MINUTES OF THE 37TH MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 30th NOVEMBER, 2022 FROM 03.30 PM – 5.30 PM THROUGH VIDEO CONFERENCE.

The 37th meeting of the re-constituted EAC for River Valley & Hydroelectric Projects organized by the Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi, was held on 30th November, 2022 through video conference, under the Chairmanship of Dr. A. K. Malhotra. The list of Members present in the meeting is at **Annexure**.

Agenda Item No. 37.1

Confirmation of the minutes of 36th EAC meeting

Agenda Item No. 37.2

Shongtong-Karcham (402 MW) Hydroelectric Power Project in District Kinnaur of Himachal Pradesh by M/s Shongtong Karchham Hydro Electric Project, HPPCL – Extension of Validity of Environmental Clearance - reg.

[Proposal No. IA/HP/RIV/263614/2022; F. No. J-12011/58/2007-IA-I]

37.2.1: During the meeting the Project proponent informed that:

i. The proposal is for Extension of Validity of Environmental Clearance of Shongtong-Karcham (402 MW) Hydroelectric Power Project in an area of 77.33ha land in District Kinnaur of Himachal Pradesh by M/s Himachal Pradesh Power Corporation Ltd.

ii. The project is envisaged as a run-of the river (RoR) Scheme on river Satluj in district Kinnaur, Himanchal Pradesh. The barrage site is located near village Powari and the power house is proposed to be located near village Ralli on left bank of river Satluj near confluence of river Bapsa with river Satluj.

iii. The MoEF & CC accorded Environmental Clearance for 402 MW capacity vide letter No. F. No. J-12011/58/2007-IA-I dated 19.05.2011.

iv. MoEF&CC accorded Forest Clearance (Stage-II) for diversion of 63.05 ha Forest land for construction of 402 MW Shongtong-Karcham Hydroelectric Power Project vide letter no.- F. No. 8-78/2010-FC dated 14.11.2012.

v. The Project Proponent has applied on Parivesh portal on 10th November 2022 for Extension of Validity of Environmental Clearance of Shongtong-Karcham (402 MW) Hydroelectric Power Project.

vi. Construction Status of various components of the project as on November-2022 is as follows:

S. No.	Component	Progress till 18.03.2021 75th BoD	Targets fixed till December. 2022	Progress till 21 Nov. 2022
1	Excavation of Intake tunnels including adits and Intake structure	21%	64%	27%

2	Excavation of Desanding Chambers	44%	72%	69%
3	Excavation of Feeder Tunnels (Main & Branch Tunnels a/w GOC)	87%	100%	98%
4	Excavation of SFT i/c adits	14%	52%	31%
5	HRT heading excavation	89%	100%	97%
6	HRT Benching Excavation	30%	50.19%	47%
7	Excavation of Pressure Shaft & BVC including adits	21%	59.44%	42%
8	Excavation of Powerhouse Cavern	100%	-----	100%
9	Excavation of TRT (Adit, Main & Unit TRT & Manifold)	43%	100%	66%
10	Excavation of Draft Tubes (i/c Adits & GOC)	64%	53%	64%
11	Excavation of Surge Shaft (i/c Adits & Roads, Dome)	37%	74.52%	58%
12	Supply of E & M Works	59.22%	---	63.9%

vii. In the course of firming up of hydrological data (i.e. design head and design discharge) the Central Water Commission (CWC) advised that installed capacity of the project could be increased from 402 MW to 450 MW. TEC (Techno Economic Clearance) for the enhanced capacity of 450 MW was granted by Central Electricity Authority (CEA), vide its letter no. 2/HP/CEA/07-PAC/5066-97, dated 08/08/2012.

viii. HPPCL applied for the revalidation of Environment Clearance from 402 MW to 450 MW vide is letter no. HPPCL/GM-SKHEP/EC-Vol.-I /2013-2374-85, dated 29/07/2013.

ix. Expert Appraisal Committee (EAC) of MoEF&CC was apprised of the enhancement in the installed capacity of the project from 402 MW to 450 MW vide letter dated 09.02.2010 while the EC for the same was still under consideration of MoEF&CC.

x. Proposed project was appraised in the 70th meeting of EAC held on 10th December, 2013. The committee noted that:

a. There are no changes in the environmental impacts.
b. All conditions under Environment Clearance (earlier granted by MoEF, GOI) are being complied with.
c. EC already granted holds good for the enhanced capacity also.
d. Committee recommended the revalidation of EC to 450 MW capacity subject to the revised EMP presented by HPPCL in the meeting

xi. The E flow study as required in the EC dated 19/05/2012 was presented by HPPCL in 78th meeting of EAC held on 16 & 17th October 2014. The EAC acknowledged and directed that:

a. Studies were in order, and advised to carry out studies through Hydraulic Rating and Habitat Simulation method for further clarity.
b. Comparative changes in the EMP and updated estimated cost due to enhancement of installed capacity shall be included and submitted
c. Public Consultation process for 450 MW to be completed.

xii. E flow studies with suggested methods were got conducted and submitted in due course of time. The E flow in lean season suggested by NIH (13.56 cumec) was less than that mentioned in the EC (13.60 cumec) therefore the value of EC holds good
xiii. A letter requesting for exemption of Public Hearing was sent to MOEF&CC on 27.08.2015
xiv. MOFF&CC conducted a Cumulative Environment Impact Assessment (CEIA) of Satluj Basin which was recommended for approval by EAC during Dec 2019.
xv. Study made two recommendations with respect to Shongtong Karchham HEP as under:

a. To meet with the oxygen rejuvenation of the river, certain distance needs to be maintained between two successive projects in cascade. Based on this Shongtong Karchham HEP (450MW) will require revision in head

b. Enhanced Environmental flow Requirement in the diverted river stretch of Shongtong Karchham HEP

xvi. Installed capacity of the Shongtong Karchham HEP was proposed to be reduced to 387 MW as per Satluj Basin Study.
xvii. Comments were sought from GoHP regarding reduction of capacity of Shongtong Karchham HEP
xviii. HPPCL responded to the letter through Govt. of HP vide letter dated 22.05.2020. It was submitted that domain of the project could not be changed as the project had made considerable progress with designed installed capacity of 450 MW
xix. A request letter was sent to MOEF&CC for Exemption from obtaining prior Environmental Clearance for the enhanced capacity on 13.07.2020
xx. Basin Study for Satluj basin was discussed in 2nd meeting of EAC in Aug 2020, the observations are given as below:

a. Project proponent should immediately finalize the installed capacity keeping in view the recommendations of Satluj Basin study

b. Apply for Amendment of EC accordingly to get scoping for updating EIA study and complete the public consultation process and then apply for appraisal.

37.2.4: The EAC during deliberations noted the following:

The EAC during deliberations noted that the proposal is for extension in validity of EC dated 19th May, 2011 of Shongtong-Karcham (402 MW) Hydroelectric Power Project. Earlier, the EC validity of River valley and Hydro-electric projects was 10 years and extendable for 3 years in case PP applies within the validity period of EC as per EIA Notification, 2006. Therefore, validity of EC was upto 18.5.2021.

However, the MoEF&CC issued a Notification S.O. 221(E) on 18.01.2021 specifying that the period from 1st April 2020 to 31st March 2021 shall not be considered for the calculation of the period of validity of EC in view of the outbreak of corona virus (COVID-19). In view of above notification, EC validity was upto 18.05.2022.

As per the MoEF&CC Notification S.O. 1886 (E) dated 20.04.2022, the EC validity of River valley and Hydro-electric project is 13 years which can be extended for 2 years. Also, the MoEF&CC O.M. No. IA3-22/10/2022-IA.III [E-177258] dated 11.04.2022 provides that:

"……for the projects which involve forest land and require Stage-I and Stage-II FC under the provisions of the Forest (Conservation) Act, 1980, the validity period of the prior EC granted (after stage-1 FC], shall be reckoned from the date of grant of Stage-II FC, or a maximum period of two years, whichever is less……".

Accordingly, the validity of EC dated 19.05.2011 of Shongtong-Karcham (402 MW) Hydroelectric Power Project is valid upto 13.11.2026.

The EAC also noted that though the proposal before the EAC at present is not for revalidation of EC dated 19th May, 2011 for enhancement in the installed capacity of the project from 402 MW to 450 MW; however, the PP presented the following facts about the same while making presentation regarding the proposal for extension of validity of EC dated 19th May, 2011 for Shongtong-Karchham HEP for 402 MW:

1. Detailed Project Report (DPR) was submitted to CEA for obtaining Techno Economic Clearance (TEC), for the Project. The CEA, GoI, vide its letter no. 2/HP/CEA/07-PAC/5066-97, dated 16/08/2012 granted TEC in favour of Shongtong-Karchham HEP for 450 MW. As per the approved DPR for 450 MW, the location of various project components and layout including the gross head remains the same as that of original DPR of 402 MW. The installed capacity of the project has been enhanced due to additional investigations carried out by HPPCL as per the directions of CEA.

2. Expert Appraisal Committee (EAC) of MoEF&CC was apprised of the enhancement in the installed capacity of the project from 402 MW to 450 MW vide letter dated 09.02.2010 while the EC for the same was still under consideration of MoEF&CC.

3. PP applied for the re- validation of Environment Clearance from 402 MW to 450 MW and the same was considered in the 70th EAC meeting held on 10th -11th December, 2013, 78th EAC meeting held during 16th-17th October 2014 and 2nd meeting held on 31st August, 2020.

4. The EAC after deliberations during 78th EAC meeting held during 16th -17th October 2014 recommended following:

    i. *Environmental Flow Studies was carried out in accordance with the Flow Duration Curve method. While this is generally in order but, for further clarity the same should be carried out through Hydraulic Rating and Habitat Simulation method. This technique shall factor the need of aquatic faunal population. Also, the adequacy of environmental flow in terms of depth, velocity, and top width needs to be checked and proposed a fresh.*
    ii. *EAC noted that as the project domain remains the same for 450 MW except variation in Turbine capacity, HRT diameter, and some additional muck quantity. The comparative changes in EMP and 4 updated estimated cost due to enhancement of installed capacity from 402 MW to 450 MW shall be included and submitted.*
    iii. *Public Hearing for 450 MW to be carried out as soon as possible.*

EAC also noted that vide letter dated 14.01.2015 it was also communicated to PP that 3 months have passed after 78th EAC meeting; however, compliance of EAC observations was not submitted by PP in the MOEF&CC, therefore, file was closed and proposal was delisted from Ministry's website. HPPCL intimated vide letter dated 06.01.2017 to MOEF&CC that they are in process of conducting Public hearing for enhanced capacity of the project from 402 MW to 450 MW HPSPCB.

Meanwhile, MOFF&CC conducted a Cumulative Environment Impact Assessment (CEIA) of Satluj Basin which was recommended for approval by EAC during December, 2019. CEIA Study of Satluj Basin made two recommendations with respect to Shongtong Karchham HEP as under:

a. To meet with the oxygen rejuvenation of the river, certain distance needs to be maintained between two successive projects in cascade. Based on this Shongtong Karchham HEP (450MW) will require revision in head. Installed capacity of the Shongtong Karchham HEP was proposed to be reduced to 387 MW.

b. Enhanced Environmental Flow Requirement in the diverted river stretch of Shongtong Karchham HEP. Installed capacity of the Shongtong Karchham HEP was proposed to be reduced to 387 MW to maintain free flow stretches i.e. minimum 1 km distance between TWL of this project with FRL of another project located downstream.

In view of recommendation of *CEIA Study of Satluj Basin*, the Directorate of Energy, Govt. of Himachal Pradesh vide letter no. HPDoE/CE (Energy)/CEIA Satluj Basin/2018-19-428-29 dated 22.05.2020 communicated that said project is already in advance stage of construction and has achieved almost 31% of physical progress and 40% financial progress as on date. In view of the project having reached at such an advanced stage, it is not possible to change the layout of the project.

The EAC discussed the matter in its 2nd meeting held on 31st August, 2020 and made following observations:

a. Project proponent should immediately finalize the installed capacity keeping in view the recommendations of Satluj basin study;

b. Apply for amendment of EC accordingly to get scoping for updating EIA study.

c. Complete the public consultation process and then come for appraisal. Ministry may take a separate call whether the PP can continue with construction during the period of study and appraisal.

37.2.6: The EAC after detailed deliberations was of the view that the since PP has enhanced the capacity of the project from 402 MW to 450MW without taking prior consent of the MoEF&CC. Furthermore, recommendations made by the EAC on 31st August, 2020 were also not followed. The EAC also observed that information submitted by PP is not adequate to estimate the damage caused to the environment due to start of project construction for increased capacity i.e.450 MW. Accordingly, the EAC decided to conduct a site visit by following EAC sub-committee members before making any recommendations on proposal:

i.	Dr. A.K. Malhotra	-	Chairman
ii.	Dr. N. Lakshman	-	Member
iii.	Shri Sharvan Kumar	-	Member
iv.	Dr. Uday Kumar R. Y.	-	Member
vi.	Representative from MoEF&CC	-	Member

The Chairman, EAC co-opted Shri K. Gowarappan, environmental damage assessment expert/ex-member of the Violation Committee, MoEF&CC as a member of the sub-committee who will conduct the site visit.

The EAC therefore deferred the project for site visit.

Agenda Item No. 37.3

Cumulative Impact Assessment and Carrying Capacity Study (CIA & CSS) of Teesta River Basin Study in West Bengal by M/s. West Bengal State Electricity Distribution Company Limited (WBSEDC Ltd) - For acceptance of study report - reg.

37.3.1: The Member Secretary informed the EAC that:

1. The Study of Cumulative Impact Assessment (CIA) & Carrying Capacity Study(CCS) of Teesta Basin for West Bengal portion was initiated at the instance of MOEF&CC, Government of India while according prior Environmental Clearance to Teesta Low Dam –V HEP in May 2013, with the main focus on the impacts resulting from implementation of hydro power projects in the Teesta basin in West Bengal. The CIA&CCS of Teesta Basin for Sikkim portion has already been completed in 2007.

2. The study was carried out in Teesta river and its tributaries (Rangit, Rammam, Reang Khola) flowing in the hilly terrain of West Bengal. This study focus on the various impacts resulting from implementation of hydro power projects in the Teesta River basin & its tributaries in West Bengal portion. Total 11 Hydro-electric projects (commissioned/ construction/proposed) of Teesta River Basin including the projects on Rammam River and Rangit River were included in the Teesta River basin study.

3. The proposal for Teesta River Basin Study in West Bengal was considered and recommended the ToR of proposed studies by EAC in its 70th EAC meeting held on 10th-11th December, 2013.

4. EAC has considered study Report in its following meetings:
   a) The Interim Report was appraised by EAC(RIV&HEPs) in its 96th Meeting held on 11th and 12th August 2016.
   b) The draft Report was appraised by EAC in its 22nd meeting (on 27.02. 2019) and deferred the proposal with requirement of additional information as below:

      i. Detailed report on phytodiversity (algae, Lichens, bryophytes Pteridophytes, gymnosperms & angiosperms) endemism, RET species, species from CITES list based on primary and secondary data has to be provided as it is an important data for conservation and sustainability in future. Biodiversity has to be looked carefully in any EIA report.
      ii. The present RBS has to be linked with the Teesta RBS in Sikkim which has already been completed long before. It was suggested that the last project on Teesta river in the state of Sikkim shall be configured with the first project on Teesta river in West Bengal for the aspects of Environmental Flow releases, Free Flow stretch and other parameters.
      iii. The total number of hydroelectric projects (operational, under construction and proposed) to be considered in the RBS shall be finalized and freeze in consultation with the state government. No other HEPs shall be considered once the RBS is finalized.

As per EAC observation the M/s WAPCOS submitted information are as under:

i. Detailed list of phytodiversity (algae, Lichens, bryophytes Pteridophytes, gymnosperms & angiosperms), RET species along with species from CITES was presented.
ii. A total Six HEP was considered in the Teesta Basin Report of Sikkim Portion on Teesta River, which submitted in year 2006. The Last HEP on Teesta River in Sikkim State is Teesta Stage-VI HEP and its Power House is on Sikkim and West Bengal Border. The Teesta Stage-VI HEP starting from Power is also considered in the Teesta Basin Report of West Bengal Portion and the Free Stretch between TWL of Teesta VI HEP & FRL Teesta Intermediate HEP (which is first project on Teesta River in West Bengal) is about1.4 km.
iii. It was informed by WBSEDCL representative in EAC meeting that State Government of West Bengal has given its concurrence on the recommendation of Basin Study Report. Department of Power & NES, Govt. of West Bengal, conveyed its concurrence on the recommendations of the Draft Teesta Basin Study Report regarding development of HEPs (Operation, under Construction and Proposed) considered in the CIA&CCS of Teesta River Basin report in West Bengal for final acceptance vide letter No. PO/O/C-III/4M- 13/2017 dated 18.04.2019. Therefore, the EAC did not take separate cognizance for acceptance of the recommended HEPs from the Govt. of West Bengal separately.

5. Further, EAC in its 23rd meeting (23.04.2022) deliberated on the information submitted by the WAPCOS. After detailed deliberations on the study report, and compliance report on the observation of EAC, the following recommendations were made by the EAC during 23rd meeting**:**

i. Free flow stretch will be available for a stretch of 27.97 km out of a total stretch of 51.55 km on main Teesta river.
ii. The Teesta Low Dam V HEP has been accorded TOR Clearance by EAC of River Valley Project of Ministry of Environment, Forest & Climate Change in 2013 vide letter No-J-12011/39/2012-IA.I, dated 23.08.2013. The validity of TOR is for 4 years, and the project proponent will have to get fresh TOR since the earlier ToR is no more valid now.
iii. It is recommended while appraising Teesta Low Dam V HEP for TOR Clearance, that the NBWL Clearance, which was a condition in the TOR Clearance in the year 2013, should still continue. In addition, additional studies to assess the impacts on Mahananda Wildlife Sanctuary should also be considered, while appraising the project for TOR Clearance. Impacts on Elephant migratory route is one such study. Likewise, special study on impacts on flora and fauna of the sanctuary during construction phase can also be recommended.
iv. Four hydroelectric projects are operational/ under construction for which provision of Environmental Flows has not been made. Only spills in monsoon months are expected on those days, when discharge is higher than rated discharge. The four hydroelectric projects operational/ under construction are as follows:

Teesta Stage-VI HEP (500 MW)
Teesta Low Dam–III HEP (132 MW)
Teesta Low Dam–IV HEP (160 MW)
Jorethang Loop HEP (96 MW)

v. Free flow stretch for about 4.124 km is available in HEP's located on river Great Rangit.
vi. It is recommended that in addition to spills in monsoon season for Teesta Low Dam- IV HEP an Environmental Flow of 1.25 cumec be released by project proponent, which should be maintained in all the non-monsoon months.

vii. In absence of sufficient data on river cross-section for Teesta Stage-VI and Teesta Low Dam-III HEP which are located upstream of Teesta-IV Low Dam HEP, a discharge of 1.25 cumec be released in non-monsoon months as Environmental Flows, in addition to the spills in monsoon season.

viii. As mentioned earlier, Rammam-II & Rammam-III are under operation and construction stage respectively. However, for Rammam-I and Rammam Intermediate HEP Environmental Flows have been recommended as per the following Norms:

Monsoon Season	30% of average Discharge of monsoon season for 90% DY
Non MNL season	25% of average Discharge of Non-Monsoon Lean season for 90% DY
Lean Season	20% of average Discharge of lean season for 90% DY

ix. It is recommended to change the layout of Rammam Intermediate HEP to ensure that free stretch is available between TWL of Rammam-I HEP and FRL of Rammam Intermediate HEP.

x. The recommended Environmental Flows for HEPs for which cross sections are available are given in Table-.

Recommended Environmental Flows for 90% DY for various HEP

Month	**Teesta Low Dam (I&II)**	**Teesta Intermediate**
Monsoon Season	20% *(61.64 m^3/s)*	20% *(147.56 m^3/s)*
Lean season	15% *(3.78 m^3/s)*	15% *(69.12 m^3/s)*
Non-Monsoon Non-lean season (April-May)	20% *(22.52 m^3/s)*	20% *(64.34 m^3/s)*
Non-Monsoon Non-lean season (October-November)	23% *(12.96 m^3/s)*	23% *(34.13 m^3/s)*

xi. As per the NGT order on Environmental Flows, the minimum Environmental Flows for lean season shall be as 15% of average discharge of lean season for the last project in Teesta River falling in Sikkim i.e. Teesta Stage VI HEP. The recommended Environmental Flows for Teesta Stage VI HEP is 15% of average discharge of lean season i.e.16.06 m3/s.

6. The proposal was recommended by EAC for approval of the CIA and CCS of Teesta river basin in West Bengal in the 23rd EAC meeting (23.04.2019). Thereafter, Govt. of West Bengal was requested by MOEF&CC, vide letter dated 26.10.2021, for submission of final compiled report to MoEF&CC. Accordingly, Govt. of West Bengal has submitted compiled report of Cumulative Impact Assessment (CIA) & Carrying Capacity Study(CCS) of Teesta River Basin in West Bengal after incorporation of the comments raised by EAC during 22nd EAC meeting vide letter dated 17.05.2022.

7. The report has already been recommended by earlier 23rd EAC meeting. But compiled final report (May 2022) after incorporated suggestions /recommendations during 22nd EAC (27.02.2019) has not been appraised in the EAC meeting. Therefore, before considerations for accepting the compiled report of the CIA and CCS of Teesta river basin in West Bengal (May 2022), the compiled report placed in 36th EAC meeting 15.11.2022 for recommendation of EAC.

37.3.2: The compiled report of the CIA and CCS of Teesta river basin in West Bengal (May 2022) discussed in 36th EAC meeting held on 15.11.2022, the members opined that, since the present EAC was not involved in the whole process of framing the TOR of the study and deliberations held for finalizing the study report. Therefore, the WBSEDC Ltd along with M/s WAPCOS, who

conducted the study, may be invited in the next meeting to present the compiled report submitted in May, 2022, before making any recommendation for acceptance of the study report.

37.3.3 WBSEDC Ltd along with consultant M/s WAPCOS made a detailed presentation on the compiled report on Cumulative Impact Assessment (CIA) & Carrying Capacity Study(CCS) of Teesta river basin in West Bengal portion during 37th EAC meeting held on 30.11.2022. The EAC examined the compiled report in detail as presented by M/s WAPCOS. The EAC observed that the study report contains valuable information about current status of ecosystem services and impact on sustainability of these services in the event of HEPs development in the river basin. It will also provide beforehand information while conducting EIA for individual projects and preparation of EMP accordingly. The study will facilitate the authorities to plan developmental activities in the river basin with approach of sustainable development.

EAC recommended for approval of the compiled CIA and CCS report of Teesta river basin in West Bengal portion.

The meeting ended with vote of thanks to the Chair.

****

ANNEXURE

ATTENDANCE LIST

Sr. No.	Name & Address	Role	Attendance
1.	Dr. A. K. Malhotra	Chairman	P
2.	Dr. Uday Kumar R. Y.	Member	P
3.	Shri Ashok Kharya	Representative of CWC	P
4.	Shri Sharvan Kumar	Representative of Central Electricity Authority (CEA)	P
5.	Dr. N. Lakshman	Member	
6.	Shri Yogendra Pal Singh	Member Secretary	P

****

APPROVAL OF THE CHAIRMAN

From: ajitkumarmalhotra463@gmail.com
To: "Yogendra Pal Singh" <yogendra78@nic.in>
Sent: Tuesday, December 20, 2022 12:59:27 PM
Subject: Re: Draft MOM of the 37th EAC (RV&HEP) meeting held on 30.11.2022-reg

Dear Dr. Y.P.Singh
I have gone through the above minutes and find them in order.

Dr. A.K.Malhotra

On Mon, Dec 19, 2022 at 4:24 PM Yogendra Pal Singh <yogendra78@nic.in> wrote:

> Dear Sir,
>
> No comments received from members of the EAC till date. Accordingly, the draft MOM are attached herewith for approval please.