj at Moudi Grampanhayat, Block Jashipur, Mayurbhanj.

EIA/EMP report was submitted to the Ministry on 23.08.2019. Accordingly, proposal for EC was placed before the EAC in its 27th meeting held on 23.09.2010. EAC after detailed deliberation on the information submitted and presentation made deferred the project and sought the following additional information:

1. The .kml file of the instant proposal submitted with Form 2 is not in format. Proper .kml shape file having polygon feature should be uploaded.

2. Forestland is involved in the project (around 26.444 ha). However, it is mentioned in point 24 of Form 2 that 'No forestland' is involved and thus, necessary corrections in Form 2 be made. Status of application of Stage I FC to be submitted for Forest Clearance.

3. Boundary of the Similipal National Park is located within 10 km from the proposed project; therefore, project requires NBWL clearance. Further, details in Form 2 (Point 23.1 to 23.3) should be modified accordingly. List of schedule of mammal species to be revisited and listed as per the Wildlife (Protection) Act, 1972.

4. Ministry vide OM No. 22-65/2017-IA.III, dated 01.05.2018 has issued guidelines pertaining to Corporate Environmental Responsibility (CER) for both green field and brownfield projects. Thus, detailed on funds allocation for CER along with various activities proposed to be taken up as a part of CER to be indicated. Amount earmarked in Form 2 to be as per the aforesaid OM.

5. As per ToR conditions, Environment Management Plans such as CAT, Biodiversity Conservation plan, LAD plan, Solid waste management plan, etc. are to be included in the EIA/EMP report along with Environmental Matrix.

6. Break-up of the capital and recurring cost of the EMP along with the timeline for incurring the capital cost is to be provided in the EIA/EMP report.

7. An undertaking as a 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 be unique and submitted afresh.

8. Copy of Public Hearing advertisement in local language /official state language to be submitted and also the same shall be uploaded with Form 2.

9. Public Hearing issues raised and the reply by the PP shall be incorporated in the EIA/EMP report in the tabular form.

10. R&R – No details in point 27 of the Form 2.

11. Muck management plan shall have been prepared in accordance with the ToR. Details of muck generation and muck disposal sites along with rehabilitation of muck disposal sites should be included in the EIA/EMP report.

12. Sample on fish & plankton diversity for all the seasons (Pre monsoon, monsoon & post monsoon) is missing. Revisit the fish species list and categorize as per the IUCN list including systematic scientific documents of species.

13. Conservation plan for the Scheduled I species in the project study area, if any, shall be prepared and submitted to the Competent Authority for approval.

14. A copy of the approved DPR shall be submitted.

15. NABET Certificate submitted is for the period May, 2018 to March, 2020, whereas base line data has been collected in 2016-2017. A NABET certificate for the above period to be submitted

Above information was submitted to the Ministry on 28.11.2020 and accordingly, proposal is listed in the agenda of the 4th EAC meeting (present meeting). Project Proponent along with the consultant made the detailed presentation before EAC on the additional information sought in the 27th EAC meeting.

Observation and recommendation of the EAC in the present meeting

After detailed presentation by the PP, EAC observed that CCA of the project is 6950 Ha but due to presence of Similipal National Park within 10 km, General condition is applicable to the project and to be appraised for EC by the EAC at the Central level. Project involved 26.444 ha of forest land and forest clearance for Stage I is under consideration. EAC further noted that PP has submitted the CER

cost of Rs 3.54 crore against the activities. EAC after detailed deliberation on the other additional information and other information submitted (Form 2, EIA/EMP report, Public Hearing issues, kml file) and as presented by the PP, **recommended the proposal for grant of Environmental Clearance** subject to compliance of applicable Standard EC conditions with the following additional conditions:

1. Stage I FC for 26.444 ha of forest land involved in the project shall be submitted prior to grant of EC.

2. Wildlife Clearance shall be obtained as Similipal National Park is located within 10 km from the proposed project.

3. 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.

4. In pursuant to the Ministry OM dated 30.09.2020, the Environmental Management Plan (EMP) shall be revised considering the commitments made to address the concern raised during public consultation. Activities proposed under CER shall be made a part of EMP under local area development plan and to be submitted to the Ministry.

5. 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.

6. Conservation plan for Schedule I species shall be implemented duly approved by the CWLW.

7. Any other clearances/permission from any other organization/department, as applicable to the proposed project shall be obtained.

8. 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.

9. 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.

10. Necessary permission to be obtained for quarrying construction materials, if any required, for the project as per the EIA Notification, 2006 and as amended thereof.

Item no. 4.1.10 Scoping Clearance from MoEF&CC for Simsang Dam Project (65 MW) in South/ East Garo hills district of Meghalaya-Regarding ToR
Proposal No.: IA/ML/RIV/183977/2020; File No. J-12011/16/2020-IA-I (R)

Project Proponent along with the consultant (R.S Envirolink) made the detailed presentation on the project and provided the following information to the EAC:

The Simsang Dam Project is proposed on the Simsang River (known as Someshwari in the downstream plains of India and Bangladesh) with the dam near Rongkhonda Sangicham and PH location near Nangalbibra township at a location which is about 16 km away from Williamnagar, a headquarter town of East Garo Hills district of Meghalaya.

The present proposal is the outcome of the surveys and investigations carried out by the Brahmaputra Board from 1997 through 2004. It envisages construction of a concrete dam 73 m high with top of dam at El. 245 m and FRL at 240 m. A 52 m wide central chute spillway is proposed to be located on the right bank with 4 nos. 15 m high and 10 m wide radial gates. The water conductor system and the power house, switch yard etc. are to be located on the left bank. The installed capacity proposed is 65 MW (5x13 MW) to enable operation at a load factor of 20%. Total 509.27 ha land will be required for the various components which is expected to be all forest land. Proposal for the diversion of forest land is yet to be submitted. A detailed land survey will be carried out after TOR is granted and exact land ownership will be ascertained. The project is estimated to cost Rs. 730 crore. DPR is under progress. Approval from CWC/ CEA is required for completion of DPR of the project. Proposal for the diversion of forest land is yet to be submitted.

The total catchment area of river Simsang up to the proposed diversion site is 646 km^2. Total length of the river from its origin up to the proposed dam site is 75km. The equivalent slope of the river up to dam site has been evaluated as 4.9 m/km. The river bed elevation at the diversion site is 172.00 m.

509.27 ha land will be required for the various components which is expected to be all forest land. Proposal for the diversion of forest land is yet to be submitted. A detailed land survey will be carried out after TOR is granted and exact land ownership will be ascertained. Submergence Area is 487 Ha at FRL EL 240.0 m. No Ecological Sensitive Area, if any within 10 km of Project site (WLS/Tiger/elephant corridor/Critically polluted area etc.) however Siju WLS is situated at 12 km

The project envisages the following works:

- A concrete gravity dam of 73m height
- Creation of reservoir with gross storage capacity of 118.02 MCM at FRL.
- A spillway arrangement along the center of dam.
- HRT 1.9 km (approx.)

Salient Features of the proposed project is as under:

1.	**LOCATION**		
	(i)	State	Meghalaya
	(ii)	District	East Garo Hills
	(iii)	River	Simsang River
	(iv)	Location Latitude Longitude	25º 28’ 33” North 90º o 41’ 26” East
	(v)	Nearest rail head	Guwahati
	(vi)	Nearest Airport	Guwahati
	(vi)	Nearest Village	Rongkhonda Sangicham
2.	**HYDROLOGY**		
	(i)	Catchment Area	646 sq. km.
	(ii)	Average Annual Run-off	2817 Mcm
	(iii)	90% Dependable Yield	1419Mcm

	(iv)	75% Dependable Yield	1867Mcm
	(v)	Mean Annual Rainfall	7342mm
	(vi)	Design Flood	7082cumec
	(vii)	Diversion Flood	184cumec
3.	**DAM**		
	(i)	Type of Dam	Concrete Gravity Dam
	(i)	Dam top	EL 245.0 m
	(ii)	River bed level at Dam site	EL 172.0 m
	(iii)	Dam height (above river bed level)	73.0 m
	(iv)	Design flood	7,082cumec
	(v)	Crest elevation	200m
4.	**RESERVOIR**		
	(i)	Full Reservoir (FRL)	EL 240.0 m
	(ii)	Min. draw down level	EL 212.0 m
	(iii)	Area under submergence at FRL	487 Ha
	(iv)	Storage at FRL	118.02 MCM
	(v)	Storage at MDDL	20.15 MCM
	(vi)	Live Storage	96.52 MCM
	(vii)	New Zero Elevation	EL 1985.40m, after 70 Year EL 191.00m, after 100Year
5.	**INTAKE**		
	(i)	Numbers	3
	(ii)	Intake invert level	202m
	(iii)	Size of gate	Vertical lift fixed wheel type 4nx2.75mx4.25m
	(iv)	Design discharge	87.90cumec
6.	**HEAD RACE TUNNEL**		
	(i)	Numbers	1
	(ii)	Size and type	6.1m, Horse-Shoe
	(iii)	Design discharge	87.90
	(iv)	Length	1900m

Project benefit: The project would afford an annual firm energy generation of 236.98 GWh. Considering 5% losses the net annual firm annual generation has been assessed as 225.13 Gwh. The power house would operate as a peaking station at an average load factor of 10.76%. The full energy benefits from the project would be available from the 5th year of construction.

Project Cost and Employment Generation: 730 crore, 1300 No.(approx.)

Detail of court case, if any: Nil.

Observation and Recommendation of the EAC in the present meeting

EAC in the present meeting (4th meeting) deliberated on the information submitted (Form 1, PFR, etc.) EAC noted that 509.27 ha land will be required for the various components which is expected to be all forest land and proposal for the diversion of forest land is yet to be submitted. EAC further noted that No Ecological Sensitive Area, if any within 10 km of Project site (WLS/Tiger/elephant corridor/Critically polluted area etc.) however Siju WLS is situated at 12 km. 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, EAC however suggested that efforts to reduce forest land shall be made:

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. Three season (Pre-monsoon, Monsoon and winter season) baseline data of all the environmental attributes including biological environment as mentioned in the Standard ToR shall be collected for preparation of EIA/EMP report.

3. Nearest distance of the Siju WLS/or other WLS from the project site/components shall be submitted alongwith with MAP duly authenticated by the CWLW.

4. Impact of developmental activity/project on the wildlife habitat, if any, within study area shall be studied.

5. CAT plan, Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared alongwith other EMPs and incorporated in the EIA/EMP report.

6. 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.

7. 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.

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 CWLW for approval.

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

11. Environmental matrix during construction and operational phase needs to be submitted.

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

13. Environmental Cost benefit analysis shall be done.

Item No. 4.2 Any other items with the permission of the Chair

As there being no agenda item left, the meeting ended with a vote of thanks to the Chair.

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From: udaykumarry@yahoo.com
To: "Dr S Kerketta" <s.kerketta66@gov.in>
Sent: Wednesday, December 16, 2020 2:51:01 PM
Subject: Re: Draft Minutes of the 4th Meeting of the EAC for River Valley and HEP held on 2nd December, 2020-reg

Dear Dr. Kerketta ji,

I have gone through the MoM, I approve them.

With Warm Regards
Udaykumar R.Y

Dr. Udaykumar R.Y, *SMIEEE*

Director MNIT - Jaipur

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On Thursday, December 10, 2020, 02:55:04 PM GMT+5:30, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Dear Sir,

Minutes of the 4th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 02nd December, 2020 is attached. It is to inform that the MoM was circulated to all the Members and thereafter, it is being submitted for kind approval please.

regards,

(Dr. S. Kerketta)

Director- IA (Thermal, River Valley & HEP)

MoEF&CC, New Delhi

Phone: 011-24695314 (O), 26113096 (R)