

Minutes of the 7th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 5th February 2021 from 11.00AM - 4.30PM through Video Conference.

The 7th meeting of the re-constituted EAC for River Valley & Hydroelectric Projects which was held on 05/02/2021 under the Chairmanship of Dr. K. Gopakumar in the Ministry of Environment, Forest & Climate Change through video conference (VC). The following members participated in the video conference:

1. Dr. K. Gopakumar - Chairman
2. Dr. N. Lakshman - Member
3. Dr. Mukesh Sharma - Member
4. Dr. Chandrahas Deshpande - Member
5. Dr. A.K. Malhotra - Member
6. Dr. Uday Kumar R.Y. - 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. Shri Yogendra Pal Singh, Scientist 'E', MoEF&CC - Member Secretary

Item No. 7.1 Confirmation of the minutes of 6th EAC meeting.

The minutes of the 6th EAC (River Valley Hydroelectric Project) meeting held on 20th January 2021 were confirmed.

Item No. 7.2. : Discussion on Project Proposals:

Item No.7.2.1: Sirkari-Bhyol Rupsiabagar HEP (168MW) in Pithoragarh District of Uttarakhand by M/s UJVN LTD - Environmental Clearance (EC) – Reg.
[Proposal No. IA/UK/RIV/130432/2019; F. No. J-12011/12/2015-IA.I]

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

The project is proposed on River Goriganga, a tributary of Sarda River, in District Pithoragarh, Uttarakhand. The project envisages construction of a 12m high and 80m long barrage across Goriganga River near Rargiri Tok of village Sai Polo in Tehsil Munsiyari and an underground powerhouse (120 MW) on the right bank with annual design energy generation of 529.12 GWh in a 90% dependable year. The catchment area is 957sq. km. The cost of project is Rs. 879.43 Crores, at January 2020 price level, and is proposed to be completed in 54 months.

The project is situated close to Munsiyari town which is around 135 km from Pithoragarh and is approachable from Tanakpur-Jauljibi-Munsiyari road. The barrage is located at latitude: 30°11'1.5" and longitude: 80°14'05" and is about 33.8 km from

Munsiyari town, of which about 25.5 km up to Leelum is connected by a jeepable road and thereafter by a trek.

The project envisages construction of a 12m high and 80m long barrage with 4 barrage bays (14m x 9m); one auxiliary bay (6mx9m) ; one gated power intake ; two reservoir intakes structures with bell mouth entries located just upstream of the barrage on the right bank which lead to 2 circular shape, 3m dia., 80m feeder tunnels; 2 circular shape, 3m dia., 66 m long connecting tunnels to HRT ; 4.2m dia. and 1316.30m long circular Head Race Tunnel; 8 m diameter underground surge shaft with 2.3m diameter orifice; a steel lined pressure shaft of 3.4m dia. bifurcating for 3 branch penstocks of 2m diameter; an underground powerhouse complex of 120 MW (3x40 MW) located on right bank and 4.2m diameter tail race tunnel with normal tail water level of EL 1721.50m.

Total land requirement has been assessed as 29.997 ha which is entirely forest land. No private land is required. The submergence area at FRL is 2.24 ha. There shall be no displacement of any person.

Environmental sensitive area: No National Park, Sanctuary, Defense Establishments, Archaeological Monuments, Notified Eco-sensitive areas or protected area under Wildlife (Protection) Act exists within the project area or within 10 km distance from it. The submergence area at FRL is 2.24 ha

Brief Description on Hydrology and Water Assessment: The 10-daily flow series at barrage site has been approved by the CWC, New Delhi, vide letter No. CWC No. 01/UTT/60/2014/Hyd (N)/131-33, dated 21.02.2017. Based on run off series of 32 years (1977-78 to 2014-15) yield for 50%, 75% and 90% dependability has been assessed as 1285 MCM, 1170 MCM and 993 MCM respectively. SPF of 2501 cumecs has been recommended by CWC for the planning and design purpose.

Brief of Baseline Environment:

Air: The maximum concentration for 3 seasons of PM₁₀, PM_{2.5} NO_x and SO₂ was found to be 45 µg/m³, 20.6 µg/m³, 10 µg/m³ and <5 µg/m³ respectively and within the NAAQS prescribed by CPCB.

Noise: The maximum L-equivalent noise levels for three seasons during day and night time recorded at barrage and powerhouse site were 67.9 dB(A) and 61.6 dB(A) respectively and exceed the prescribed limits. The noise levels are higher due to high river bed gradient causes high velocity of flow of river water. At other four locations the noise levels recorded during day time and night time are within the limits.

Water: The pH for surface water ranged between 7.32 to 8.04, within the specified standard of 6.5 to 8.5 limit. TDS ranged between 51 to 102 mg/l and was within the acceptable limits (500 mg/l). The dissolved oxygen values ranged between 6.8-8.9 mg/l and were more than 6mg/l, i.e., the limit under CPCB Water Quality Criteria for designated best use (A). Chlorides were within the acceptable limits (250 mg/l) as it ranged between 6 -14 mg/l. Sulphates were within the acceptable limits (200 mg/l) as it ranged between 2.20-5.2 mg/l. The nitrate was not detected in any of samples. The

BOD values ranged between 0.4 to 0.9mg/l and were within the CPCB criteria of less than 2mg/l for Class A water. The Total Coliform level were less than 500 MPN/100ml, the limits specified for Class B water under CPCB Water Quality Criteria for designated best use. The water is suitable for meeting drinking water requirements after conventional treatment and disinfection. All physical and general parameters of ground water were observed within the desirable limit at all sampling locations as per IS10500:2012, Second Edition.

Soil: The soils are neutral in soil reactivity; medium in available nitrogen and phosphorus content, medium in potassium content. The soils have medium to high organic carbon content and have good SAR value (1 to 1.9). The soils of study area are neither saline nor sodic as pH value of soils in all analyzed samples is less than 8.5 and simultaneously the value of EC is less than 4 dS/m.

Flora and Fauna: Based on the primary survey of the specific sites flora under 62 families were found. Among these, 22 trees, 28 shrubs and 51 herbs 14 grasses and 3 sedges, 4 ferns, 3 bryophytes, 5 fungi and 4 lichen species were found. Sixteen economically important plant and fifty-seven important medicinal/ethno botanical importance plant species were recorded. One RET species falling under IUCN Red List was recorded/reported from study area. The faunal study reveals that 21 mammalian species of which three (Bharal, Tahr, Himalayan and Wolf) belong to Schedule-1 of WPA, 1972; 63 bird species of which none belongs to Schedule-I; 9 species of herpe to fauna were recorded /reported of which none belongs to Schedule-I, under WPA. 1972.

Aquatic: No fish species were recorded in the project area.

Socio-economic: The population of study area villages is 3748 comprising of 1914 of males and 1834 females with a sex ratio of 966. The SC population is 715 (19.08%) and ST population is 1568 (41.84%). Total literate population is 2556 (77.24%). Total workers are 1923 (51.31%) of which main workers are 1384 (36.92%), whereas the marginal workers are 539 (14.39%) and 48.69% of population is comprised of non-workers.

Project Benefit: Project benefits inter alia shall include the benefits like (i) annual generation of 529.12 MU of energy in a 90 % dependable year; (ii) 12 % free power of total generation will be given to state, which will help in regular power supply in the area; (iii) against sale of 1% free power to be deposited with Local Area Development Fund annually and (iv) Employment opportunities/to locals in project work.

Public Hearing Details: Public Hearing, presided by ADM, Pithoragarh, was conducted by Uttarakhand Environment Protection & Pollution Control Board (UEP&PCB) on 21st December, 2020 in village Lilum, Tehsil Munsiyari, District Pithoragarh. It was attended by 120 villagers/representative of Gram Panchayat. The main issues raised wererelated to employment, hiring of vehicles of villagers, provision for free electricity, award of petty contracts for project works, construction of internal concrete paths, playgrounds in villages and reservation for wards of affected area for selection of trainees to ITI and also in employment. Compliance of these suggestions have been incorporated in the report.

The Project Proponent has submitted online the application for Forest clearance vide proposal No. FP/UK/HYD/118495/2021, dated 12.1.2021. The case is under examination.

The MoEF&CC vide letter no. J-12011/12/2015-IA-1, dated 20-1-2016 prescribed "Terms of Reference" (TOR) for under taking EIA study and preparation of EIA/EMP report for the project with installed capacity 168MW (4x42 MW).

M/s EQMS India Pvt. Ltd., has conducted the baseline study of environmental parameters during pre - monsoon, monsoon and post monsoon 2018. As the validity of ToR had expired on 19.1.2020, draft EIA/EMP report could not be submitted for conducting public hearing. MoEF&CC vide letter vide J-12011/12/2015- IA-I(R), dated 17.4.2020, granted extension of validity of ToR up to 19.1.2021.

Total land requirement is 30 ha which is forest land entirely. There is no requirement of private land and thus no R&R issue is involved. There shall be no displacement of any person due to submergence as the pond shall extend to about 405m in the river section falling in forest land.

Approval of Central Water Commission, New Delhi, on hydrological aspects and virgin flow series to be adopted for planning purpose, were accorded vide letter No. 1/UTT/60/2014/Hyd. (N)/131-33, dated, 21.02. 2017.

The Central Electricity Authority, New Delhi, vide letter No: 207/1/2014/HPA/846, dated, 21.7.2017, has examined the power potential studies and observed that the Installed Capacity of 120 MW may be adopted for framing DPR.

No National Park, Sanctuary, Defense Establishments, Archeological Monuments, Notified Eco sensitive areas or protected area under Wildlife (Protection) Act exists within the project area or within 10 km distance from it.

PP appraised EAC that due to mandatory requirement of release of environmental flow, downstream of barrage, for three flow regimes, installed capacity of the project by the Central Electricity Authority has been reduced from 168 MW (4x42MW) to 120MW (3x40MW) and consequent design energy from 662.08 MU to 529.12MU. Therefore, M/s UJVN Ltd, has submitted the application for seeking amendment in ToR for reduced installed capacity 120MW (3X40MW), so that the EIA/EMP Report for project (120MW) could be submitted for conducting public hearing within the validity period. Ministry has accorded amendment in ToR with 120 MW installed capacity vide letter dated 13.10.2020.

To establish the base line environmental status of the physico-chemical, biological and socio-economic parameters in the project area and within 10 km from the boundary of project components, the baseline study and primary data collection has been carried out during pre-monsoon, monsoon and post-monsoon 2018.

Habitat loss due to diversion of 29.997ha forest land for mitigation of which compensatory afforestation shall be carried out by the Forest Department. Reduction in reservoir capacity and water available for the designated use which shall be

addressed through implementation of Biological measures in 300 ha and engineering measures under CAT Plan.

Fragmentation of habitat and consequent increase in temporary stress levels of wildlife during construction phase for mitigation of which Wildlife and Bio-diversity Management Plan has been proposed.

Abstraction of maximum discharge of 37.90 cumec from intake structure shall reduce the flow in 2 km stretch d/s of barrage up to TRT outfall. Environmental flow of 1.87 cumec, 6.42 cumec and 14.13 cumec respectively shall be released through barrage during lean months (November-February) non-monsoon and monsoon season (October, March to May) and during monsoon (June to September). The construction and operation of project shall have no impact on the fisheries as no fish species were recorded in the project impact area.

Ambient air noise levels are expected to increase only during the project construction phase only. Based on the evaluation of baseline data and predicted impacts, suitable management plans have been formulated for implementation, in order to ameliorate the negative impacts in the sphere of land, water, air, noise, biological and socioeconomic environments. In order to ameliorate the negative effects of the project construction and overall improvement of the environment following management plans are formulated for implementation concurrent to the project construction. The Summary of Cost of Environmental Management Plan is as under:

Neither any private land nor any other asset shall be acquired for the project. Therefore, no Rehabilitation and Resettlement Plan has been formulated.

Cost of Environmental Management Plan

S. No.	Plans	Cost (Rs. Lakh)	Capital cost (Rs lakh)	Annual recurring cost (Rs lakh)
1.	Catchment Area Treatment Plan	595.00	555.00	10.00
2.	Compensatory Afforestation Scheme	719.00	699.00	5.00
3.	Wildlife and Bio-diversity Management plan	99.00	39.00	15.00
4.	Resettlement & Rehabilitation Plan	0.00	0.00	0.00
5.	Green Belt Development Plan	25.00	17.00	2.00
6.	Reservoir Rim Treatment Plan	252.00	252.00	0.00
7.	Fisheries Management Plan	0.00	0.00	0.00
8.	Muck Management Plan	1262.00	1202.00	15.00
9	Restoration Plan for Quarry Sites & landscaping	70.00	54.00	4.00
10.	Disaster Management Plan	25.00	23.00	0.50
11.	Water, Air and Noise Management Plan	36.00	20.00	4.00
12.	Public Health Delivery Plan	137.00	9.00	32.00

13.	Labour Management Plan	55.00	13.00	10.50
14.	Sanitation and Solid Waste Management Plan	175.00	125.00	12.50
15.	Local Area Development Plan	440.00	400.00	10.00
16.	Environmental Safeguards During Const.	80.00	50.00	7.50
17.	Energy Conservation Measures	50.00	18.00	8.00
18.	Environmental Monitoring Plan	85.00	16.00	17.25
Grand Total		4105.00	3492.00	153.25

Observation and recommendation of the EAC in the present meeting:

EAC in the present meeting (7th meeting) deliberated on the information submitted (Form 2, EIA/EMP report, kml file, etc.) and as presented in the meeting and observed that **due to mandatory requirement of release of environmental flow, downstream of barrage, for three flow regimes, installed capacity of the project by the Central Electricity Authority has been reduced from 168 MW (4x42MW) to 120MW (3x40MW) and consequent design energy from 662.08 MU to 529.12MU** and accordingly EIA/EMP report has been prepared for the project. EAC further noted that total land requirement is 29.997 ha which is forest land entirely. There is no requirement of private land and thus no R&R issue is involved. There shall be no displacement of any person due to submergence as the pond shall extend to about 405m in the river section falling in forest land. As per EIA report no fish found in project area. EAC after detailed deliberation and some information not submitted by PP, **deferred** the project for want of following information:

1. Approved Pre-DPR chapters on hydrology and Power Potential studies be submitted to the Ministry before EAC meeting alongwith the status of DPR approval.
2. Development of HEP from upstream and downstream of the project should be mentioned along the details sketch (FRL, longitudinal distance/free flowing area etc).
3. The methodology and study period of Fish sampling/ Flora and fauna should be submitted.
4. Conservation plan for Schedule I shall be prepared and submitted to the Chief Wildlife Warden for approval.
5. The minimum observed flow in the river to be compared with the proposed e-flow. What arrangements are proposed for real time monitoring of the compliance of the e-flow releases.
6. Environment Cost Benefits Analysis should be revised considering cost of negative/positive impacts on all ecological entities in the region rather focusing on cost of impacts on human beings.
7. Air and water analysis results may be re-checked and updated in EIA report.
8. Certificate from the CWLW that all the components of the project are outside the Askot Wildlife Sanctuary (WLS) or any other WLS.
9. Sketches showing the arrangement of the proposed de-silting arrangement of the quarry water to be provided by the PP.

10. For the muck disposal arrangement, it should be certified that a proper slope stability analysis of the dumped muck pile has been done and the requisite engineering measures evolved accordingly.

Item No. 7.2.2: Luhri HEP Stage – 1 (210MW) Project in Shimla District of Himachal Pradesh by M/s SJVN Corporate Environment – Amendment in EC - Reg. [Proposal No. IA/HP/RIV/29585/2015; F.No.J-1201/05/2015-IA-I (R)]

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

Luhri HEP Stage-I (210 MW) is a run-of-the river scheme, with dam and surface toe powerhouse near village Nirath on NH-05, about 100 km from Shimla, lying near the inter-district boundary of Shimla and Kullu. The dam is located at Longitude 77°32'4"E and Latitude 31°21'40"N. Luhri HEP Stage-I will comprise of a 567.0 m long, 10.0m diameter, horse shoe shaped diversion tunnel to pass diversion flood of 750m³/sec in combination with cofferdams upstream and downstream of the diversion dam. The catchment area at diversion site is 51600 km². The Environment Clearance for the Project has been accorded vide letter no. J-12011/18/2015-IA-I (R) Pt dated 17.03.2020. Forest Stage-II Clearance for 98.1004 ha has been accorded on 28.03.2019. Stage –I Forest Clearance for additional forest area of 0.9486 ha required for Main Quarry road accorded by MoEF&CC on 21.12.2020

The project was accorded Environmental clearances on date 17.03.2020. An online application for amendment in EC was submitted on date 18.01.2021 requesting the Ministry for an amendment in EC.

Proposed amendments: The earlier proposed private land for dumping site was to be acquired under RFCTLARR Act, however since the cost of land has increased considerably, new cheaper patches of private land have been identified which are available on lease basis. As a result, the number of dumping sites have revised from 2 to 5 and private land increased from 10.1314 ha. to 13.6676 ha. Consequently, the total land requirement of the project (Pvt. and Forest) is now 153.5564 ha. This has resulted in considerable saving on utilization of cheaper land patch on lease basis instead of direct acquisition. Accordingly, the reason for seeking revision of dumping sites from two to five in number are considering the high cost involved in direct purchase of private land which otherwise is now proposed to be taken on lease basis. PP has submitted revised details of muck disposal against the originally proposed details (Table 1) and Revised Cost for Implementation of Muck Management Plan (Table 2 and 3).

Table -1: Details of Dumping Sites

Dumping Site	Location	Distance from HFL(in Meter)	Earlier Land (Area in ha)				Revised Land (Area in ha)				Remarks
			Mohal	Tehsil	Govt.	Private	Mohal	Tehsil	Govt.	Private	

DS-1	Near BehraKhad: (31°21'0.20"N 77°31'23.04"E)	811.60 m	Naula Narola	Kumarsai Rampur	0.355 3 -	1.3085 0.4248	Naula arola	Kumarsai Rampur	0.355 3 -	1.3 085 -	Same Portio n of private land remov ed
DS-2	Near cold storage at Bithal: (31°21'11.70"N 77°29'43.62"E)	813 m	Charon ta -	Kumarsai n -	0.077 9 -	0.3485 -	Charon ta Rewali	Kumarsai ain Kumarsai ain	0.0779 - -	1.360 7 0.933 9	Private land increas ed
DS-3	Near cold storage at Bithal. (31°21'12.01"N 77°29'37.99" E)	812.8 m	Rewali	Kumarsai n	0.470 6	7.1458	Rewali	Kumarsai ain	0.4706	1.878 6	Private land decrea sed
DS-4	Near Dutt nag ar (31°23'44.62"N 77°35'07.45"E)	858.50 m	-	-	-	-	Dutt na gar	Rampur	-	5.064 5	New Dumpi ng
DS-5	Near Dutt nag ar (31°23'44.18"N 77°34'46.50"E)	857 m	-	-	-	-	Dutt na gar	Rampur	-	2.217 6	New Du mpi ng
Total				0.9038	9.22 76		Total		0.9038	12.76 38	
			10.1314 ha				Total	13.6676 ha			

Table 2: Earlier Cost for Implementation of Muck Management Plan

S. No	Particulars	Amount (Rs. in lakh)
1	Engineering Measures Construction of Retaining wall of height Rs.17500/metre	201.25

2	Biological Measures Levelling @ Rs50 sqm Plantation with bio-fertilizers @ Rs150 sqm Geo-green-coir erosion control blanket @ Rs. 60 Sub Total	50.66 158.98 60.79 263.43
3	Contingency Measures	49.09
Total		513.77

Earlier provision of Rs.513.77 lakhs was made towards the muck disposal plan as per the provisions tabulated in Table 2 and revised cost for muck disposal plan is tabulated in Table 3. The biological measures are inclusive of five-year maintenance, nursery and plantation cost

Table-3: Revised Cost for Implementation of Muck Management Plan

S. No.	Earlier Activities Proposed		Revised Activities proposed			
	Particulars	Amount (Rs. in lakh)	Particulars	Total Amount (Rs. in lakh)	Capital Cost (Rs. In lakh)	Recurring cost (Rs. In lakh)
1	Engineering Measures	201.25	Engineering Measures	299.42	299.42	0
	Construction of Retaining wall of height 10m @ Rs.17500/metre		Construction of Retaining wall of height 10m @ Rs.20650/metre			
2	Biological Measures		Biological Measures			
	Levelling @ Rs50 sqm	50.66	Levelling @ Rs50 sqm	68.35	68.35	0
	Plantation with bio-fertilizers @ Rs150 sqm	158.98	Plantation with bio-fertilizers including RCC fencing @ Rs 1,08560/ ha	6	4.58	1.42
			Grass slip plantation & grass seed showing @ Rs. 93913/ha	10.4	7.6	2.8
	Geo-green-coir erosion control blanket @ Rs. 60	60.79	Geo-green-coir erosion control blanket @ Rs. 60	31.1	26.81	4.29
Cost of portable pump with accessories @ Rs. 2.5 lakh each			12.5	12.5	0	

			Cost of sprinkler system @ Rs. 50000 per ha	7	7	0
	Sub Total	263.43	Sub Total	135.35		
3		-	Watch and ward 3 No. @ Rs. 10000 pm for 5 year	9	-	9
4	Contingency Measures	49.09	Contingency Measures	70		
	Total	513.77	Total	513.77	426.26	17.51

PP has requested to consider the case for issuing amendment in condition of EC letter no. J-12011/18/2015-IA-I(R) Pt. dated 17.03.2020 as under:

Amendment Required				
S.no	Reference of Approved EC	Description as per Approved EC	Description as per Proposal.	Remarks
1	Standard EC Condition No. VI. i.	Muck dumping sites=2; Dumping area=10.1314 ha.	Muck dumping sites=5; Dumping area=13.6676 ha.	Detailed revised muck management plan is uploaded
2	EC Letter condition No. 4	Total project area=149.08 ha.	Total project area=153.5564 ha.	Due to proposed increase in muck dumping area.

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-12011/18/2015-IA-I (R) Pt dated 17.03.2020. The earlier proposed private land for dumping site was to be acquired under RFCTLARR Act, however since the cost of land has increased considerably, new cheaper patches of private land have been identified which are available on lease basis. As a result, the number of dumping sites have revised from 2 to 5 and land is increased from 10.1314 ha. to 13.6676 ha. Consequently, the total land requirement of the project (Pvt. and Forest) is now 153.5564 ha. PP has submitted revised details of muck disposal against the originally proposed details and Revised Cost for Implementation of Muck Management Plan for amendment in EC letter dated 17.03.2020 in the Standard EC condition VI (i) for change in mucking dumping sites from 2 to 5 and Para – 4 of EC letter for change in project land requirement from 149.08 ha to 153.5564 ha.

EAC after detailed deliberation and information submitted by PP, **recommended** the proposal for amendment in EC dated 17.03.20020 with respect to the revised Muck Management Plan and land requirement details as submitted by the Project Proponent with following additional EC condition:

- i. Necessary control measures such as water sprinkling arrangements at all the construction and muck disposal sites and construction of paved roads leading to muck disposal sites shall be made to arrest fugitive dust and proper institutional mechanism be prepared for supervising this activity during operation & maintenance stage of the project.
- ii. Stabilization of muck disposal sites using biological and engineering measures shall be taken up to ensure that muck does not roll down the slopes and shall be disposed safely and that it does not pollute the natural streams and water bodies in surrounding area. The engineering measures for the muck disposal arrangements be evolved after carrying out required slope stability analysis.
- iii. Necessary consent shall be obtained from District Administration due to proposed change in private land use for dumping of muck.

Item No. 7.2.3: Reoli Dugli Hydro-Electric Project (RDHEP) of 430 MW capacity in District Lahaul-Spiti, Himachal Pradesh by M/s SJVN Corporate Environment – Terms of Reference (ToR) - Reg. [Proposal No. IA/HP/RIV/195492/2021; F. No. J-12011/04/2021-IA-I (R)]

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

SJVN Limited (SJVN) is constructing Reoli Dugli Hydro-electric Project (RDHEP) of 430 MW capacity in district Lahaul-Spiti, Himachal Pradesh. It is a run of the river type project proposed to harness the hydel potential of river Chenab. The project envisages construction of a concrete gravity dam on river Chenab near Tindi village, and of an underground power house approx. 14.0 km downstream of the proposed dam site on the right bank of river.

The project is situated on Chenab River, having its dam site about 700 m upstream of Harsar Nallah near Tindi village in Lahaul-Spiti, and powerhouse site is located at about 14.0 km along the river Chenab downstream of the proposed dam site on the right bank of river. At approx. 5 km. downstream from the TWL of Reoli Dugli HEP, lip of reservoir of the proposed Purthi HEP (in S&I stage) exists. The dam is located at latitude 32°44'34.5"N and longitude 76°29'27.84"E, approx. ±6 km downstream of Seli HEP outfall and approx. ±25 km. upstream of Purthi HEP dam site.

Dam Height: A 54 m high, concrete gravity dam from river bed level (±2432.0 m), with integral 4 nos. gated spillways having size of 8.5 m (W) X 14.5m (H) have been proposed. Upper-level spillway has been proposed with Ogee with open crest overflow. The spillway has been designed to pass assumed design flood corresponding to Probable Maximum Flood of 7681 cumecs. The Full Reservoir Level has been kept at 2483.9 masl and Minimum Draw Down Level at approx. El. 2472.5 masl. The dam

would provide a gross pondage of about 11.4 MCM and live storage of about 5.24 MCM. The length of the dam at top shall be approx. 127 m. It is proposed to excavate a circular-shaped HRT of diameter 10.5 m and length of approximately 11.446 km. Underground power house cavern having size of 161m (L) x 23m (W) x 52m (H) shall be provided on the right bank. The powerhouse shall house four Francis turbines of 105 MW each for a total design discharge of 345.65 cumecs. For E-flow release, an auxiliary unit having two Horizontal Francis turbine units of 5 MW each has been planned with a discharge capacity of intake of 22.5 cumecs. Water shall be released back into the river through a 10.5 m diameter and 250 m long horse shoe shaped tail race tunnel.

The tentative land requirement for the project is 134.5 ha. out of which 133.5 ha. is forest land (including notional land) and approx. 1 ha. is private land. As per BIS: 1893:2002, the project area lies in Seismic Zone-IV of the Seismic Zoning map of India

Construction of dam will result in submergence of about 72.5 ha. of land out of which 71.5 ha. is forest land and 1 ha. is private land. Further, the project would involve construction of various project components, which would result in new land use in the area. Tundah Wildlife Sanctuary exists at approx. 9 km from the project area. The estimated project cost is ₹ 4035 Crores. There is likelihood of providing employment to local people during construction and operation periods. R&R plan in respect of acquisition of private land will be as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

The Chenab flows through the Indian states of Himachal Pradesh and Jammu & Kashmir. The Purthi project catchment is entirely within Himachal Pradesh. However, the Chenab river is one of the major tributaries of the Indus river system and the water resources development of the Indus system of rivers is governed by the Indus Water Treaty 1960 signed by the Government of India and Government of Pakistan. Therefore, the design and development of the Reoli-Dugli Hydroelectric Project is governed by the Indus Water Treaty.

The percentage of Environmental Flows to be released as per CEIA of Chenab river basin in various seasons is given below:

Low Flow Period (Nov-Apr)	High Flow Period (June-Sept)	Intermediate Period Oct and May)
% of Average Discharge of Low Flow period in 90% DY	% of Average Discharge of High Flow period in 90% DY	% of Average Discharge of Intermediate Flow period in 90% DY
25	20	25

However, the final e-flows shall be as per approved TOR by MOEF&CC

Project Benefits:

1. Capacity addition of 430 MW in the Northern Region and reducing peaking power shortage in the region. Annual generation of 1553.58 MU with 95% machine availability (design energy).

2. Integrated development of Lahaul-Spiti region in the areas of employment, communication, education, health, tourism etc.
3. Out of 13% free power to the home state Himachal Pradesh, 1% shall be utilized for contribution towards local area development.

History of Project:

- Reoli Dugli HE Project was earlier allocated to M/s L&T by Government of Himachal Pradesh.
- ToR for the project was accorded by MoEF&CC to M/s L&T in 2013.
- Project was recommended for EC during 3rd EAC meeting held in March 2017. However, formal EC letter not issued for want of Stage – 1 Forest Clearance.
- Government of Himachal Pradesh re-allotted the project to SJVN and MoU signed on 6th November, 2019.
- Proposal for fresh ToR submitted since additional investigations are required for the project and ToR has lapsed.

Status of other statutory clearances:

Application for diversion of forest land is require Forest Clearance of the project is yet to be submitted. Proposal for Wildlife Clearance yet to be submitted. PP has requested to prescribe Scoping Clearance & ToR for conducting EIA Studies of Reoli-Dugli HEP (430 MW)

Observation and recommendation of the EAC in the present meeting:

EAC in the present meeting (7th meeting) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that it is a run of the river type project proposed to harness the hydel potential situated on Chenab River, having its dam site about 700 m. upstream of Harsar Nallah near Tindi village in Lahaul-Spiti, and powerhouse site is located at about 14.0 km along the river Chenab downstream of the proposed dam site on the right bank of river. The dam is located between Seli HEP at upstream and Purthi HEP at downstream location.

Tundah Wildlife Sanctuary exists within 10 km from the project area wherein ESZ has not been finally notified Hence, Prior Clearance from Standing committee of the National Board for Wildlife is applicable. Forest clearance (133.5 ha) and Wildlife Clearance application is yet to be applied for the 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. The EIA study should be undertaken in accordance with recommendations of the Chenab river basin study and the project parameters/salient features of the project such as Dam height, FRL, Submergence area, total land requirement, e-

- flow etc. as discussed/deliberated during the Chenab river basin study should remain unchanged.
3. The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report.
 4. 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.
 5. Requisite studies for the E-flow shall also be undertaken.
 6. Impact of developmental activity/project on the wildlife habitat within study area shall be studied.
 7. Tundah Wildlife Sanctuary is within 10 km radius of the project site. Therefore, prior clearance from Standing Committee of the National Board for Wildlife (SCNBWL) is mandatory. Accordingly, Project proponent shall submit the application for grant wildlife clearance to the concerned.
 8. The project involves diversion of 133.5 ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forestland required should be submitted as soon as the actual extent of forestland required for the project is known, and in any case, within six months of issuance of this letter.
 9. Road (EL-2502 m) is ~18 m above from FRL, therefore impact on the road during dam construction and impounded water during operation phase and accordingly proper mitigation measures shall be submitted.
 10. CAT plan, Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared alongwith other EMPs and incorporated in the EIA/EMP report.
 11. 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.
 12. 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.
 13. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.
 14. 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.
 15. Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted
 16. Environmental matrix during construction and operational phase needs to be submitted.
 17. Both capital and recurring expenditure under EMP shall be submitted.
 18. Environmental Cost benefit analysis shall be done.
 19. The salient features to be intimated to the Indus water commission.

Item No. 7.2.4 Teesta Intermediate H.E. Project (2x30+2x15 MW) Kirney Village of Kalimpong District in West Bengal by M/s West Bengal State

Electricity Distribution Company Limited – Terms of Reference (ToR) - regarding [Proposal No. IA/WB/RIV/195425/2021; F. No. J-12011/03/2021-IA-I (R)]

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

West Bengal State Electricity Distribution Company Limited (WBSEDCL) proposes Teesta Intermediate H.E. Project to harness the hydro power potential of Teesta River after the tail water level of Teesta VI H.E. Project. The project is for developing a 90 MW (2x 30 + 2x15 MW) hydroelectric project is located near Kirney village of Kalimpong Block, under district Kalimpong of State West Bengal. The diversion structure is just 5 km upstream from the confluence of Teesta River with Bari Rangit River. The Barrage site is well connected by National Highway. The coordinate of the Barrage is (N 27°06'15.41" E 88° 27' 57.81") and falls under Survey of India Toposheet No. N78A/8.

The Project comprises of a 19.5 m high Barrage with FRL at El. 236 m and net head of 15.00 m to generate (2 x30 + 2 x15 MW) 90 MW of power. Four nos. of Intake structures are proposed to divert water to Power House. Two nos. will feed the two unit of capacity 30 MW and remaining two will feed two unit of capacity 15 MW. Surface Power House (4 Units) of size 98 m (L) x 22 m (W) x 41 m (H) has been proposed. Tail Race Channel of length 120 m after which the water will be discharged to river Teesta. The catchment area of Teesta Intermediate project is 5573 km², out of which 2254 km² is above permanent snow line at an elevation 4500m. About 41 ha of forest land shall come under submergence at FRL.

Total land to be acquired for the project is about 80 ha. about 10 ha of private/non-forest land and 70 ha of forest land is to be acquired. The spread of the submergence area of Teesta along the river is about 3.3 Km with the FR l of 236 m. The area of the submergence is 41 ha. There is no National Park, Wildlife sanctuary, Tiger/Elephant reserve, biosphere reserve etc in and around the project catchment. Total cost would be Rs. 870.2947 crore.

About 10 ha of private land is to be acquired for various project appurtenances. Based on the present level of investigations, the number of project affected families is not available. The number of families likely to lose land will be finalized. In addition, information of any family losing homestead or other private properties shall also be ascertained. Socio-economic survey for the Project Affected Families (PAFs) will be conducted. Based on the findings of the survey an appropriate Resettlement and Rehabilitation Plan will be formulated as per the Right to Fair Compensation Transparency in Land Acquisition and Rehabilitation and Resettlement Act, 2013.

Project benefits:

The scheme would afford on annual energy generation of 430.21 GWh annually calculated in 90% dependable year. For assessing the tariff, design energy generation of 408.71 GWh, calculated with 95% capacity availability in a normal dependable year has been adopted. The sale rate applicable in the first year and levellised tariff are as Rs. 5.41/kWh and Rs. 4.73/kWh respectively. Direct employment opportunities due to construction and operational activities.

Observation and recommendation of the EAC in the present meeting:

EAC in the present meeting (7th meeting) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the project is located on Teesta River after the tail water level of Teesta VI H.E. Project. The project is for developing a 90 MW (2x 30 + 2x15 MW) hydroelectric project is located near Kirney village of Kalimpong Block, under district Kalimpong of West Bengal. The barrage site is located about 5 km upstream on Teesta River from Teesta Rangit confluence. EAC also noted that the total land to be acquired for the project is about 80 ha of which about 10 ha of private/non-forest land and 70 ha of forest land to be acquired. The spread of the submergence area of Teesta along the river is about 3.3 Km with the FR 1 of 236 m. The area of the submergence is 41 ha. There is no National Park, Wildlife sanctuary, Tiger/Elephant reserve, biosphere reserve etc in and around the project catchment area. EAC after detailed deliberation on the information submitted and as presented, **recommended** ToR 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. The project involves diversion of 70 ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forestland required should be submitted as soon as the actual extent of forestland required for the project is known, and in any case, within six months of issuance of this letter.
4. Requisite studies for the E-flow shall also be undertaken.
5. The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report
6. Impact of developmental activity/project on the wildlife habitat, if any, within study area shall be studied.
7. 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.
8. 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.
9. 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.
10. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.

11. 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.
12. Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
13. Environmental matrix during construction and operational phase needs to be submitted.
14. Both capital and recurring expenditure under EMP shall be submitted.
15. Environmental Cost benefit analysis shall be done.
16. Certificate from the Chief Wildlife warden regarding no Wildlife/national Park is present within 10km from the project site.

Item No. 7.2.5: Bardang Hydro-electric Project (BHEP) of 175MW capacity in district Lahaul & Spiti, Himachal Pradesh by M/s SJVN Ltd. – Terms of Reference – reg. [Proposal No. IA/HP/RIV/195302/2021; F. No. J-12011/02/2015-IA-I (R)]

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

SJVN Limited (SJVN) is constructing Bardang Hydro-electric Project (BHEP) of 175 MW capacity in district Lahaul & Spiti, Himachal Pradesh. It is a run of the river type project proposed to harness the hydel potential of river Chenab. Bardang Hydro Electric Project is located about 10 km upstream of Udaipur (Near Bihadi village; Gram Panchayat Trilokinath) in the Lahaul-Spiti district of Himachal Pradesh on the Chenab River. The dam is located at Latitude 32°39'56"N and Longitude 76°43'35"E. The proposed project is located between the proposed Rashil Hydro Electric Project in the upstream and the proposed Seli Hydro Electric Project in the downstream.

Project envisages construction of ± 39 m high concrete gravity Dam above the river bed level across River Chenab to divert the discharge for generation. The top of dam is proposed at EL. 2687.0 m. The Length of dam at top is 146.0 m. The Probable Maximum Flood (PMF) for the project has been assessed as 5,950 cumec. The sluice can pass the PMF with one gate inoperative from 4 no. sluice spillways of size 7.5 m (w) x 14.0 m (h) crest at EL 2651.0m and ogee spillway with crest at 2681.0 m. Ski-jump type energy dissipator arrangement is proposed to dissipate the energy. 1 no. of intake is proposed approximately at center of decanting chamber for diverting the design discharge of 278.71 cumecs from the reservoir to the power house on the right bank. The head race tunnel alignment has been fixed in order to have sufficient vertical and lateral cover along the alignment. As the length of HRT is ±7.8 km, three numbers of construction adits of size 7.5m dia. A surge shaft of 46.00m dia. With 5.20m dia. circular orifice, ±70.0m height with top at ± El. 2720.0 m. Steel penstock of 7.7m dia (1 nos proposed) steel lined pressure shaft have been proposed to carry the design discharge of 278.71 cumecs. The surge shaft to generate 154 MW (2x77 MW) of power individual unit of 77 MW capacity. The length of pressure shaft before bifurcation is 89 m and after bifurcation is 62 m. The velocity in the pressure shaft will be approximately 5.98 m/s at full machine discharge. A surface powerhouse of size 90 m (L) x 40m (W) x 50m (H) has been proposed on the right bank of the river Chenab to house two Francis turbines of 77MW each and 3 Kaplan turbines of 7MW each. A 350 m long tail race concrete lined channel to let in the water from the

machines to river.

The tentative land to be acquired/diverted for the project is 123.5 ha of which 115 ha is forest land and 8.5 ha is private land. The application for diversion of forest land (Form-A) is yet to be submitted. The project falls outside the boundary of Tundah WLS at about approx. 10.68km and Kugti WLS is about approx. 11.90km. The project is estimated to cost 2020.26 crores.

Project benefits: Capacity addition of 175 MW in the Northern Region and reducing peaking power shortage in the region. Annual generation (design energy) of 607.84 GWh (524.33 GWh from the main plant and 83.51 GWh from auxiliary plant). 2. Integrated development of Udaipur region in the areas of employment, communication, education, health, tourism etc. 3. Out of 13% free power to the home state Himachal Pradesh, 1% shall be utilized for contribution towards local area development.

Observation and recommendation of the EAC in the present meeting:

EAC in the present meeting (7th meeting) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the project is located on the river Chenab. The Hydro-electric project is for developing a 175 MW capacity in district Lahaul & Spiti, Himachal Pradesh. EAC further noted that the tentative land to be acquired/diverted for the project is 123.5 ha of which 115 ha is forest land and 8.5 ha is private land. The application for diversion of forest land (Form-A) is yet to be submitted. The project falls outside the boundary of Tundah WLS at about approx. 10.68km and Kugti WLS is about approx. 11.90km. 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. **The EIA study should be undertaken in accordance with recommendations of the Chenab river basin study and the project parameters/salient features of the project such as Dam height, FRL, Submergence area, total land requirement, e-flow etc. as discussed/deliberated during the Chenab river basin study should remain unchanged.**
3. 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.
4. The project involves diversion of 115 ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forestland required should be submitted as soon as the actual extent of forestland required for the project is known, and in any case, within six months of issuance of this letter.
5. Requisite studies for the E-flow shall also be undertaken.

6. The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report.
7. Impact of developmental activity/project on the wildlife habitat, if any, within study area shall be studied.
8. 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.
9. 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.
10. 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.
11. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.
12. 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.
13. Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
14. Environmental matrix during construction and operational phase needs to be submitted.
15. Both capital and recurring expenditure under EMP shall be submitted.
16. Environmental Cost benefit analysis shall be done.
17. Certificate from the Chief Wildlife warden regarding distance from the Tundah WLS and Kugti WLS and its ESZ.
18. The salient features to be intimated to the Indus water commission.

Item No. 7.2.6 Purthi Hydroelectric Project (232 MW Capacity) in district Chamba, Himachal Pradesh by M/s SJVN Corporate Environment – Terms of Reference – reg. [Proposal No. IA/HP/RIV/194468/2021; F. No. J-12011/01/2021-IA-I (R)]

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

SJVN Limited, a Mini Ratna: Category-I and Schedule -'A' CPSE under administrative control of Ministry of Power, Govt. of India on 15.10.2019 by GoHP, proposes to construct Purthi Hydroelectric Project (232 MW Capacity) in district Chamba, Himachal Pradesh.

The Purthi Hydro Electric Project (232 MW Capacity) is located about 45 km downstream of Udaipur in the Chamba district of Himachal Pradesh on the Chenab river. The coordinates of latitude-longitude of dam toe powerhouse are 32°54'12.83" N, 76°27'45.10" E. The proposed project is located between the proposed Reoli Dugli Hydro Electric Project in the upstream and the proposed Sach Khas Hydro Electric Project in the downstream. The dam site is about 2 km upstream of Purthi village and

about 45 km downstream from Udaipur town. The dam toe surface power house site is proposed on the right bank.

The project diversion structure and toe surface power house are proposed to be located about 11 km. downstream of tail race outfall of Reoli Dugli HEP (in S&I stage) with a free flow of 5 km. in between these projects. Further, a free flow stretch of 1.5 Km will also be available between downstream Sach Khas HEP (under S&I Stage) and outfall of proposed Purthi HEP.

The tentative land to be acquired/ diverted for the project is 150 ha of which 135 ha is forest land and 15 ha is private land. Construction of dam will result in submergence of about 105 ha. of land. Application for Forest Clearance yet to be submitted. The project is not located within the Eco-sensitive Zone (ESZ) of Sechu Tuan Nala Wildlife Sanctuary and falls at an aerial distance of about 4.79 km. from outside the ESZ boundary. No clearance under the wildlife (Protection) Act, 1972 is required. The project is proposed in a remote area which is sparsely populated. Killar is the nearest densely populated area located 20.28 km. from powerhouse site. Project entails diverting 475.54 cumecs of water (including 89.36 Cumecs for auxiliary unit) from River Chenab which will be taken to dam toe surface powerhouse for energy generation. The green belt shall be developed in area around dam and vacant land. The muck disposal sites shall be stabilized with vegetal cover. The places where the vegetal cover is less, avenue plantation shall be carried out along haul roads.

Project envisage construction of ± 63 m high concrete gravity Dam above the river bed level across river Chenab to divert the discharge for generation. The top of dam is proposed at EL.2299.0m. The Full Reservoir Level has been kept at 2296.0 m and Minimum Draw Down Level at El. 2289.0 m. The lowest river bed elevation at dam axis is EL2236.0m. The Probable Maximum Flood (PMF) for the project has been assessed as 8386 cumec. 4nos. of intakes are proposed on the face of Non-Overflow Blocks 8, 9 and 10 for diverting the water from the reservoir to the dam toe power house on the right bank. 4nos. individual pen stocks for each unit have been proposed in NOF blocks of the dam body to pass total discharge of 475.54 m/sec. A surface powerhouse of size 110 m (L) x 47m (W) x 55m (H)) has been proposed on the right bank of the river Chenab to house two Francis turbines of 95 MW each and two Kaplan turbines of 21 MW each. Approximately 80 m long tail race channel and after that 30 m long, 1 in 200 slope, approximately 40 m wide channel before being released into the Chenab River.

Project benefit: Capacity addition of 232 MW in the Northern Region and reducing peaking power shortage in the region. Annual generation (design energy) of 822.61 GWh (634.43 GWh from the main plant and 188.18 GWh from auxiliary plant). 2. Integrated development of Chamba region in the areas of employment, communication, education, health, tourism etc. 3. Out of 13% free power to the home state Himachal Pradesh, 1% shall be utilized for contribution towards local area development.

Observation and recommendation of the EAC in the present meeting:

EAC in the present meeting (7th meeting) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that the project is located on the river Chenab. The project is for developing a 232 MW Capacity on the Chenab River. The project is located in district Chamba, Himachal Pradesh. The dam site is about 2 km upstream of Purthi village and about 45 km downstream from Udaipur town. The tentative land to be acquired/ diverted for the project is 150 ha of which 135 ha is forest land and 15 ha is private land. Construction of dam will result in submergence of about 105 ha. of land. Application for Forest Clearance yet to be submitted. Project is located within 10km of Sechu Tuan Nala Wildlife Sanctuary. EAC after detailed deliberation on the information submitted and as presented, **recommended** for grant of Standard ToR to the proposed project with the following additional ToR:

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. **The EIA study should be undertaken in accordance with recommendations of the Chenab river basin study and the project parameters/salient features of the project such as Dam height, FRL, Submergence area, total land requirement, e-flow etc. as discussed/deliberated during the Chenab river basin study should remain unchanged.**
4. The project involves diversion of 135 ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forestland required should be submitted as soon as the actual extent of forestland required for the project is known, and in any case, within six months of issuance of this letter.
5. Requisite studies for the E-flow shall also be undertaken.
6. The longitudinal connectivity/Free flowing sketch be provided in the EIA/EMP report.
7. Impact of developmental activity/project on the wildlife habitat, if any, within study area shall be studied.
8. 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.
9. 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.
10. 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.

- 11.Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.
- 12.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.
- 13.Pre-DPR Chapters viz., Hydrology, Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.
- 14.Environmental matrix during construction and operational phase needs to be submitted.
- 15.Both capital and recurring expenditure under EMP shall be submitted.
- 16.Environmental Cost benefit analysis shall be done.
- 17.Certificate from the Chief Wildlife warden regarding distance from the Sechu Tuan Nala Wildlife Sanctuary and its ESZ.
- 18.The salient features to be intimated to the Indus water commission.
