Minutes of the 17th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 27.08.2018 at Teesta Meeting Hall, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi–3.

The 17th meeting of the re-constituted EAC for River Valley & Hydroelectric Projects was held on 27.08.2018 with the Chairmanship of Dr. D.M. More in the Ministry of Environment, Forest & Climate Change at Teesta Meeting Hall, 1st Floor, Vayu Wing, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi. The following members were present:

1.	Dr. D.M. More	-	Chairman - in-charge
2.	Dr. J.A. Johnson	-	Rep. of WII
3.	Dr. Vijay Kumar	-	Rep. of Ministry of Earth Sciences
4.	Shri Chetan Pandit	-	Member
5.	Dr. T.P. Singh	-	Member
6.	Dr. S.R. Yadav		Member
7.	Dr. S. Kerketta	-	Member Secretary

Dr. S.K. Jain, Shri N.N. Rai, Shri Sharvan Kumar, Dr. A.K. Sahoo, Prof. Govind Chakrapani, Dr. R. Vasudeva, Dr. Poonam Kumria and Dr. J.P. Shukla could not be present due to pre-occupation. The deliberations held and the decisions taken are as under:

Item No. 17.0 Confirmation of the Minutes of 15th EAC meeting

The minutes of the 16th EAC (River Valley Hydroelectric Project) meeting held on 28.07.2018 were confirmed.

Item No. 17.1 Saundatti IRESP (1260 MW) - Pumped Storage Component of Saundatti IREP in Belgavi District, Karnataka by M/s. Greenko Solar Energy Private Limited - for amendment of Scoping/TOR Clearance.

The Project Proponent (PP) and their Consultant M/s. R.S. Envirolink Technologies Private Limited, Gurgaon made a presentation of the project and *inter-alia*, provided the following information.

2. The Saundatti IRESP project is proposed in Belgavi District of Karnataka. The scheme involves solar, wind and hydro (pumped storage) components in an integrated manner with an installed capacity of 4.8 GW (i.e 2 GW of solar + 2 GW of wind with a storage capacity of 1.2/9.6 GWH). It envisages creation of reservoir across Jagavalla halla (depression). This is an IRESP scheme and not a 100% river valley project and the EC is sought due to involvement of storage component only. The project was considered earlier by the EAC in its meeting held on 27.4.2018 and committee recommended for scoping/TOR clearance. The Ministry granted TOR to this project on 18.5.2018 for 1200 MW installed capacity.

3. The PP informed that during DPR preparation, various optimization studies have been carried out and the capacity is worked out to be 1260 MW due to optimization of storage to 8 hours as against 8.5 hours considered earlier. Now, the project configuration is proposed to be 5x210 MW & 2x105

MW (1260 MW). Therefore, the PP submitted an online application on 13.8.2018 for amendment in scoping/TOR clearance. The PP also informed that there is minor change in project location. The changes in salient features are tabulated as below:

S.No.	Description	Original as granted in the TOR	Present revised proposal
1	Capacity	1200 MW	1260 MW
2	Rated Pumping Head	156.92 m	157.38 m
3	Pump Capacity	230 MW	240 MW
4	Turbine Capacity	2x200 MW	2x210 MW
5	Turbine Capacity	2x100 MW	2x105 MW
6	Turbine Design discharge for each unit	77.14 cumec	81.13 cumec
7	Structure	400 KV Multi circuit Towers	400 KV Double circuit Towers with Moose Conductor
8	Terminating at	One double circuit connected to PGCIL Narendra 400 KV substation at Dharwad and other double circuit connected to IRESP CPSS.	One line will be connected to PGCIL Narendra 400 KV substation at Dharwad and other line will be connected to IREP CPSS.

4. The PP also mentioned that this being pumped storage scheme and not typically river valley project as this is not located on any river course, some of the standard TOR conditions are not applicable in this case and requested to amend the TOR. The PP informed that since other agencies are involved, all the statutory agencies insist on meeting all TOR conditions as per the scoping clearance letter. EAC agreed on the suggestion and in this regards, MoEF&CC may take a separate call while issuing the amendment letter. The following TOR conditions of **Annexure-1 are not applicable** in case of the present proposal:

S. No.	ToR conditions
1	Para Nos. 2 (ii), (vii), (viii) and (xiii) are related to river drainage and catchment delineation.
2	Para No. 6 (b) related to hydrology studies approved by CWC, Flow series of 90%, 75% and 50% dependable years discharge, Minimum of 1 km distance from tip of the reservoir, norms for release of e-flows, etc.
3	Para Nos. 6 (d) (ii) & (iii) related to fish, their migration and conservation
4	Para No. 8 related to CAT plan.
	Para No. 9 related to CAD
	Para No. 10 related to Fisheries Conservation and Management
	Para No. 11 related to CAD plan for distributary outlet.

After detailed discussions, **EAC recommended the project in amendment of ToR/Scoping clearance** due to optimization of the installed capacity from 1200 MW to 1260 MW.

Item No. 17.2 Pinnapuram IREP (1000 MW) - Pumped Storage Component of Pinnapuram IREP in Kurnool District, Andhra Pradesh by M/s. Greenko Energies Private Limited - for amendment of Scoping/TOR Clearance

The Project Proponent (PP) and their Consultant M/s. R.S. Envirolink Technologies Private Limited, Gurgaon made a presentation of the project and *inter-alia*, provided the following information.

2. The Pinnapuram IRESP Storage project is proposed in Kurnool District of Andhra Pradesh. The scheme involves solar, wind and hydro (pumped storage) components in an integrated manner with an installed capacity of 4.8 GW (i.e 2 GW of solar + 2 GW of wind with a storage capacity of 1/8 GWH). All components of Pinnapram IRESP are in close vicinity therefore power from all these components will be pooled in a common pooling station and will be connected to PGCIL sub-station at Orvakallu. It envisages creation of reservoir across Muni Madugu (Pond) near Pinnapuram village. This is an IRES scheme and not a river valley project and the EC is sought due to storage component only. The project was considered earlier by EAC in its meeting held on 27.4.2018 and committee recommended for scoping/TOR clearance. The Ministry granted TOR to this project on 17.5.2018 for 1000 MW capacity.

3. The PP informed that during survey and investigation and DPR preparation, it was observed that geological conditions at that locations were not suitable and would require long duration of investigation as the powerhouse and other components have been planned underground. As the time of implementation is critical to match the commissioning of solar and wind components, which has much shorter execution period, it was critical to reduce the construction period of pumped storage component. Therefore, a suitable alternate location is identified, where all critical components are surface components and length of water conductor system is smaller. Therefore, the PP submitted an online application on 13.8.2018 for amendment in scoping/TOR clearance. Amendment of TOR is requested due to following reasons:

- Changes in project component locations and types.
- Capacity of the project has been increased from 1000 MW to 1200 MW.
- Resultant Changes in some of the salient features and the land requirement because of above two reasons.
- Total length of water conductor system is only 2 km in the current proposal as compared to around 7.40 km long in earlier option.
- The total length from tip of upper reservoir to tip of lower reservoir is about 5.0 km as compared to around 9.60 km in first option. Hence the overall area of project is reduced and located very compactly.
- Cycle efficiency of the plant is now expected around 80% as against 76.10% (as per first option) due to revised technical features.

- Construction period for completion of project is 3 years only compared to 4.5 years earlier.
- Due to the above reasons, Techno-Economic viability of the Project is improved.

The comparative statement with reference to earlier proposal and revised proposal are presented below:

S.No:	Details	Original TOR	Revised TOR
1	Capacity	1000 MW	1200 MW
2	Project type	Pinnapuram IRESP - Storage Project	Standalone Pumped Storage Component of Pinnapuram IREP
a	Upper Reservoir	Pinnapuram IRESP	Pinnapuram IREP
b	Lower reservoir	Gorakallu Reservoir	Pinnapuram IREP
c	Live Storage	1.00 TMC	1.20 TMC
d	Dead Storage	0.32 TMC	0.17 TMC
e	Full Reservoir level (FRL)	EL +392.00 m	EL +463.00 m
3	Powerhouse	Underground	Surface Powerhouse
4	Number of units	4 Units	5 Units
	Turbine Design Discharge	86.25 cumec for each unit	96.9 cumec for each unit

The land required for pumped storage component has also changed, as discussed below:

S. No	Details	Extent of the Land (ha)	
		As per ToR	As per Revised layout
1	Forest land	283.38	364.79
2	Non-Forest land	97.10	348.90
	Total	**380.48**	**713.69**

4. The PP also mentioned that this being pumped storage scheme and not typically river valley project as this is not located on any river course, some of the standard TOR conditions are not applicable in this case and requested to amend the TOR. The PP informed that since other agencies are involved, all the statutory agencies insist on meeting all TOR conditions as per the scoping clearance letter. EAC agreed on the suggestion and in this regards, MoEF&CC may take a separate call while issuing the amendment letter. The following TOR conditions of **Annexure-1 are not applicable** in case of the present proposal:

S. No:	TOR Conditions
1	Para Nos. 2 (ii), (vii), (viii) and (xiii) related to river, drainage and catchment delineation
2	Para No. 6 (b) related to hydrology studies approved by CWC, Flow series of 90%, 75% and 50% dependable years discharge, Minimum of

	1 km distance from tip of the reservoir, norms for release of e-flows, etc.
3	Para No. 6 (d) (ii) & (iii) related to fish, their migration and conservation
4	Para No. 8 related to CAT plan
	Para No. 9 related to CAD
	Para No. 10 related to Fisheries Conservation and Management
	Para No. 11 related to CAD plan for distributary outlet

5. After discussions, **EAC recommended the project in amendment of ToR/Scoping clearance** due to increase in capacity from 1000 MW to 1200 MW and change in project location and type.

Item No. 17.3 Luhri Stage-I HEP (210 MW) project in Shimla District of Himachal Pradesh by M/s. SJVN Ltd – for reconsideration of environmental clearance (EC)

The Project Proponent (PP) and the Consultant made a presentation of the project and *inter-alia*, provided the following information:

2. The project envisages construction of 86 m high concrete gravity dam across the river Satluj near village Nirath to generate hydropower with an installed capacity of 210 MW. The total land requirement is about 149.0716 ha. Out of this, 98.1004 ha is forestland and 50.9712 ha is private land. Total submergence area is 100.237 ha. A surface dam-toe powerhouse is proposed on the right bank with 2 units of 80 MW capacity each and a dam-toe powerhouse of 2x25 MW capacity each. A total of 349 numbers of families and 8 villages are likely to be affected due to this project. There is no Wildlife Sanctuary/National Park/Eco-sensitive Zone within 10 km radius of the study area. The total estimated cost of the project is about Rs. 1912 Crores.

3. The project was earlier considered by EAC in its meeting held on 27.3.2018 for environmental clearance. The EAC did not deliberate the EMPs in detail and sought the clarifications on the issues viz. EIA Consultant who presented the proposal shall submit the valid accreditation, ADS sought online on 27.07.2017 has not yet been replied by the PP regarding change in the project configuration, details of the PAFs, Displaced Families, baseline data in the report has no clarity and confused between as 'reported' and as 'observed' requires clarification, List of birds species mentioned in the EIA reports needs to be rechecked, baseline data specific to the fish species and their scientific names needs to be revisited. Water quality parameter important for fish species and Fisheries management Plan is not as per the specifications, baseline data and requires clarity etc. The PP has also been advised to get the amendment on priority i.e. reduction of changed in the configuration from 219 MW to 210 MW and also ADS raised subsequently.

4. It was informed that based on the PP request, the Ministry vide letter dated 20.6.2018, issued amendment in TOR for reduction in the installed capacity from 219 MW to 210 MW. Thereafter, the PP submitted online compliance report and requested the Ministry for reconsideration of their proposal for EC.

5. The PP presented all the details to EAC s observations made earlier in its meeting on 27.3.2018. The EAC noted the following:

i. Techno economic Appraisal of detailed project report has been recommended in 343rd CEA meeting held on 16.1.2018. Project has been accorded concurrence by CEA on 1.5.2018.
ii. Project was considered by the FAC for diversion of forest land on 26.7.2018. As per Minutes of Meeting of the FAC meeting, Luhri Stage-I has been recommended for In-Principle Forest Clearance.
iii. The Social Impact Assessment Study of the project was awarded to AFC India Limited by the SIA Unit of Govt. of Himachal Pradesh. Public Hearing was conducted during June and July for all three sub-divisions. Following the Public Hearing, AFC has submitted SIA Report to the SIA Unit on 3rd July 2018. Presently the SIA Report is under evaluation.
iv. EIA Consultant submitted the valid accreditation letter.

6. It has been mentioned that the environmental flow release of 151.83 cumecs (30%) during monsoon period that is June to Sept, 64.35 cumecs (25%) during Non-monsoon, Non-lean period i.e. Oct-Nov and April-May and 18.48 cumecs (20%) during lean period will be released downstream of the dam in line with the TOR. However, the Member-Secretary pointed out that the Satluj River Basin study is in progress and the outcome and recommendations of the study should abide by the PP, once the study report is accepted by the Ministry.

7. The PP presented the proposal in detail viz. CAT Plan, Muck Management Plan, Compensatory Afforestation, Biodiversity Management Plan, Landscaping & Restoration Plan, Management Plan for Air, Water and Noise Environment, Labour, Energy Conservation Measures and Waste Management Plan, Reservoir Rim Treatment & Greenbelt Development, Dam Break Analysis and Disaster Management Plan, Fisheries Management Plan, R&R Plan, Public Health Management Plan etc. The EAC noted the revised cost estimates of the EMP which are presented below:

Table: Cost estimates for implementation of EMP

Sl. No.	Plans	Cost (Rs. in Lakh)
1	Catchment Area Treatment Plan	5668.34
2	Muck Management Plan	513.77
3	Compensatory Afforestation and Bio-diversity Management plan	1408.06
4	Landscape & Restoration Plan	80.00
5	Management Plan for Air, Water and Noise Environment	25.00
6	Labour, Energy Conservation Measures & Waste Management Plan	245.00
7	Reservoir Rim Treatment and Greenbelt Development Plan	108.63

8	Dam Break Analysis and Disaster Management Plan	143.00
9	Fisheries management Plan	92.00
10	Resettlement & Rehabilitation Plan	6243.75
11	Public Health Management Plan	185.40
12	Environmental Monitoring Plan	147.62
Grand Total		**14860.57**

After detailed deliberations, and considering all the facts of the project as presented by the PP, the EAC has recommended the ***proposal for grant of environmental clearance*** with the following condition:

Stage-I FC clearance to be submitted for grant of environmental clearance.

Item No. 17.4 Construction of Adi Badri Dam on Somb Nadi and its piped link to Saraswati Nadi and Saraswati Reservoir by Irrigation & Water Resources Department, Government of Haryana – For TOR

The Project Proponent (PP) made a presentation of the project and *inter-alia*, provided the following information:

2. The committee noted that in order to restore water of Somb Nadi to Saraswati Nadi, it is proposed to construct Adi Badri Dam on Somb Nadi and its piped link to Saraswati Nadi and Saraswati reservoir. Adi Badri dam reservoir and Saraswati reservoir would help in recharging the ground water in Himachal Pradesh and Haryana. Recharge will also take along the course of Saraswati Nadi. The project involves construction of 33.4 m high and 160 m long dam and a pipe link of length of 8.82 km to Saraswati reservoir having a capacity of 861 ha-m. The catchment area of Somb Nadi up-to Adi Badri dam is about 29.50 km. About 31.16 ha of forestland diversion is involved. There is no displacement of family in the project and land required for pipe-link. The Saraswati reservoir is already in possession. The Kalesar Wildlife Sanctuary is approximately 8.529 km from the dam site. The estimated cost of the project is about Rs.108.70 crores.

3. It was also mentioned that the proposed project is not a direct irrigation project. The outcome of the project is rejuvenation of Saraswati Nadi, flood control and ground water recharge. The EAC observed that the aim of the project is not clear as it was mentioned that indirect irrigation is involved and diversion of water during monsoon period shall be carried out to rejuvenate Saraswati Nadi. Therefore, EAC advised that the PP should firm-up the objectives of the project clearly at the first instance and come back to Ministry for consideration for scoping/TOR clearance. The project cannot be accepted in the present form as it is not having any definite objectives. **Hence, the project is deferred** and shall be considered after submission of detailed information regarding quantum of culturable command area taken up for irrigation along with PFR.

Item No. 17.5 Sindh (Seondha) Barrage in Datia District of Madhya Pradesh by Water Resources Department, Government of Madhya Pradesh - for amendment in ToR

The Project Proponent (PP) made a detailed presentation of the project and inter-alia, provided the following information.

2. The project envisages construction of 29 m high barrage across river Sind near Seonda town of Datia District of Madhya Pradesh. The gross command area (GCA) is 66,575 ha and Culturable Command Area (CCA) is 43,275 ha. The total land requirement for the project is 2311.42 ha, of which 525 ha is forestland. Total submergence area is about 2211.42 ha (425 ha is forestland + 1100.42 ha is Government revenue land + 686 ha is private land). A total of 23 villages are coming under submergence. Out of these, 8 villages are coming under full submergence. A total of 766 families are likely to be affected due to this project. The total cost of the project is about Rs. 1,696.82 Crores.

3. The said proposal was appraised by the Environment Appraisal Committee (EAC) for River Valley and Hydro Electric Power Projects (RV&HEP) in its meeting held on 12th April, 2017. The EAC recommended for scoping/TOR clearance. Accordingly, the Ministry granted TOR to this project on 15.05.2017.

4. The PP informed that the scope of the project has been changed and submitted online application on 14.8.2018 and requested the Ministry for an amendment in TOR which was granted in May, 2017. The details of the revised proposal are as follows:

- The project envisages construction of 31 m high and 1740 m long barrage across river Sind near Seonda town of Datia District of Madhya Pradesh. Total live storage of water is about 242.87 MCM. The Culturable Command Area (CCA) is 78,484 ha. The total land requirement for the project is 3337.63 ha. Total submergence area is about 3337.63 ha (799.59 ha is forestland + 1235.25 ha is Government land + 1302.79 ha is private land). A total of 23 villages are coming under submergence. Out of these, 8 villages are coming under full submergence. A total of 766 families are likely to be affected due to this project. The complete canal system is pressurized irrigation system to achieve the optimum utilization of water. The total cost of the project is about Rs. 2244.97 Crores.

- The PP also informed that the project has been renamed as "***Maa Ratangarh Multipurpose Project***" at Datia in place of Sindh (Seondha) barrage Project, Datia.

5. The EAC during the meeting, deliberated on the proposed project based on the information provided by the PP and **recommended for grant of amendment in ToR/Scoping clearance** and also renaming of the project as "***Maa Ratangarh Multipurpose Project***" at Datia in place of Sindh (Seondha) Barrage Project, Datia with the following additional conditions:

(i) The baseline data so collected may also be used in the preparation of EIA/EMP report, apart from fresh three seasons base line data.

(ii) 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 & Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

(iii) Recharge of groundwater in the command area be planned and included in the EMP.

(iv) The project involves 799.59 ha of forest area. Therefore, forest clearance should be obtained for the entire forestland as per the prevailing norms.

Item No. 17.6 Any other time with the permission of the chair.

As no agenda item was left for discussions, the meeting ended with thanks to the Chair.

Subject: **Re: Draft minutes of 17th EAC meeting of RVP held on 27.08.2017-reg.**
To: Dr S Kerketta <s.kerketta66@gov.in>

Date: 09/06/18 07:33 PM
From: Dinkar More <dnkrmore@yahoo.co.in>
Reply-To: Dinkar More <dnkrmore@yahoo.co.in>

Dear Dr.
I think mr n n rai &dr.poonam kumria were not present in the 17th meeting.Pl.verify &correct.
Item 17.2 para 3- line 3 pl correct the repeated words.
Item 17.3 wherever pump storage,correct it to pumped storage.
Rest is ok.
regards

On Thursday, 6 September 2018 11:10 AM, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Dear Sir,

PFA. It is to inform that the MoM was sent to all the EAC Members for their comments on 04.09.2018. After incorporating their comments, the draft MoM is being forwarded with a request to kindly approve the same.

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regards,

Dr. S. Kerketta
Director- IA (Thermal, River Valley & HEP)
MoEF&CC, New Delhi
Phone: 011-24695314 (O), 26113096 (R)

LIST OF MEMBERS

17th MEETING OF RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) FOR RIVER VALLEY & HYDROELECTRIC PROJECTS

DATE : **27th August 2018**

TIME : **10:30 am onwards**

VENUE : **TEESTA HALL, INDIRA PARYAVARAN BHAWAN, NEW DELHI**

Sl.No.	Name of Member	Signature
1.	Prof. Sharad Kumar Jain, Chairman	ABS
2.	Shri. T. P. Singh Member	
3.	Shri. Sharvan Kumar, Member	ABS
4.	Shri N. N. Rai, Member	ABS
5.	Dr. J.A.Johnson, Member	27/8/18
6.	Dr. B. K. Das/ Dr. AK Sahoo Member	ABS
7.	Dr. Vijay Kumar, Member	
8.	Prof. Govind Chakrapani, Member	ABS
9.	Dr. Chetan Pandit, Member	
10.	Dr. Dinkar Madhavrao More, Member	
11.	Dr. R. Vasudeva, Member	ABS
12.	Prof. S.R. Yadav, Member	
13.	Dr. Jai Prakash Shukla, Member	ABS
14.	Dr. Poonam Kumria Member	ABS
15.	Dr. Kerketta, Member Secretary Director (IA-1)	27/8/2018