

Minutes of the 9th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 24.10.2017 at Teesta Meeting Hall, Indira Paryavaran Bhavan, Jor Bagh Road, New Delhi-3.

The 9th meeting of the re-constituted EAC for River Valley & Hydroelectric Projects was held on 24.10.2017 with the Chairmanship of Dr. Sharad Kumar Jain in the Ministry of Environment, Forest & Climate Change at Teesta Meeting Hall, 1st Floor, Vayu Wing, Indira Paryavaran Bhavan, Jorbagh Road, New Delhi. The following members were present.

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| 1. | Dr. Sharad Kumar Jain | - | Chairman |
| 2. | Shri Sharvan Kumar | - | Representative of CEA |
| 3. | Shri N.N. Rai | - | Representative of CWC |
| 4. | Dr. J.A. Johnson | - | Representative of WII |
| 5. | Dr. A.K. Sahoo | - | Representative of CIFRI |
| 6. | Dr. Poonam Kumria | - | Member |
| 7. | Dr. J.P. Shukla | - | Member |
| 8. | Dr. S. Kerketta | - | Member Secretary |

Dr. R. Vasudeva, Dr. Vijay Kumar, Dr. T.P. Singh, Shri Chetan Pandit, Dr. D.M. More, Dr. S.R. Yadav and Dr. Govind Chakrapani could not present due to pre-occupation. The deliberations held and the decisions taken are as under:

Item No. 9.0 Confirmation of minutes of 8th EAC meeting.

The Minutes of the 8th AC (River Valley & Hydroelectric Projects) meeting held on 22.9.2017 were confirmed.

Item No. 9.1 Expansion of Tubachi-Babaleshwar Lift irrigation Scheme in Bagalkot District of Karnataka by M/s. Karnataka Neeravari Nigam Ltd, Govt. of Karnataka - For fresh ToR

The Project Proponent (PP) and the Consultant, M/s Health and safety Consultant, Bengaluru made a presentation of the project and *inter-alia*, provided the following information:

The project envisages diversion of 3.8 TMC water from Krishna River near Kavatagi Village by lifting and providing Irrigation facility (by drip irrigation) in 42,600 ha of dry land benefiting 36 villages. The proposed irrigation is only during Khariff season and the intensity of irrigation is kept at 100%. The gross command area (GCA) is 56,600 ha and Culturable command area (CCA) is 42,500 ha. Total land requirement is about 105 ha. About 0.73 ha of forestland is involved. An intake channel, for a length of 1.3 km on left bank of Krishna river, is proposed to draw 3.8 TMC of water. Thereafter, the water is proposed to be pumped to Delivery Chamber - 1 through MS raising main of 30.3 km length to irrigate 19,600 ha of command area and Delivery Chamber-2 through raising main of 13.3 km to irrigate 22,900 ha. The entire water distribution is automated and controlled by supervisory control and data acquisition (SCADA) system. The estimated project cost is about Rs. 2,488.97 Crores.

This project was earlier considered by EAC as per the provisions of EIA Notification, 2006 and its subsequent amendments. The Environmental Clearance for this project was granted on 31.7.2015.

The EAC noted that M/s Karnataka Neeravari Nigama Ltd., Government of Karnataka submitted a proposal for expansion of existing project due to demand from farmers to increase in command area from 42,500 ha to 52,700 ha with an **additional allocation of 2.473 TMC of water** (totaling to 6.273 TMC i.e. 3.8 TMC for existing + 2.473 TMC for expansion) benefitting 31 more villages.

Total land requirement is about 2,419 ha. About 0.73 ha of forestland is to be acquired due to this project. An intake channel for a length of 2.0 km is proposed to draw 6.273 TMC of water to irrigate 52,700 ha. The Government of Karnataka vide G.O. No. WRD-20 KBN-2016 dated 31.8.2017 allocated 6.273 TMC of water for the proposed project under Indira-Sagar Polavaram Scheme-A. The estimated project cost is about Rs. 3,572 Crores.

After detailed deliberations and considering all the facts of the project as presented by the PP, the EAC observed that this is not an expansion of the existing project and now the total command area is 52,700 ha with an additional water allocation of 2.473 TMC benefitting 31 more drought prone villages. This is altogether adding additional command area and fresh scheme therefore there is a need to study again and fresh TOR has to be given for the project covering entire command area of 52,700 ha. The committee recommended for grant of scoping/TOR clearance for the proposed project with the following observation/additional conditions along with the standard ToR:

- i. Three (3) season data should be collected for the entire project. The data collected in the earlier project, if it is not more than 3 years old, could be utilized in preparation of EIA/EMP report.
- ii. A detailed irrigation management plan should be worked out so that at least 10% of the CCA would be covered by micro irrigation scheme.
- iii. The issue of conjunctive irrigation may also be considered in the project right from the formulation stage.
- iv. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines.
- v. The new command area added in the project is within the same Districts as mentioned in earlier project for which the public hearings were already conducted and hence, fresh public hearing is not required. However, the project proponent is advised that after preparation of EIA/EMP report, the same could be displayed at least for one month in the website of the SPCB to invite any comments/suggestion from the general public. The comments, if any received, shall be intimated to the Ministry and also included in the EIA/EMP report.

Item No. 9.2 Bursar HEP (800 MW) in Kishtwar District of Jammu & Kashmir by M/s. NHPC- For fresh Environmental Clearance

The Project Proponent (PP) and the Consultant, M/s. Centre of Research for Development (CoRD), University of Kashmir made a presentation of the project and *inter-alia*, provided the following information:

The project is proposed on Marusudar River (a tributary of Chenab River) near village Pakal in Kishtwar District of Jammu & Kashmir with an installed capacity of 800 MW. The project is a storage scheme permitted under Indus Water Treaty. Bursar is the first such project with storage capacity of 0.5 MAF in Chenab Basin and has been declared as National Project and is under the Prime Minister Reconstruction plan for J&K.

The project envisages construction of 265 m height concrete gravity to generate hydropower with an installed capacity of 800 MW. Initially, project involved forest area inside Kishtwar High Altitude National Park (KHANP), therefore, as per approved TOR, NOC was to be obtained from concerned Authorities for undertaking pre-construction activities. Subsequently, as per Department of Forest, Environment & Ecology, Government of J&K's SRO Notification 212 dated 6.7.2015, the boundaries of KHANP has been readjusted and the inhabited areas/villages falling under the protected area have been excluded from the National Park. After readjustment of the KHANP boundaries, it has been observed that the proposed project is now falling outside the revised boundary of KHANP but lies within 10 km from the boundary of the said park. Eco-Sensitive Zone for the KHANP has not been declared so far.

The Scoping/ToR clearance was granted on 5.10.2012 for 1200 MW installed capacity. During 2015, the NHPC submitted a proposal for downward revision of the capacity from 1,200 MW to 800 MW and extension of the validity of TOR. This was done in order to keep a minimum of 1 km distance between upstream/downstream projects and adhering to prevailing e-flow norms of the Ministry. The project parameters (dam height, design flood, live storage, etc.) remain unchanged except shifting of powerhouse and providing dam-toe powerhouse for maintaining environmental flow at the downstream. The Ministry granted extension of validity of TOR with 800 MW installed capacity for this project on 3.08.2015.

Total land requirement is about 1779.33 ha, out of which 1149 ha is forestland (including underground component which is the forestland for tunnel portion), 568.66 ha revenue/private land and 61.67 ha government/state land. Total submergence area is about 1442.71 ha (of which 883.31 ha is forestland). Initially, the FC clearance for 577 ha forestland, which was falling outside the KHANP was accorded by J&K Government on 16.6.2005. Due to this realignment/readjustment of KHANP, the PP informed that forest clearance application has been submitted again for revised alignment. One dam-toe powerhouse at Village Pakal with 120 MW (3x36 MW + 1x12 MW) to maintain environmental flow and another surface powerhouse at Village Lopara with 4 units of 170 MW installed capacity each are proposed. A total of 7 villages with 18 hamlets consisting of 1,052 families (Fully affected -336 families + Partially affected -716 families) are likely to be affected due to this project. The R&R plan for the Project-Affected Families (PAFs) shall be followed as per the Kishanganga HEP R&R plan and shall be implemented accordingly. The total estimated cost of Project is about Rs. 24,589.38 Crores (October, 2016 PL and the project is proposed to be completed in 163 months (including pre construction period of 36 months for infrastructural works).

The Public Hearings were held near village Tiller, Tehsil Marwah in Kishtwar District of J&K on 21.9.2017 and near village Lopara, Tehsil Dachhan in Kishtwar District of J&K on 23.9.2017. The PP informed that all the issues raised during the Public Consultation have been incorporated in the EIA/EMP report. The socio-economic survey of the study area was carried out. Thereafter, the final EIA/EMP reports were submitted to the Ministry for environment clearance.

The various environmental aspects covering catchment area, submergence area and project influence area, i.e. area within 10 km radius from main project components have been considered. The baseline data has been collected covering Physico-chemical aspects, biological aspects and socio-economic aspects. Three seasons' data have been collected for air, noise, water, soil and ecological aspects. Impacts during construction and operation phases have been assessed and mitigation measures suggested for minimizing the anticipated impacts.

The salient features of the project in the EIA/EMP reports are as under:

- i. The total disposable muck shall be about 120 lakh cum (Including the swell factor, etc.). The project is likely to generate 87.98 lakh cum of muck due to excavation, out of which, 31 lakh cum will be utilized for various project components and the balance muck will be dumped in 3 designated dumping sites having a total area of 65 ha. The sites will be rejuvenated using integrated biological & biotechnological measures (both engineering and biological measures). An amount of Rs. 356 lakhs has been allocated for the purpose.
- ii. The compensatory afforestation programme will be taken up in 2,276 ha of degraded forestland which is double the forestland diverted for the project.
- iii. Under Biodiversity Conservation and Management Plan the following programs have been proposed:
 - a) Biodiversity Conservation Cell
 - b) Habitat Improvement Programme
 - c) Botanical Gardens with Butterfly Habitat
 - d) Management measures for Forest Protection and Wildlife species

An amount of Rs. 1234.60 lakh has been allocated for implementation of the Biodiversity Conservation & Management Plan.

- iv. Rim Reservoir Treatment and Greenbelt plan will be developed for which Rs. 605 lakh has been allocated for the purpose.
- v. Fishery development and management plan is proposed for the conservation of fish in river & reservoir, movement of migratory fish species and economic upliftment of the region. Under this programme, establishment of hatchery, maintenance of downstream flow and maintenance of tributaries have been proposed. A grant of Rs. 715 lakh has been allocated for this purpose.

The catchment area of the project is 3060 km², the Marusudar river originates from two streams namely Batkot and Gumbar, rising in the glaciers on the slopes of Nunkun Peak of the Great Himalayas, join at Yurdu to form Warwan River which is known as river Marusudar. Many streams join the Marusudar river from both right and left banks. Up to the proposed dam site at Pakal, the Marusudar River traverses a distance of about 86 km. The year 1999-2000 worked out to be as 90% dependable year. **A GLOF of 2,963 cumec at glacial lake location and a GLOF of 371 cumec have been estimated at proposed Pakal dam site.** Rate of sedimentation of 0.1 ham per km² per year including 15% bed load has been adopted for the proposed project.

The PP submitted that the downstream population would be less impacted as these communities are not dependent on Marusudar river for drinking and irrigation purpose. The E-flow will be released for sustenance of aquatic fauna. The E-flow to be released in various seasons is as follows:

Season	Average discharge for 90% dependable year	% to be released	E-flow release
Monsoon*	211.10 cumec	30	63.20 cumec
Lean **	15.50 cumec	20	3.10 cumec
Non- monsoon /non-lean#	51.20 cumec	25	12.80 cumec

* June-September, ** November - April and # October & May

The EMP has been prepared based on predicted impact, actual requirement and incorporating suggestions of local people, stakeholders, etc. with the details as provided in the table below:

Table: The cost estimated for implementation of EMP (Rs. in lakhs)

Sl. No.	EMP heads	Amount
1.	CAT Plan	1501.44
2.	Biodiversity Management Plan	1234.60
3.	Fisheries Conservation and Management Plan	715.00
4.	R & R Plan & LAD Plan	21141.00
5.	Reservoir Rim Treatment and GB Dev. Plan	605.00
6.	Rejuvenation of Muck Disposal Sites	356.00
7.	Restoration of Quarry Sites & Landscaping	426.00
8.	Disaster Management Programme	750.00
9.	Air, Noise & Water Management Plan	250.00
10.	Health Management Plan	568.36
11.	Labour Management Plan	22.00
12.	Sanitation & Waste Management	1085.12
13.	Environmental safeguards during construction activities including road construction	65.00
14.	Energy Conservation Measures	197.56
15.	Environmental Monitoring Plan	125.00
	Total	29,042.08

After detailed deliberations, and considering all the facts of the project as presented by the PP including the Public Representation, the EAC suggested for a site visit of the project by its Sub Committee during early November, 2017 and submit a report on the project. **The EAC members felt that the proposed location is located in a rich biodiversity area, Kishtwar High Altitude National Park is located within 10 km radius of the project site, addressing of deep pools and their season migratory path in between dam to power house for fish spawning, etc. After submission of the site visit report of the Sub-committee, the proposal will again be reconsidered before the EAC for grant of EC.**

EAC suggested the following members in the sub-committee to visit the project site before taking a final view on the project:

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| 1. | Dr. D.K. More | - | Chairman |
| 2. | Dr. T.P. Singh | - | Member |
| 3. | Dr. S.R. Yadav | - | Member |
| 4. | Director/Dr. A.K. Sahoo | - | Member & Rep. of Director CIFRI |
| 5. | Rep. of MoEF & CC | - | Member Secretary |

In case any of these member(s) are not available for site visit, Member-Secretary (EAC) will consult the Chairman to identify another member(s).

The committee also mentioned the following:

- i. The project involves about 1,149 ha of forestland. Forest clearance should be obtained as per the prevailing norms of Government of Jammu & Kashmir.
- ii. The project is outside the project boundary of Kishtwar High Altitude National Park (KHANP). However, KHANP is within the 10 km radius of the project site.
- iii. Endemic fish species and spawning grounds availability to be indicated from the secondary sources in the area including the zone of influence, if any.

Item No. 9.2 Pancheshwar Multipurpose Project in Uttarakhand by Pancheshwar Development Authority (PDA) – For Environmental Clearance

The Project Proponent (PP) and the Consultant, M/s WAPCOS, Gurgaon made a detailed presentation of the project and *inter-alia*, provided the following information:

The Pancheshwar Multipurpose Project (PMP) is a Joint Venture scheme between India and Nepal being implemented by the Pancheshwar Development Authority under Mahakali Treaty under Ministry of Water Resources, River Development and Ganga Rejuvenation. The project primarily aimed at energy production. In addition, the project aims to enhance the food grains production in both the countries by providing additional irrigation resulting from river regulation. Due to moderation of flood peaks at reservoir(s), incidental flood control benefits have also been envisaged from the proposed project.

The Pancheshwar dam is proposed at about 2.5 km downstream of the confluence of Sarju with the Mahakali River, a primary tributary of the Mahakali from India. A re-regulating dam is proposed downstream of main dam to even out peaking flows from Pancheshwar powerhouses for meeting irrigation water requirement and to exploit hydro potential of the basin below Pancheshwar. For this purpose, two alternative locations were identified; one at Rupaligad, 25 km downstream of main dam and other at Purnagiri, 61 km downstream main dam. Finally, the Rupaligad site has been selected for re-regulating dam. The project structures, including the reservoir area, lie in Champawat, Pithoragarh and Almora Districts of Uttarakhand state in India and in Baitadi and Dharchula districts of Far Western Development Region in Nepal.

The project will have an incidental flood mitigation effect, reducing risk of flooding along the lower course of Mahakali (Sarada) river, both in the Nepalese and Indian territories. It is expected to protect low-lying areas in Chandani-Dodhara villages along the west bank of Mahakali River in Nepal. Further, around 10,000 ha of area in District Pilibhit and 90,000 ha in District Lakshmipur Kheri in Uttar Pradesh (India) are inundated almost every five years in the Sarada basin due to floods in a stretch of 60 km of the river which would get protected from floods of 25 years frequency, in the post-Pancheshwar project development scenario.

The project envisages construction of 300 m high rock-fill dam across Mahakali river from the deepest foundation for generation of hydropower with an installed capacity of 5,040 MW. The total land requirement for the project is about 14,100 ha (Indian portion – 9,100 ha + Nepal portion – 5,000 ha). The submergence area is 11,600 ha. Two underground powerhouses, one on each bank of river is proposed with 6 units of 400 MW each (6x 400 MW – on left bank + 6x400 MW-on right bank= 4,800 MW). Re-regulating dam has been proposed at Rupaligad, 27.0 km downstream of Pancheshwar Main Dam. Two powerhouses, one on each bank of the river are proposed with 2 units of 60 MW capacity each (2x60 MW -on left bank+ 2x60 MW – on right bank= 240 MW). The catchment area of the project is about 14,147 km². About 123 villages in Pithoragarh, Almora and Champawat Districts of Uttarakhand in

India and 25 VDC and one Municipality in Darachukla & Baitadi Districts in Nepal are likely to be affected due to this project. **The Ascot Wildlife Sanctuary is located about 300 m from the reservoir tip of the project and no area of this wildlife sanctuary will be acquired for the project and no impact is anticipated on wildlife sanctuary.** Three major temples, Pancheshwar, Rameshwar and Taleshwar, are likely to be submerged due to this project. The estimated project cost is about Rs. 33,108 crores.

Power potential of the Pancheshwar Dam

Dam	IC (MW)	Rated Discharge	Operating hours	Annual Energy (GWh)
Pancheshwar	4,800	2,208 cumec	3.84	7,678
Rupaligad	240	600 cumec	24	1,438
Total	5,040	--	--	9,116

The Ministry granted Scoping clearance/Terms of Reference (TOR) to Pancheshwar Multipurpose project on 13.10.2016 for construction of 315 m high rock-fill dam across Mahakali river from the deepest foundation for generation of hydropower with an installed capacity of 5,600 MW and to undertake study at the proposed project site as per the EIA Notification, 2006 and subsequent amendment in 2009 for preparation of EIA/EMP report. While issuing the TOR on 13.10.2016, in the letter it was mentioned that:

- i. A joint mechanism be set-up for considering the assessment of environmental impact of the full project. While considering the full project by the proposed joint mechanism, the TOR shall be modified for the full project and shall accordingly appraised before EAC for approval.*
- ii. The EIA/EMP prepared for the full project by the Project Proponent should be placed before the entity established through the joint mechanism for examination and its recommendations to be submitted to the Ministries of Environment in both countries for acceptance.*

The issue was discussed during 5th EAC Meeting held on 31.5.2017. The Member Secretary informed the EAC that the Secretary, MoWR, RD & GR had written to the Ministry mentioning that EIA report for this project for the Nepal side has been approved by Govt. of Nepal on 16.10.2014. It was also informed that in connection with the formation of Joint Mechanism, an internal meeting was held on 20.2.2017, which was attended by the officials of MoEF & CC and MEA and the current status of the activities on EIA report was discussed. It was informed that both sides have significantly progressed in preparation of EIA/EMP report of the project. Under such circumstances, it was proposed that *in lieu* of considering the assessment of environmental impact of full project through Joint Mechanism, separate EIA/EMP reports of the project for Indian side & Nepal side be placed before the EAC for considering the EIA of full project. The committee also noted that the EIA/EMP studies as depicted in the model TOR of MoEF & CC effective from April, 2015 shall be carried out. While discussing the issue during 5th EAC Meeting held on 31.5.2017, the EAC was of the view that as of now and considering the progress of preparation of EIA reports, setting up of the Joint Mechanism would rather delay the process of this important international project. Hence, the Committee felt that let the Public Hearing be conducted based on the EIA report for Indian portion and the Project Proponent may approach the Ministry for final appraisal for Environmental Clearance.

It was also informed that the DPR & EIA study reports have been prepared and the documents have been submitted to Government of Uttarakhand for conducting Public Hearing for the project for Indian portion in Uttarakhand as per EIA Notification, 2006. The PP submitted the final EIA/EMP report and public hearing proceedings to the Ministry during October, 2017 for appraisal of EC. The project has been considered for Indian portion as per EIA Notification, 2006.

The Public Hearings were conducted in 3 Districts, viz. (i) Local Meeting Hall, Vikas Khand Barakot, Tehsil Champawat, District Champawat on 09.08.2017, (ii) Local Vikas Bhavan, District Pithoragarh on 11.08.2017 and (iii) Dhaula Devi Meeting Hall, Block Banoli, District Almora on 17.8.2017. The PP informed that all the issues raised during the Public Consultation have been incorporated in the EIA/EMP report. The socio- economic impact assessment was carried out separately and report was also submitted. Thereafter, the final EIA/EMP reports were submitted to the Ministry for environment clearance.

The various environmental aspects covering catchment area, submergence area and project influence area, i.e. area within 10 km radius from main project components have been considered. The baseline data have been collected during Summer (May-June, 2015), Monsoon (August-Sept., 2015) and Winter (Dec., 2015-Jan., 2016) on Air Environment, Water Environment, Land Use Pattern, Terrestrial Ecology, Aquatic Ecology, Socio-economic aspects, etc. Impacts during construction and operation phases have been assessed and mitigation measures suggested for minimizing the anticipated impacts have been presented by the PP.

The salient features of the EIA/EMP reports of the project are as under:

- i. The Pancheshwar Dam complex is likely to generate 53.98 Mm³ of muck due to excavation and Rupaligad Dam would generate 2.91 Mm³ of muck. Considering 85% of the muck and swelling factor as 1.4, 64.26 Mm³ of muck will be utilized for infrastructure and other components of the project and remaining 11.33 Mm³ will be dumped in designated dumping sites covering an area of 67 ha (Indian side - 50 ha + Nepal side -17 ha) for Pancheswar Dam. Similarly, considering 25% of the muck and swelling factor as 1.4, 1.02 Mm³ of muck will be utilized for infrastructure and other components of the project and remaining 3.05 Mm³ will be dumped in designated dumping sites covering an area of 25 ha (Indian side - 20 ha + Nepal side - 5 ha) for Rupaligad Dam. The sites will be rejuvenated using integrated biological & biotechnological measures. An amount of Rs. 80 crores has been allocated for the purpose.
- ii. The compensatory afforestation programme will be taken up in 9,374.26 ha of degraded forestland which is double the forestland diverted for the project. Local plant species have been used for the programme. A grant of Rs. 1,12,500 lakhs has been allocated for the purpose. The following programmes under Biodiversity Conservation and Management Plan have been proposed:
 - e) Afforestation
 - f) Soil stabilization measures & improving water regime
 - g) Establishment of Botanical Gardens for conservation and propagation of RET species
 - h) Anti-poaching measures

An amount of Rs. 3801 lakh has been allocated for the Biodiversity Conservation Programme.

- iii. Greenbelt will be developed from the immediate vicinity of the reservoir rim on both the banks, around the periphery of various project appurtenances is proposed 36 ha of area earmarked for this purpose. A grant of Rs. 43.20 lakhs has been allocated for this purpose.
- iv. A total of 30 fish species have been recorded in Mahakali and Sarju rivers. Fishery development and management plan is proposed for the conservation of fish in river & reservoir, 10 km upstream of reservoir periphery of river Mahakali and its tributaries, 10 km downstream of Rupaligad dam has been proposed. A grant of Rs.19.50 crores has been allocated for this purpose.
- v. PAFs losing Homesteads & Land and Only Land are as follows:

Sl. No.	Project Name	PAFs losing Land & Homestead	PAFs losing Land only	Total
1.	Pancheshwar Dam Project	1,283	28,153	29,436
2.	Rupaligad Reregulating Dam project	25	1,562	1,587
Total PAFs		1,308	29,715	31,023

The R&R Plan for PAFs is as per the guidelines of the “The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013”.

Minimum E-flow will be released for sustenance of aquatic life. The E-flow to be released in various seasons is as follows:

Season	% of flow to be released	% of flow as E-flow releases	Inflow (cumec)	E-flow (cumec)
Monsoon	30	55.4	1,217.70	674.00
Lean	20	251.2	143.70	360.80
Non- monsoon /non-lean	25	106.6	376.50	392 .00

- vi. The status of other clearances, as informed by project proponent are as follows:
 - a. Forest Clearance: Application for Stage-I forest clearance has been submitted and a joint inspection along with District Administration and Forest Department officials has been completed in Champawat, Pithoragarh and Almora District.
 - b. Wildlife Clearance: The project is located around 80 km away from the Askot Musk Deer Wildlife Sanctuary; however, the distance from the tip of the submergence in Pithoragarh district is coming within 300 m from Askot Musk Deer Wildlife Sanctuary. **NOC from the Chief Wildlife Warden, Pithoragarh has been forwarded for further necessary action.**

The EMP has been prepared based on predicted impact, actual requirement and incorporating suggestions of local people, stakeholders with the details as provided in the table below:

Table: The cost estimated for implementation of EMP (Rs. In lakh)

Sl. No.	Environment Management Plan	Cost
1.	Compensatory Afforestation	11250.0
2	Biodiversity Conservation	3801.0

Sl. No.	Environment Management Plan	Cost
3.	Fisheries Management	1950.0
4.	Public health delivery system	2929.4
5.	Construction of labour camps including land cost	3120.0
6.	Sanitation facilities in labour camps	2060.00
7.	Solid Waste Management in labour camps	1370.0
8.	Fuel in labour camps	8208.48
9.	Muck management	8000.0
10.	Restoration of quarries	3000.0
11.	Landscaping of construction sites	290.0
12.	Environmental Management in Road construction	4472.0
13.	Greenbelt Development around reservoir	43.2
14.	Air pollution control	900.0
15.	Water pollution control	680.0
16.	Energy Conservation Measures	450.0
17.	Catchment Area Treatment	70000.0
18.	Disaster Management Plan	1230.0
19.	Resettlement and Rehabilitation Plan- Indian Portion	822602.10
20.	Livelihood Plan	22618.16
21.	Fund for Local Area Development Activities	49333.50
22.	Rehabilitation & Resettlement Plan – Nepal Portion	29418.87
22.	Monitoring and Evaluation Aspects	250.00
23.	Tourism Development	13250.0
24.	Relocation of temples	2000.0
25.	Environmental Monitoring during Construction Phase	736.74
26.	Micro-meteorological instruments	15.0
27.	Noise meter	1.5
28.	Environmental Audit	100.0
29.	Contingency (15%)	159611.99
Total		12,23,691.94

After detailed deliberations, and considering all the facts of the project as presented by the PP including the Public Representation, the EAC deferred the proposal for reconsideration in the next EAC meeting. In the meeting, it has been suggested for a site visit of the project and to submit a report after the site visit to the project. EAC suggested that the following EAC sub-committee may visit the project site:

1. Dr. Sharad Kumar Jain - Chairman
2. Shri Sharvan Kumar - Member & rep. of CEA
3. Shri N.N. Rai - Member & rep. of CWC
4. Dr. J.A. Johnson - Member & rep. of WII
5. Dr. Chetan Pandit - Member
6. Dr. Poonam Kumria - Member
7. Dr. S. Kerketta - Member Secy. & Director, MoEF & CC

The committee also mentioned the following:

1. Confirmation for the Installed Capacity along with the dam height is required from the Project proponent. The already cleared EIA report for the Nepal portion should be submitted in order to get holistic idea of the entire project.
2. Secondary data for the wildlife and fish species shall be referred and incorporated. Accordingly, minimum e-flow for survival of aquatic life be modified.
3. The Ascot Wildlife sanctuary is located near to project site. The PP is advised to obtain wildlife clearance from Standing Committee on NBWL as per the extant rules.
4. In the impact prediction, the EIA report is totally silent on other wildlife species such as Sambar, Hog deer and Small Clawed-Otter (use only small streams/river-occur in Sarju river). Therefore, secondary data to be collected from the local DFO and EIA/EMP report be revised accordingly.
5. A supplementary study to be carried out, as the location of Rupaligad Dam has been shifted 2.0 km downstream from the proposed location of the dam.
6. The Notification dated Oct. 2016 of MoWR, RD&GR prohibits any construction within the larger Ganga River Basin. A clarification on this point is to be obtained from the Director General, NMCG, MoWR, RD&GR before taking approval of the competent authority for issuance of EC.

Item No. 9.4 Sawra-Kuddu Hydro Electric Project (111 MW) in Himachal Pradesh by M/s Pabbar Valley Power Corporation Ltd - For extension of the validity of TOR

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

The proposed Sawra-Kuddu Hydro Electric Project (111 MW) in Himachal Pradesh is being developed by M/s Pabbar Valley Power Corporation Ltd. The PP submitted online application for extension of environmental clearance. The EC had been issued on 17.5.2007 for 5 years as per EIA Notification, 1994 & 2006 for commencement of construction work. PP applied for extension during April, 2017 counting his EC 10 period will be ending on 16th May, 2017. The EC validity for River Valley & HEP is for 10 years. As per EIA Notification, 2006 and a provision of 3 year extension is available.

The PP submitted the monitoring report and compliance status of the EC of the Regional Office, MoEF & CC, Dehradun. PP informed that the project is in advanced stage of completion and also submitted the following:

- i. Almost 98% civil works have been completed.
- ii. Total length of HRT is 11.145 km. Excavation of total length of tunnel has already been completed and the lining work of 4.383 km is remaining.
- iii. Surge shaft, pressure shaft, powerhouse complex, MAT, TRT and other tunnel works of around 99% have been completed.
- iv. 99% supply and 90% electro-mechanical equipment is completed.

Reasons for delay:

- i. Flood dated 19.8.2008 caused serious damages in the construction.
- ii. Adverse geological conditions in powerhouse and HRT - Heavy loose fall back in the main access tunnel (MAT) of the powerhouse & HRT collapsed in between Adit-1 & 2 due to encounter of poor geological strata.

- iii. Due to poor performance of contractor, the construction work was reassigned to M/s. HCC ltd.
- iv. Damage to the barrage structure due to flood in June, 2013.

The PP mentioned that barrage and electro-mechanical works are in final stages. The concrete and steel liner works are left in HRT require 2 years for completion. Due to some unforeseen circumstances and post construction scenario, extension of environmental clearance is required for 5 years.

After detailed deliberations, and considering all the facts of the project as presented by the PP based on the monitoring report on the status of compliance of EC conditions submitted by RO, MoEF & CC, Dehradun, the EAC recommended for grant of extension of validity of EC for 3 years as per the prevailing norms with the following conditions:

- i. HP State Forest department will provide utilization certificate for funds provided under CAT plan and Compensatory Afforestation Programme.
- ii. Component wise detailed funds allocated towards EMP with cost revised to current price level to be submitted.
- iii. Details on total muck generated from the project and total muck utilized and also total land area of muck dumping sites to be submitted.

Item No. 9.5 Kundah Pumped Storage HEP (500 MW) in Nilgiri District of Tamil Nadu by M/s Tamil Nadu Electricity Board, Government of Tamil Nadu - for extension of validity of EC.

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

The Kundah Pumped Storage HEP (4x125 MW) in Nilgiri District of Tamil Nadu is being developed by M/s Tamil Nadu Electricity Board, Government of Tamil Nadu. The Ministry on 8.5.2007 accorded the Environmental Clearance for this project for 5 years as per EIA Notification, 2006 for commencement of construction work.

The PP requested for 3 years extension mentioning that the EC validity for River Valley & HEP is for 10 years. As per amendment in EIA Notification dated 14.9.2016, a provision of extension of validity of EC for 3 more years is available/existing for River Valley & HEP. In the present case, PP has requested for validity of EC for 5 years. The project was considered by EAC in its meeting held on 2-3rd March, 2017. After detailed deliberations and considering all the facts of the project, the EAC observed though 3 years' provision for extension of EC for RV&HEP is available, the EAC initially recommended for 6 month extension of validity of EC in order to facilitate the PP to submit compliance and monitoring report from Regional Office, MoEF & CC, Shillong. Based on the report, the remaining extension of 2½ years could be granted. Accordingly, the Ministry granted 6 months extension of the validity of EC on 8.6.2017.

Based on the Ministry's letter dated 8.6.2017, the PP submitted the certified copy of the compliance report by RO, MoEF, Chennai (monitoring report dated 26-27th August, 2017) on EC conditions and application Form-1 for the project. The PP has now requested the Ministry for grant of extension of the validity of EC for the remaining 2 ½ years. PP informed the following:

- i. Main access tunnel (MAT) for a length of 1,000 m has been completed.

- ii. Formation of approach roads to HRT intake, Adit of HRT surge shaft, upper reservoir and dumping yard has been completed including strengthening of existing roads. Till date an amount of Rs. 128.57 crores has been spent on construction of project.
- iii. WAPCOS has prepared tender specifications for civil and mechanical works. Total value of Rs.600 crores is to be awarded by November, 2017.
- iv. Tender for EFC package-III & IV (E&M Works) for an amount of Rs. 756 crores has been made recently.

Reasons for delay:

- Major components such as Engineering, procurement and construction of (EPC) tender have been opened, evolution works are completed and final awarding is in progress. However, along the approach road, retaining wall construction works as well as wherever earth slip occurred are also in progress.

The EAC was informed that during May, 2017, the CWC requested for clarifications on water sharing on the project. The PP informed that a detailed reply was submitted to CWC. The committee asked that a copy of the reply be submitted to MoEF & CC for record and also mentioned that the RO, MoEF & CC, Chennai raised certain issues in their monitoring report for which, the PP has not submitted any clarification.

After detailed deliberations, and considering all the facts of the project as presented by the PP based on the monitoring report on the status of compliance of EC conditions submitted by RO, MoEF & CC, Chennai, the EAC deferred the grant of extension of validity of EC for remaining 2½ years and shall reconsider the case after submission of the following information/compliance to the Ministry:

1. Clarification regarding obtaining concurrence from the CEA be furnished.
2. The point-wise reply as raised by Regional Office, MoEF & CC, Chennai in their monitoring report be submitted.
3. Multidisciplinary Committee (MDC) be constituted and the details be furnished to the Ministry and Regional Office, Chennai.

The EAC mentioned that after getting the suitable reply from the PP, the case of extension of validity of environmental clearance for remaining 2½ years be again reconsidered in the EAC as per the prevailing norms.

Item No. 9.6 Gond Major Irrigation Project in Singrauli District of Madhya Pradesh by M/s Water Resources Department, Government of Madhya Pradesh - for fresh TOR

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

The Gond major Irrigation project envisages construction of 26 m high dam across Gopad river near village Jalpani in Singrauli District of Madhya Pradesh to store 100.35MCM of water to irrigate 28,000 ha of command area benefiting 147 villages. It is also envisaged to generate hydropower with an installed capacity of 4 MW. The gross storage is 100.35 MCM and the live storage is 96.485 MCM of water. The gross command area is 34,500 ha. The total submergence is about 1219.13 ha (of which forest land - 356.967 ha + private land - 267.34 ha + government land - 534.823 ha). The project ensures the use of micro-irrigation techniques by the users. About 9 villages are coming under submergence due to proposed scheme. The

Sanjay Tiger Reserve National Forest is situated nearby dam site. Total cost of the project is Rs. 1097.67crores.

After detailed deliberations and considering all the facts of the project as presented by the PP, the EAC recommended for grant of scoping/TOR clearance for the proposed project with the following observation/additional conditions along with the standard ToR:

- i. Three (3) season data should be collected for the entire project.
- ii. A detailed irrigation management plan should be worked out so that at least 10% of the CCA would be covered by micro irrigation scheme.
- iii. The issue of conjunctive irrigation may also be considered in the project right from the formulation stage.
- iv. 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 provision of Right to Fair Compensation and Transparency in Land acquisition, Rehabilitation and Resettlement Act, 2013.
- v. The project involves about 356.97 ha of forestland. Forest clearance should be obtained as per the prevailing norms of Forest (Conservation) Act, 1980.
- vi. The Sanjay Tiger Reserve National Forest is within the 10 km radius of the project site. If required, wildlife clearance from Standing Committee on NBWL is to be obtained.

Item No. 9.7 Modikunta Vagu Irrigation Project in Jayashankar Bhoopalpally District of Telangana by Irrigation & CAD Department, Govt. of Telangana - for reconsideration of ToR

The Project Proponent (PP) and the Consultant, M/s Health and safety Consultant, Bengaluru had made a presentation of the project and *inter-alia*, provided the following information.

The Modikunta Vagu Irrigation project envisages construction of 1,359 m earthen dam across Modikunta Vagu which is a tributary of Godavari River to store 2.142 TMC of water to irrigate 5,500 ha of command area along with supply of 0.12 TMC drinking water to 35 villages of Wazeedu Mandal in Jayashankar Bhupalapally District, Telangana. The length of the Main canal is 21.850 km. The total land required for the project is 574.96 ha, of which 75.96 ha is non-forestland and 499 ha is forestland. The project involves submergence of 472 ha of forestland at FRL 124 m. No village will be submerged under the scheme. Private land shall be acquired as per provision of Right to Fair Compensation and Transparency in Land acquisition, Rehabilitation and Resettlement Act, 2013. Total cost of the project is Rs. 491.25 crores which is proposed to be completed in 2 years.

The project was earlier considered by EAC in its meeting held during 24-25th August, 2017. The EAC observed that according to EIA Notification, 2006 and its subsequent amendments, the project is categorized as 'B'. The PP informed that General Condition is applicable as Eturnagaram Wildlife Sanctuary is falling within a distance of 4.9 km from the project site. However, during appraisal the PP clarified that the project site and the command area is at 4.9 km away from the Eco-sensitive Zone of Eturnagaram Wildlife Sanctuary.

The EAC decided that as the project is falling beyond the boundary of Eco Sensitive Zone area, the project doesn't qualify for General Condition. Therefore, the proposal should be appraised in SEIAA as Category "B" project. However, the Committee further advised that

the PP should clarify on the same and submit an NOC from the Wildlife Department of State Forest Department, Govt. of Telangana so that the proposal can be transferred to the State.

The PP informed that based on the directions of the EAC, the PP requested the PCCF, Govt. of Telangana for NOC. The case was put up to SEIAA, Telangana as Category "B" project and SEIAA informed that since the inter-state boundary is located within 10 km radius of project components (7.3 km proposed dam site & 3.4 km from the command area boundary, the proposal has to be treated as Category-A project. The EAC noted that all the project components are falling within the Telangana State but the project area is within 10 km radius of Inter-state.

After detailed deliberations and considering all the facts of the project as presented by the PP, the EAC recommended for grant of scoping/TOR clearance for the proposed project with the following observation/additional conditions along with the standard ToR:

- i) Three (3) season's data should be collected for the entire project.
- ii) A detailed irrigation management plan should be worked out so that at least 10% of the CCA would be covered by micro irrigation scheme.
- iii) The issue of conjunctive irrigation may also be considered in the project right from the formulation stage.
- iv) Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines.
- v) The project involves about 499 ha of forestland. Forest clearance should be obtained as per the prevailing norms of Forest (Clearance) Act, 1980.

Item No. 9.8 Additional Study for Cumulative Impact assessment & Carrying Capacity Study (CIA & CCS) of Subansiri River Basin in Arunachal Pradesh by M/s. IRGS - for reconsideration of presentation before EAC

The Consultant M/s IRG Limited, Gurgaon who conducted the additional study for Cumulative Impact assessment & Carrying Capacity Study (CIA & CCS) of Subansiri River Basin in Arunachal Pradesh gave a presentation and *inter alia*, provided the information on the river basin study as below:

There are three main tributaries joining Subhansiri River, Kurung river, Panyor River and Dikrong river. A total of 7 projects of installed capacity 99 MW are proposed in Kurung River. Similarly, 9 each in Panyor River of installed capacity 235.5 MW and Dikrong River of installed capacity 289 MW have been proposed. The details are given in Table Nos. 1 to 3.

Table-1: Details of Hydel Projects on Kurung River

Sl. No	Name of the HEP	Catchment Area (km ²)	IC (MW)	Altitude (m)	FRL (m)	TWL (m)	Present Status	Developer
1	Pein	320.69	8	473	--	--	DPR	M/s. Nido Energy Systems Pvt. Ltd
2	Siken	74.16	8	685	506.75	257	PFR	M/s. Geopong Enterprises
3	Palin	155.62	15	615	786.65	570	DPR	M/s. Built Infrastructure

4	Panyi	215	24	1087	915	--	PFR	M/s. Sowbhagya Energy Pvt. Ltd
5	Sichi	62	24	1060	750	--	PFR	M/s. SLS Power
6	Pei	20	5	401	--	655	PFR	M/s. Apik Construction Pvt.
7	Phurchi	40.6	5	1100	1123	948	PFR	M/s. DLBB Projects Pvt. Ltd

Table-2: Details of Hydel Projects on Panyor River

Sl. No	Name of the HEP	Catchment Area (km ²)	IC (MW)	Altitude (m)	FRL (m)	TWL (m)	Present Status	Developer
1	Adum Panyor	366.5	25	1052	1072	968	PFR	M/s. SALCON-BSS Joint Venture
2	Panyor Lepa Middle	494	21	936	948	851	S&I	M/s. JMD Power Solutions Pvt. Ltd
3	Pareng	119	14.5	1416	1421.3	1306	DPR	M/s. Virtual Pareng Hydro Pvt.
4	Pareng-II	226	24	1246	1251	1116.15	PFR	-Do-
5	Pareng-III	228	21	1108	1115	1001.1	PFR	-Do-
6	Pareng-IV	315	24	938	946	857.88	PFR	-Do-
7	Keyi	259.6	23	897	902.60	722.2	DFR	M/s. DD Hydro Power & Developers
8	Panyor	494	80	783	--	--	S & I	M/s. Raajratna Energy Holding Pvt.
9	Pith	67.22	13	1042	--	--	DPR	M/s. Built Infrastructure

Table 3: Details of Hydel Projects on Dikrong River

Sl. No	Name of the HEP	Catchment Area (km ²)	IC (MW)	Altitude (m)	FRL (m)	TWL (m)	Present Status	Developer
1	Pare	824	110	238	245.15	169.82	EC 13.9.2006	M/s. NEEPCO
2	Turu	560	60	601	612	419.1	DPR	M/s. Turu Hydro Energy Pvt. Ltd
3	Dardu	710	49	386	400	261	DPR	M/s. KVK-ECI Hydro Energy Pvt.
4	Par	420	52	809	848	630	No EC	- Do -
5	Papum-pam	460	21	242	160	117.6	DFR	M/s. Meena Entrade & Engg.
6	Senki	64.131	2	442	390	-	PFR	M/s. T. K. Engg.

								Consortium Pvt.
7	Papum	184.2	15	334	--	--	PFR	M/s. Sonam Hydro Power Pvt. Ltd
8	Doimukh	863.38	52	154	163.2	115.6	PFR	M/s. SJVN
9	Resing	87.647	6	1298	1350	--	PPR	M/s. Geopong Enterprises

As per TOR of the study, primary and secondary data have been collected on the following:

- **Meteorology** - IMD stations located in the Subansiri basin/ in the vicinity of Subansiri basin boundary
- **Water Resources** - Central Water Commission, IMD, Project Specific Reports, Project Implementing Agencies
- Water Quality
- Land-use/Land cover
- Terrestrial Flora & Fauna, Aquatic flora and fauna
- Assessment of Environmental flows & Assessment of Downstream impacts
- The Environmental flow has been estimate by HEC-RAS model and following flow scenarios suggested:
 - i. The flow scenario of 90% dependable year series of the each HEPs has been used and average discharge of leanest 4 months, monsoon 4 months and non-lean & non-monsoon 4 months have been computed. The flow parameters i.e. water depth, velocity of flow and top flow width has been assessed for 10%, 15%, 20%, 30%, 40%, 50% and 100% release of respective average of 3 season's flows of each HEP to estimate the E-flow release during the lean, mon-soon and non-lean/non-monsoon periods.
 - ii. The HEC-RAS model has been used for steady flow water surface profile computations of HEPs. The release computations and flow parameters are as follows:

Project (HEP)	Proposed Capacity (MW)	Lean Months (December - March)		Monsoon Months (June-September)		Non-monsoon/ Non-lean Months (Oct, Nov, April & May)	
		% release of average flow of 90% dependable Lean months	Discharge (m ³ /s)	% release of average flow of 90% dependable Lean months	Discharge (m ³ /s)	% release of average flow of 90% dependable Lean months	Discharge (m ³ /s)
Par	52	20%	1.89	25%	6.61	25%	3.04
Turu	60	20%	2.46	25%	8.59	25%	3.95
Dardu	49	20%	3.19	25%	11.17	25%	5.13
Panyor	80	20%	6.79	25%	24.81	20%	12.82
Doimukh	52	20%	12.40	25%	40.71	25%	22.13
Pareng-II	24	20%	1.58	20%	8.66	20%	4.12
Pareng-III	21	20%	1.60	20%	8.73	20%	4.16
Pareng-IV	24	20%	2.21	20%	12.07	20%	5.74
Palin	15	20%	1.00	20%	1.58	20%	1.17
Pith	13	20%	0.48	25%	1.17	25%	0.77
Papum	15	20%	0.76	20%	5.27	20%	2.05
Adun Panyor	25	20%	1.95	20%	5.70	20%	3.68
Keyi	23	20%	1.20	20%	3.52	20%	2.27

Phurchi	5	20%	0.31	20%	1.37	20%	0.85
Siken	8	20%	0.31	20%	1.37	20%	0.85
Panyor Middle	21	20%	1.84	20%	8.38	20%	4.22

- i. For the other projects viz. Pein, Panyi, Sichi, Pei, Senki, Pareng, Resing whose capacity is less than <25 MW, the E-flow adopted as 20% average lean months flow, 20% average monsoon flow and 20% of average of non-monsoon/non-lean months flow of 90 dependable year.
- ii. For Papumpare project with proposed capacity of 80 MW, the E-flow adopted as 20% average lean months flow, 25% average monsoon flow and 25% of average of non-monsoon/non-lean months flow of 90 dependable year.

Assessment of Downstream impacts

Downstream impacts are dependent on the water availability and position of HEP in the basin. In a cascade scenario, flow series e.g. from 0-18 hours, 18-22 hours and 22-24 hours have been determined and cumulative discharge at downstream have been computed. The same have been arrived by hydrodynamic routing. The downstream impacts have been assessed based on peaking flow series under similar scenarios. The impact study due to peaking release from the projects on Panyor and Dikrong rivers, only release from the lower most project i.e. Doimukh project will matter. Accordingly, the impact study discharge scenario has been adopted to estimate the fluctuation in water level and discharge in the Dikrong river reach downstream of Doimukh HEP and these are presented below:

Time period (hrs)	Release after power generation	Environmental flow release (cumec)	Total release (cumec)
0-18 hrs	52.78	12.4	65.18
18-22 hrs	172.04	12.4	184.44
22-24 hrs	52.78	12.44	65.18

The peaking will have minor impact in the river reach of Dikrong river downstream of Doimukh project during non-monsoon period. The non-monsoon peaking release from the projects on Panyor river and Dikrong will cause normal fluctuations in discharge and water level in Dikrong river up-to the confluence with Subansiri river/Brahmaputra river. In this reach of river the daily fluctuations in water level is about 20 cm to 40 cm. No change of fluctuations in Brahmaputra water level will occur due to peaking releases from projects in Panyor and Dikrong rivers as these peaking releases are of very small quantity in comparison to normal lean period discharge of Brahmaputra.

After detailed deliberations and considering all the facts of the project as presented by the Consultant, the EAC observed the following:

- a) The hydrological covered all the aspects and 25 HEPs in the 3 tributaries. However, the e-flows for all 3 seasons for 16 HEPs are only presented in the Table and remaining are in descriptive in nature. Hence for all 25 HEPs e-flow series have to be presented in the report.
- b) The floral data especially with respect to RET & indigenous species are not represented properly. These have to be presented properly in regard to data collected primarily and secondary sources could also be taken into account and should have be incorporated in the report.

- c) The data on fisheries is also not represented properly. These have to be presented properly in regard to data collected primarily and secondary sources could also be taken into account and should have be incorporated in the report.

The EAC mentioned after incorporating all relevant data, the has been consultant has been advised to submit the report to the Ministry and the Ministry will forward the report to Dr. A. K. Sahoo, Rep. Director CIFRI and Dr. A. Johnson, Rep. Director WII for reconciliation of data. Thereafter, the final report will be reconsidered by EAC during its next meeting. Accordingly, finalization of the additional River Basin Study has been deferred.

Item No. 9.8 Standardization of environmental clearance (EC) conditions of River Valley Projects – Presentation before EAC

As per the decision take in the Ministry, the standardization of specific EC condition for River Valley Projects has been presented before the EAC in its meeting held on 22.9.2017. After detailed deliberations and considering the presentation made by the EAC Secretariat, the committee mentioned that the same may be circulated to all the members to obtain their comments. The comments have been received from the EAC members and modified standardization of environmental clearance (EC) conditions of River Valley Projects and attached as **Annexure A1**. The EAC mentioned that these might be again circulated to the Regional Offices of the Ministry, who are doing regular monitoring of the projects. After obtaining the comments, the standardization of specific EC condition for River Valley Projects may be finalized.

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

Annexure A1

Standardization of EC conditions for River Valley Projects

1. A scientific study for deciding the minimum flow to be released during the lean season should be undertaken. Till the study is completed 15% of the average flow of 120 consecutive leanest days should be maintained for environmental flow. After the study is completed, e-flows should be allocated as per the results of such study. Three-season study on present bio-diversity based on field observation should be carried out. In addition, supportive documents need to be provided.
2. Water depth sensors shall be installed at control structures in the river to monitor the EF, and hourly data shall be collected, and converted to discharge. The Raw data and computed discharge in form of Excel files in the prescribed format shall be emailed to concerned Regional Office of MoEF & CC and to concerned CWC office, on a fortnightly basis. Any deviation on the lower side shall be highlighted.
3. Muck disposal shall be carried out only in the approved and earmarked sites. Muck shall be allowed to consolidate in the approved and earmarked sites. The dump sites shall be away as stipulated from the high flood level. Every effort shall be made to reuse the generated muck for construction and other filling purposes and balance be disposed of at the designated disposal areas. Once the muck disposal sites are inactive, proper treatment like engineering and biological measures be taken up so that sites are properly stabilized.
4. Catchment Area Treatment Plan as has been planned in the EIA/EMP report, shall be implemented in synchronization with the construction of the project.
5. Preventive measures, viz. fuming and spraying of mosquito control shall be done in and around the labour colonies, affected villages, stagnation areas, etc. Strict provisions be followed to prevent creation of any stagnation areas which are the breeding grounds of the vector borne diseases.
6. The clearance from Standing Committee of NBWL under the Wildlife (Protection) Act, 1972 should be obtained, as applicable.
7. Wildlife Conservation plan be prepared for the area located within the project and implemented by the project proponent in consultation with the State Forest Department. Wildlife Conservation plan also to be prepared for the impacted area due to construction of the project falling outside the project area and implemented by the local state Forest Department.

8. All the equipment likely to generate high noise shall be appropriately enclosed or inbuilt noise control facility be provided to meet the ambient noise standards as notified under the Environment (Protection) Act, 1986.
9. Necessary control measures such as water sprinkling arrangements, etc. be taken up to arrest fugitive dust at all the construction sites.
10. Fish ladder / pass at appropriate places in the dam as proposed in the EIA/EMP report should be provided for migration of fishes. Field study be conducted in regular interval to ensure proper functioning of the fish ladder / pass and such data be reported in the six monthly report. Prior to design of fish pass detailed studies on the migrant species availability, period of migration, routs of migration and reproductive seasonal cycle needs to be carried out. Based on the above result fish pass may be designed for effective migration.
11. Emergency preparedness plan be provided for any eventuality of the dam and shall be followed as per the dam break analysis of the EIA/EMP report.
12. NOC from National Commission of Seismic Design Parameters (NCSDP) of CWC should be obtained. The structural design of the project components should be approved / recommended by NCSDP.
13. Conjunctive use of surface water and ground water has to be planned in the project to check water logging as well as to increase productivity. The field drains shall be connected with natural drainage
14. Water User Association/ Co-operative and involvement of the whole community for disciplined use of available waters should be formed.
15. Remodelling of existing natural drains (link drains) and connecting them with irrigated land through constructed field drains, collector drains, etc. are to be ensured on priority basis.
16. Mixed irrigation should be practised and necessary training be given to the farmers in the use of such systems. Crop should be carefully selected to make irrigation more effective.
17. Compensatory afforestation programme should be implemented in toto.
18. To enhance the environment of project site, greenbelt shall be developed as proposed in the EIA/EMP Report. The greenbelt along the periphery of reservoir shall be developed in multi-layers with local identified tree species.
19. On Farm Development (OFD) works like landscaping, land levelling, drainage facilities, field irrigation channels and farm roads, etc. should be taken up in phased manner prior to the start of irrigation from canal system in the entire command area. The Command Area Development Plan should be strictly implemented as planned in the EIA/EMP report.




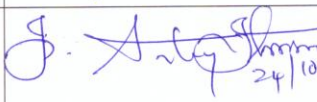

20. In-situ fish management plan in the streams, tributaries of river and the main river itself should be strictly adhered as envisaged in EIA/EMP report. The total budget proposed for fish management plan and community & social development plan including community welfare schemes in the budgetary provisions shall be strictly adhered to.
21. A Multi-Disciplinary Committee (MDC) shall be constituted to monitor environmental safeguards during the construction. The monitoring report of this Committee from time to time shall be uploaded in the website of the Proponent.
22. Land acquired for the project shall be suitably compensated in accordance with the law of the land.
23. Before impounding of the water, Cofferdams both upstream and downstream are to be decommissioned for which a comprehensive plan is to be prepared so that once the project is commissioned, cofferdam should not create any adverse impact on water environment including the rock mass and muck used to create the Cofferdam.
24. As there would be fluctuation in water level of the reservoir, study on the impact on aquatic life be carried out and appropriate mitigation steps be taken-up before filling of reservoir.
25. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead EIA/EMP reports should describe the proposal for all solid waste management, and particularly the non-biodegradable waste.
26. Regular Monitoring of the Environmental Aspects – Water quality, Ambient Air Quality and Noise levels at designated sites should be undertaken and a detailed database of the same shall be prepared. This shall be used as a baseline for post construction EIA / Monitoring purposes.
27. Proper evaluation of the project be taken up for preparation of Post Construction EIA and SIA report by the third party and report submitted to the Ministry.
28. Resettlement & Rehabilitation Plan approved by the competent authority should be implemented in collaboration with the State Govt.
29. All provisions in the EMP Plan, which form the basis of EC shall be implemented.
30. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their appropriate engagements in the Project.
31. Cement concrete/tar topped two-lane (at least) road connecting the project site with nearest highway shall be constructed within six month of start of start of construction. This will result in large saving in wear & tear of transport vehicles and reduced dust nuisance.


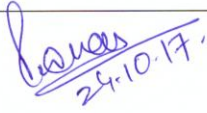

32. Adequate number of toilets (for females & males) will be provided at all places where labour would be working. These would be provided with enough water and the waste would be regularly disposed properly.
33. Good quality drinking water will be provided free at construction site.

LIST OF MEMBERS

9th MEETING OF RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) FOR RIVER VALLEY & HYDROELECTRIC PROJECTS

DATE : 24th October 2017
TIME : 10:30 AM to 5:30 PM
VENUE : TEESTA HALL, INDIRA PARYAVARAN BHAWAN,
NEW DELHI

Sl.No.	Name of Member	Signature
1.	Prof. Sharad Kumar Jain, Chairman	
2.	Shri. T. P. Singh Member	Absent
3.	Shri. Sharvan Kumar, Member,	
4.	Shri N. N. Rai, Member	
5.	Dr. J.A.Johnson, Member	 24/10/2017
6.	Dr. B. K. Das/ Dr. AK Sahoo Member	 24/10/17
7.	Dr. Vijay Kumar, Member	Absent

8.	Prof. Govind Chakrapani, Member	Absent.
9.	Dr. Chetan Pandit, Member	Absent
10.	Dr. Dinkar Madhavrao More, Member	Absent
11.	Dr. R. Vasudeva, Member	Absent
12.	Prof. S.R. Yadav, Member	Absent
13.	Dr. Jai Prakash Shukla, Member	 24/10/17
14.	Dr. Poonam Kumria Member	 24.10.17.
15.	Dr. Kerketta, Member Secretary Director (IA-1)	 24.10.2017

Subject: Re: Draft minutes of 9th EAC for River Valley Projects held on
24.10.2017
To:
Date: 11/08/17 02:52 PM
From:
Reply-To:
Final_minutes _of 9th EAC meeting.pdf (502kB) Final_minutes _of 9th EAC meeting.docx (95kB)
Dr S Kerketta <s.kerketta66@gov.in>
Sharad Jain <s_k_jain@yahoo.com>
Sharad Jain s_k_jain@yahoo.com

Dear Dr Kerketta,

I am sending the approved minutes of the 9th meeting of EAC (RVH) - DOC and PDF versions. It is assumed that the data mentioned in the minutes have been carefully checked at the secretariat and are correct.

Regards,
Sharad Jain
Chairman